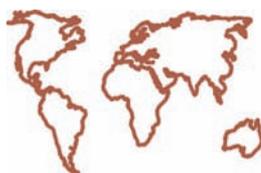


B. N. Kuzyk, Yu. V. Yakovets

CIVILIZATIONS:

Theory, History, Dialogue and the Future

In two volumes



Volume I Theory and History of Civilizations

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B.N. Kuzyk – Professor, Corresponding Member of the Russian Academy of Sciences, Director of the Institute for Economic Strategies

Yu.V. Yakovets – Professor, Academician of the Russian Academy of Natural Sciences, President of the Pitirim Sorokin–Nikolai Kondratieff International Institute

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Volume I

Theory and History of Civilizations

Part I
Theory of Civilizations

Part II
Transformations of the Civilizational Structure

Part III
History of Civilizations

CONTENTS

Volume I

THEORY AND HISTORY OF CIVILIZATIONS

FOREWORD

A Step Forward in Social Sciences A.D. Nekipelov	12
---	----

INTRODUCTION

New Century — New Vision of the Past and the Future	14
--	----

PART I. THEORY OF CIVILIZATIONS

CHAPTER 1

Emergence and Development of the Theory of Civilizations	22
1.1. Civilizations: from the Multi-Dimensional Reality to Scientific Categories	24
1.2. Formation of the Theory of Civilizations	27
1.3. Theories of Civilizations of the 20 th Century	46
1.4. Contemporary Russian Civilizational Schools	64
1.5. Essentials of the Theory of Civilizations	85
1.5.1. Concept and Types of Civilizations	86
1.5.2. Structure of Civilizations	88
1.5.3. Evolution of Civilizations in Time	90
1.5.4. Diffusion of Civilizations in Space	92

1.5.5. Civilizational Approach to History and Future
of Humanity 96

1.5.6. Place of the Theory of Civilizations in the System
of Sciences 98

CHAPTER 2

Civilizational Cycles and Crises 100

2.1. Regularities in Cyclical Dynamics of Social Systems 102

2.2. Cycles and Crises in Dynamics of Local Civilizations 108

2.3. Cyclicity in Dynamics of World Civilizations 114

2.4. Historical Super Cycles in the Development
of the Global Civilization 117

CHAPTER 3

Civilizational Sociogenetics 120

3.1. Sociogenetics as the Cognition Top of Regularities
in the Dynamics of Society 122

3.2. Heredity: Social Genotype of Civilizations 126

3.3. Variability: Transformation of the Civilization Genotype

3.4. Selection: Mechanism of Development
and Change of Civilizations 146

CHAPTER 4

**Dialogue among Civilizations: Theory, Spheres
and Institutions** 152

4.1. Content of the Dialogue among Civilizations and Its Place
in the System of Their Interaction 154

4.2. Spheres of Dialogue and Interaction among
Local Civilizations 161

4.3. Institutions for the Dialogue among Civilizations 177

**PART II. TRANSFORMATIONS
OF THE CIVILIZATIONAL STRUCTURE**

CHAPTER 5

**Natural-Ecological Cycles and Crises
in the Evolution of Civilizations** 188

5.1. Natural Factor in Emergence and Evolution of Civilizations .. 190

5.2. Spiral of Ecological Cycles and Crises 198

5.3. Ecological Future of Civilizations	211
5.4. Ecological Future of Russia	225
5.5. On the Path to the Noospheric Civilization	231

CHAPTER 6

Demographic Basis for Transformation

of Civilizations	238
6.1. Classification of Demographic Cycles	240
6.2. Historical Trends in Cyclical Dynamics of Population Numbers	248
6.3. Demographic Challenges of the 21 st Century	253
6.4. Demographic Threats to Russia	266

CHAPTER 7

Innovative-Technological Cycles and Crises: a Civilizational Aspect | | | |--|-----| | 7.1. Technologies in the Structure and Dynamics
of Civilizations | 278 | | 7.2. Stages of Technological Evolution of Civilizations | 280 | | 7.3. Innovative Waves of the 20 th Century | 303 | | 7.4. Innovative Breakthrough to Technological Future
of Civilizations | 311 | **CHAPTER 8** **Cyclicity of Economic Dynamics** | | | |---|-----| | of Civilizations | 322 | | 8.1. The Gamut of Economic Cycles and Crises | 324 | | 8.2. Economic Cycles and Crises in the Dynamics
of Civilizations | 326 | | 8.3. Structural Dynamics of Economy of Civilizations | 337 | | 8.4. Cycles and Crises in the Economy of Civilizations
of the 21 st Century | 342 | | 8.5. Reproduction and Innovative Renovation
Mechanisms of Resources | 352 | **CHAPTER 9** **Cyclical Dynamics of the Socio-Political System, Revolutions and Warfare** | | | |---|-----| | 9.1. Civilizational Dynamics of Social Stratification
and Mobility | 362 | |---|-----| **6**

9.2. State-Legal Cycles, Crises and Transformations	373
9.3. Revolutions in the Civilizational Dynamics	383
9.4. Warfare in the Structure and Dynamics of Civilizations . . .	398

CHAPTER 10

Cyclical Dynamics of the Spiritual Sphere

of Civilizations	418
10.1. Key Role of the Spiritual Sphere in the Structure and Dynamics of Civilizations	420
10.2. Scientific Revolutions and Crises	426
10.3. Cyclicity in the Dynamics of Culture	439
10.4. Educational Cycles and Revolutions in Education	450
10.5. Dynamics of the System of Civilizational Values	459

PART III. HISTORY OF CIVILIZATIONS

CHAPTER 11

Civilizations of the Antiquity

11.1. Preconditions and Factors for the Emergence of Civilizations	474
11.1.1. Prehistory of Civilizations	476
11.1.2. The Neolithic Civilizations	478
11.1.3. Early Class Civilization (the Bronze Age)	481
11.1.4. The Ancient World Civilization (the Iron Age)	488
11.2. Dynamics of the Structure of the World Civilizations of Antiquity	496
11.2.1. Man, Family, Population of Early Societies	497
11.2.2. Technology and Ecology in the Antiquity	502
11.2.3. Economy of Early Civilizations	507
11.2.4. Formation of the Social and Political Structure of Society	511
11.2.5. Spiritual Life of Early Societies	515
11.3. Local Civilizations in the Ancient World	522
11.3.1. Emergence and First Generations of Local Civilizations	522
11.3.2. Civilizations of the Mediterranean	531
11.3.3. Early Civilizations of the East	540

11.3.4. Early Civilizations on the Territory of Western and Eastern Europe	549
11.3.5. Civilizations of the Pre-Columbian America	522
11.4. Dialogue and Interaction among Civilizations of the First Two Generations	562

CHAPTER 12

Civilizations of the Second Historic

Super Cycle 566

12.1. World Civilizations of the Second Historic Super Cycle	568
12.1.1. Medieval Civilization	568
12.1.2. Early Industrial Civilization	580
12.1.3. Industrial Civilization	584
12.2. Dynamics of the Structure of Civilizations of the Second Super Cycle	590
12.2.1. Growth of Population Numbers, Demands and Abilities of Man	590
12.2.2. Technological Overturns	595
12.2.3. Economic Transformations	603
12.2.4. Evolution of the Socio-Political System	610
12.2.5. Dynamics of the Spiritual Sphere	619
12.3. Evolution and Interaction among Civilizations of the Third and the Fourth Generations	627
12.3.1. Dynamics of Civilizations of the East	627
12.3.2. Dominance of the Western Civilization	641
12.3.3. Dialogue and Interaction among Civilizations of the Third and the Fourth Generations	651

CHAPTER 13

Civilizational Dynamics on the North

of Eurasia 656

13.1. Rhythms of Civilizational Dynamics in the Region	658
13.1.1. Neolith	658
13.1.2. Bronze Age	661
13.1.3. Iron Age	662
13.1.4. Eastern Slavic Civilization	666
13.1.5. Vladimir-Suzdal Russia and the Muscovy Czarodom (Russian Civilization)	672

13.1.6. Formation of the Northern Eurasian Civilization ..	676
13.1.7. The Fate of the Eurasian Civilization in the 21 st Century	681
13.2. North Regions of the Black Sea as Space of Interaction among Local Civilizations	690
13.2.1. Spaces of Interaction among Civilizations	690
13.2.2. Waves of Interaction among Civilizations The First Wave of Interaction (7 th – 4 th c. B.C.)	692
13.2.3. The Second Wave of Interaction (3 rd c. B.C. – 4 th c. A.D.)	697
13.2.4. The Third Wave of Interaction (6 th – 9 th c.)	700
13.2.5. The Fourth Wave of Interaction (10 th – 14 th c.) ..	704
13.2.6. The Fifth Wave of Interaction (15 th – 18 th c.)	707
13.2.7. The Sixth Wave of Interaction (19 th – 20 th c.)	708
13.2.8. The Beginning of the Seventh Wave of Interactions (21 st c.)	711
13.3. Dynamics of the Eurasian Civilization in the Industrial Period	717
Bibliography	734
Name Index	746

Foreword

**A STEP FORWARD
IN SOCIAL
SCIENCES**

At the threshold of centuries and millennia the problem of civilizations – their essence and stages of their historical path, their future and interaction – has come to the foreground both in socio-political life of the planet and social sciences. It is not by chance. Contemporary humanity being understood as a global civilization sees one of the most complicated, contradictory historical period rich in unexpected turns and tragedies. The fundamentals of the industrial civilization that has prevailed during the last centuries are shattering; a new civilization whether technogenic or humanistically-noospheric is being laid down. A decaying sensual socio-cultural order is also being replaced by fundamentally different order – integral or ideational. The fifth generation of local civilizations is underway. Its fate is not clear yet: whether it will take the path of a self-destructive clash whose grains are ripening in terrorism or the path of dialogue and partnership in the settlement of global challenges of the 21st century.

The answers to these questions of vital significance for all humanity should be provided by science, first of all a new branch of social science – science about civilizations (civiliography) that is completing its establishment. In the formation of this science the cornerstones have been laid by leading scientists from all over the world. We note with satisfaction that among such scientists of international recognition as Francois Guizot, Henry Buckle, Oswald Spengler, Arnold Toynbee, Fernand Braudel. There are such names of the Russian researchers as A. Metlinsky (the reader may find this book on the theory of civilizations published in 1838 in the supplement to this edition), N.Ya. Danilevsky, Pitirim Sorokin, E.B. Chernyak (his book «Civiliography. Science about Civilizations» appeared in 1996), and finally the authors of this work whose books dedicated to this problem have already been published in Russia and the USA.

What are the specifics of this voluminous treatise «Civilizations: Theory, History, Dialogue and the Future» submitted to the readers' approval?

First, this is a **fundamental treatise**. Logic and structure of a new branch of knowledge that was born at the interface of many social sciences (philosophy and history, sociology and economy, demography and ecology, political science and culturology, ethics and religious study) is for the first time ever represented here in full. The research into the theory of civilizations, cyclical-genetic regularities of their dynamics and interaction is combined with solid vision of its tremendous historical path, which has already been lasting for more than 10 thousand years, change of historical super cycles, world civilizations, generations of local civilizations, and also combined with large views on future, scenario-based approach to the forecast of dynamics of civilizations in space of the 21st century. The book addresses the structure of the civilizational genotype in all its aspects – demographic and ecological, technological and economic, geopolitical and all components making spiritual life. A theoretical, historical and statistical analysis is supported by pioneer cliometric measurements of dynamics of civilizations using relatively new tools as strategic and geocivilizational matrices, situation analysis and forecast. This proves once again that civiliography is not a private, but a summary synthetic branch of knowledge crowning the pyramid of social sciences.

Second, this is a **treatise innovative by its nature**. The originators have put forward a number of new theoretical postulates: on three-dimensionality of civilizations (global, world and local); cyclical-genetic regularities of their development, structure of the civilizational genotype; a humanistically-noospheric nature of the post-industrial world civilization; a concurrent formation of the fifth, more differentiated generation of local civilizations; a determinative nature of evolution of the system of civilizational values; tendency towards the formation of the World Confederation of states and civilizations and many other ideas.

Third, this is indeed an **encyclopedic work** – by its breadth of coverage of scientific and historical materials, presentation of the views of scientists from various countries on the problem under study, by number of research and generalization methods. There is no doubt that it will be actively used by scientists of various specialties and professors, post-graduates and students, political and public figures, promoting a transmission of the rich heritage of the Russian and world public thought that has been accumulated for centuries to next generations.

Fourth, let's also mention such feature of the work offered for the readers as it is in itself the **invitation to dialogue and partnership**

among civilizations – and not only for scientists and cultural workers, but also for statesmen, politicians, public figures and churchmen. The book is penetrated with the idea of dialogue and interaction among civilizations at all stages of their historical road; it advances an optimistic view on the future of civilizations and indicates specific milestones on this road. Its concurrent publication in Russian and English, placement on the Internet also contributes to dialogue, and it means that it will be available for thousands of people in many countries of the world and will promote a fuller understanding of not only the past and the future of humanity, but better mutual understanding between nations and civilizations.

Admittedly, it would be naive to regard this work as the last word in a new branch of knowledge. Quite the contrary, it incites speculation, discussions and search for new ideas. But its incontestable advantage is that it is a noticeable landmark on the path to cognition of the most complicated and most significant field of social relations.

A.D. Nekipelov

Academician,

Vice-President of the Russian Academy of Sciences

Introduction

**NEW CENTURY –
NEW VISION
OF THE PAST
AND THE FUTURE**

Long-awaited 21st century started as a crucial epoch, when habitual foundations are being destroyed, chaos and uncertainty prevail, abrupt and unpredictable changes, altering the face of the world, happen. All this intensifies interest of the people towards understanding the past and foreseeing the future. They direct keen eyes at distant history trying to find answers to tormenting questions: did we have similar crises and disasters in the past, what was their outcome and how states and citizens behaved in such situations? Whether the present turning point is a result of accidental circumstances, or it is a consequence of committed mistakes, or it was objectively called for and conditioned by the laws of socio-economic development? What will be the fate of the present and future generations, of individual country, civilization and of whole humankind in coming decades and centuries?

At the time of changes the scientific circles and society pay acute attention to problems of civilizations, cycles and crises, civilizational disasters, their place in historical dynamics. These problems are not new: they emerged simultaneously with abstract science. Already in the works by Plato and Aristotle we find ideas on cyclic rotation in dynamics of nature and society. Destruction of Atlantis, described by Plato, is nothing more than a Civilizational disaster, plenty of which had happened in ancient times. Better known and proved facts of similar disaster include Crete civilization which perished in 2nd millennium B.C. and annihilation of Pre-Columbian civilizations of America in 16th century.

One can observe outbreak of interest towards theory and history of civilizations, cycles and crises in development of society in the 20th century as well, when the tendency of decline of industrial world civilization became evident. We can name only some of outstanding scientists, who had laid foundations of civilizations theory: **Nikolai Kondratieff** and **Pitirim Sorokin**, **Fernand Braudel** and **Joseph Schumpeter**, **Oswald Spengler** and **Arnold Toynbee**, **Vladimir Vernadsky** and **Nikita Moissejev**.

The world transforms – and system of scientific views changes radically. Nowadays, in the last quarter of 20th century and the beginning of 21st century, when transition from industrial to post-industrial civilization takes place and basis of integral socio-cultural system is founded, the problem of civilizations, cycles and crises is in the centre of attention of both foreign and Russian scientists again. Modern school of Russian cyclism has revived, civilization school became apparent with a number of monographs and forecasts, conferences and discussions. The authors of the present study also joined this movement. In particular, we have published such books as «At the Source of New Civilization» [247], «History of Civilizations» [232], «Cycles. Crises. Forecasts» [249], «Russian Cyclism: New Vision of the Past and the Future» [245], «The Past and the Future of Civilizations» [276], «Globalization and Interaction of Civilizations» [239], «Epochal Innovations of 21st Century» [250], «Russia – 2050: Strategy of Innovational Break Through» [103], «Rhythms of Russian History» [100], «Russia in Space and Time» [101], «Russia and the World in the 21st Century» [99].

This book, suggested for readers' attention, is not just a systematization and generalization of authors' thoughts on the past and the future of world, local and global civilizations, cycles and crises and their development. The authors put forward before themselves a more substantial task: to make a contribution to theory of civilizations, to consider their past and future from the point of regularities of cyclic-genetic dynamics of the society, corroborating the summaries and perspective scenarios by estimates and measurements on the basis of multidimensional reproduction-cycling macromodel, geocivilizational model, strategic and geocivilizational matrix, to present our vision of life cycle and stages of post-industrial society development under conditions of globalization and transition to integral socio-cultural system. Attentive reader will find in the book a number of new ideas and propositions:

➡ original interpretation of civilization substance and genotype; of conception of global, world and local civilizations and their interaction in the rhythm of cyclic dynamics of the society; of peculiarities of civilizational approach, and of place of the civilization theory in the system of sciences;

➡ estimation of stages of formation and development of the civilizations theory; contribution of Western, Eastern and Russian scientific schools into the theory; exposition of foundations of contemporary civilization theory — as the authors see it;

➡ multidimensional approach to structure and interaction of cycles and crises in the civilizational dynamics, which penetrate in and transform all the elements of society — demographic and natural-ecological factors, technology and economy, state-political system and spiritual sphere, system of civilizational values;

➡ estimation of rhythmicity of appropriate change of world civilizations and generations of local civilizations during last five millennia, in long-term perspective for the 21st century and for more distant time; propositions on humanistic-noospheric substance of post-industrial civilization and adequate globalization model, on formation of new (third) historical supercycle, formation of the fifth generation of local civilization and place of Russia in the process;

➡ quantitative measurements of cyclic global dynamics processes, world and local civilizations in retrospective and scenario for the future, carried out with the help of multidimensional geocivilizational model; geocivilizational strategic matrix, situation analysis and forecast on the basis of statistical and predicted data, as well as on the basis of expert estimate;

➔ the idea, suggested in a report at 2nd World Congress of Global Civilization (New-York, Nov. 2005), regarding transformation of UN into World Confederation of States and Civilizations in remote perspective.

The scope of study results turned out so extensive, that we decided to divide book in two volumes. The first volume covers the problems of theory and history of civilizations and transformation tendencies of their genotype components. In the second volume readers will get to know authors' views on the future of civilizations and the experience of their dynamics cliometric measurements. As supplements to this work the reader will find basic UN and UNESCO documents on dialogue among civilizations and preservation of cultural diversity, ideas of Herbert Wells on establishment of World Confederation of States, and also the first book on theory of civilizations, which was published long ago, in 1839.

If we take the general intention of the authors, it includes development of Civilizational theory and experimental check-up on historical and forecast material of the cyclic-genetic approach to dynamics of civilization in the past and for the future. This approach represents the most important component of post-industrial paradigm of social science, which is being formulated now and in perspective will become a theoretical foundation for strategic decisions.

The authors were also guided by the results of the July 2005 scientific-civilizational expedition of the Institute for Economic Strategies and the Pitirim Sorokin – Nikolai Kondratieff International Institute to the Northern Trans-Black Sea region, which was a space of interaction for many civilizations, as well as by the results of similar expeditions of 1995–2005 to China, India, Iran, Brazil, Japan, Greece and other countries. Beside that, of great help were personal impressions from visits to practically all civilizations of the world, familiarity with museums and cultural-historical monuments, numerous talks and discussions.

To what extent we managed to implement this intention will be shown by time and by outcome of those great changes, which are typical now for all continents, countries and civilizations. By publishing this book on Russian and then in English, by placing its main propositions in Internet, the authors hope to be heard and to get responses, which will help us to come closer to the truth. This hope has solid grounds since importance of problems of civilizations'

mutual understanding, dialogue and partnership grows from year to year. This is indicated by suggestions on alliance of civilizations put forward by Spain and Turkey and supported by the UN Secretary-General.

Discussion on problems of education at G-8 Summit in S.Petersburg shows necessity of inclusion of dialogue-among-civilizations problems into the education programs of the rising generation, and the materials of this book will promote the idea.

The authors express their sincere gratitude to everybody who took part in preparation of some chapters of the study – to Professors A.I. Ageev, V.I. Gulyaev, L.V. Leskov, O.I. Malikova, Ya.G. Shemyakin, Dr. B.V. Kuroyedov, Dr. B.A. Myasoyedov, and also to Mrs. Evelina Shats (Italy) for help in the artistic design of the book, and to Mrs. O.P. Bardova, Mrs. I.O. Baranchuk, Mrs. O.G. Bespalova, Mrs. Yu. V. Dorovskaya, Mr. A.V. Grishin, Mr. G.G. Pirogov, Mrs. L.P. Rocheva, Mrs. T.V. Shvetsova, Mrs. I.V. Vasilyeva, Mrs. M.A. Yanushkevich for preparation of manuscript for publication.

B.N.Kuzyk,

Corresponding member of the Russian Academy of Sciences,
Director of the Institute for Economic Strategies

Yu.V.Yakovets,

Academician of the Russian Academy of Natural Sciences,
President of the Pitirim Sorokin – Nikolai Kondratieff
International Institute

PART I

THEORY OF CIVILIZATIONS

- 1. Emergence
and Development
of the Theory of Civilizations**
- 2. Civilizational Cycles
and Crises**
- 3. Civilizational Sociogenetics**
- 4. Dialogue among Civilizations**

The main subject-matter of this monograph is civilizations. But this is not a mere research into an intricate and contradictory history how they emerged, their stages of development relations and outlooks. The authors have endeavored to solve a fundamental task – to uncover deep-seated regularities of statics, cyclical dynamics, genetics and interaction between civilizations in all their aspects and forms of manifestation – global, world and local. It is logical to begin our long, unbeaten track from inquiring into the development of the theory of civilizations, specifics of how general sociological regularities of cyclical dynamics and socio-genetics manifest themselves in this field. The first four chapters of the present treatise which comprise the content of the first part are dedicated to it.

Chapter 1

EMERGENCE AND DEVELOPMENT OF THE THEORY OF CIVILIZATIONS



When human first comes into the world, a name is immediately given to this human and he usually goes with this name through all the stages of his life cycle identifying himself in the overall mass of other individuals. Another fate awaits the social systems and scientific categories identifying them: millennia may pass until their nature is cognized and this or that place is assigned to them in the system of scientific categories. It is more difficult to do in case the cognition process has not been completed yet, and different content is meant by one and the same term. The said relates in full to the concept of civilization: as a social system, it, according to nowadays views, exists about ten millennia, and they started to use the term itself as a scientific category only a couple of centuries ago, and the disputes about its content have not ceased until now. This reminds an old Indian proverb about blind men who were trying to give a definition to an elephant. One, taking a leg, likened it to a tree stem; another, by feeling a trunk came to the conclusion that an elephant is similar to a thick flexible rope; the third by setting against a belly of the elephant, insisted that it is similar to a soft wall. Each of them was right in their own way, but they have not formed a general idea about an elephant. The same picture is observed with cognition of such an utmost intricate and dynamic social category as civilization.

1.1 Civilizations: From the Multi-Dimensional Reality to Scientific Categories



Civilization as the objective reality, as an object of cognition, is three-dimensional in our understanding, appears in three different dimensions, aspects inseparably connected with each other in terms of the content, space and time.

This is first of all world-wide **global civilization** common to all mankind expressing the unity of the human race, its historical fate from that turning point when man changed from appropriating household (hunting, gathering) to reproduction (cattle raising, farming). It is then, that he began to make his own history and since that we may speak about the existence of *society* as such, the unity of material and spiritual reproduction.

This process known in science as the Neolithic Revolution developed approximately in the 8th millennium B.C., in a comparatively narrow area to the north of the equator where climate conditions were extremely favorable for farming. Then it expanded to all continents subordinating itself and transforming all oecumene (a populated part of the planet) and it completed only in the 20th century when globalization made obvious the unity of the destiny of a prolific human kind in the planetary habitation. It is not by chance in his speeches on the Year of

Dialogue among Civilizations, the year 2001 was proclaimed such year, the UN Secretary-General (the only organization that represents a body of interests of all nations and civilizations of the global super-society) **Kofi Annan** repeatedly used the term «global civilization» showing its interconnection with local civilizations.

It may be said that the formation process of the global civilization has been expanded for centuries and is being finalized nowadays. Although the recognized classics of the theory of local civilization as **N.Ya. Danilevsky, O. Spengler, A. Toynbee**, and also certain contemporary scholars negate that the world, global civilization exists, it does exist reflecting the unity of the human kind and their historical destiny on the planet Earth and unity of their vital interests. It is really so despite all diversity of races, civilizations, peoples, nations, ethnoses and all contradictions among them.

One could adduce an example of negating a common civilization a position of **L.I. Semennikova**: «It is at least premature to speak about a common civilization, and may be even impossible. This is more likely the dream of intellectual elite from the highly-developed countries than reality. One could speak about the civilization common to all mankind in the sense that the community of sentient beings exists on the planet developing in compliance with natural and social laws and have common interests. The mankind itself is not homogeneous, its history is impossible to understand relying on the all-planetary approach... The concept of the common world civilization negates the multi-variance of development...The idea of the unified development is proposed under its colors» [176, p. 83.84].

In this statement, one could see a fear of the unified impact of globalization that might eliminate the diversity and originality of local civilizations. Such danger really exists, and we'll address it further. But it is not less dangerous to negate the communion, unity of interests of all civilized mankind, unity in the variety of problems seen in all spheres of life activities undertaken by the global community – demographic, ecological, technological, economic, geopolitical, socio-cultural. Consigning to oblivion such communion of interests and fates of all mankind countering the particular with the general under present-day conditions means to make the end of Homo sapiens kind closer on the planet Earth, which is unique in terms of its conditions and possibly the only one in the Universe. And this is exactly to what such contraposition and clash between local civilizations, a global military, technogenic or environmental catastrophe might lead.

Therefore global civilization, content, regularities, stages and tendencies in its formation and development, multiply structure, forms and mechanisms of interaction between its components and elements, development outlooks — all this is the scope of the prime part of the science about civilizations — civiliography.

However, global civilization does not emerge immediately in a ready, completed form. For ten millennia of its existence, it has passed certain stages in its formation and development, changing its internal structure and the looks. This affords ground to us for proposing as an object of study the second part of the civilizational science, the theory of **world civilizations**. They include the stages changing regularly each other of formation and development of global civilization and differ from each other by its socio-cultural system, number, structure and dynamics of population, level of effects on natural-ecological processes, technological and economic mode of production, and socio-political order.

We replace the formation division proposed by **K. Marx** with the civilizational division of the world history. The latter's fault was the exaggeration of the role of production (economic) relations and underestimation of the significance of the socio-cultural sphere in the development of mankind. While the new theory enables to identify the spiral of historical progress, its rhythm and to evaluate, based on the data obtained, the essence of changes going on now, outlooks for the development of world civilizations in the 21st and millennia ahead.

Finally, the third aspect of the civilization concept is diversity of **local civilizations** — large communities of peoples, ethnoses and nations united through the unity of socio-cultural values, historical destinies, economic and geopolitical interests, expressing the diversity and variability of the structure of global and world civilization. Periodically there is a *generational change of local civilizations*, their composition, forms and connections change. Then clashes begin between them, thus violating the process of dialogue among them and mutual enrichment. Local civilizations embody richness and diversity of mankind as a unified system, guarantee its stability and ensure expedient variability when such epochs change, transmission of cultural heritage and enrichment of mankind's social genotype. From time to time some local civilizations leave the historical arena, and other emerge again, some divide and some unite. Each of them has its life cycle, its destiny, but they form together a rich gamut of the multi-color world of the global civilization.

This trinity of a civilizational dimension hasn't emerged at once and simultaneously. While the formation of global and the first of the series of world (namely the Neolithic) civilization began about ten thousand years ago, then local civilizations have a twice shorter history. The earliest of them emerged in the valleys of the great historical routes only about five millennia ago. It occurred concurrently with the completion of the multi-storied 'pyramid' of civilization – with the emergence of states, classes, exploitation and exchange relations.

Hence, on the present-day level of cognition it is valid to speak about a ***three-dimensional civilizational and historical time-space***, the unity and diversity of global, world and local civilizations. However, our present-day knowledge is the result of long and contradictory development process of all social sciences, battle among schools seeking to study humanity, its past, present and future as completely as possible. It is curious to note that the research into various types of civilizations continued in reverse order against historical time of their emergence: first local, then world civilizations were recognized and studied and only now science has set to the global one. Let's complete this excursion with a brief overview how we understand the foundations of a modern theory of civilizations.

1.2. Formation of the Theory of Civilizations

The first stages of a long and challenging way of cognizing the civilizations perhaps are described best of all in the treatise of **I.N. Ionov** and **V.I. Khachatryan** [71]. Let's use this edition in order to, by completing it, give in brief the main stages of how the theory of civilizations was formulated and developed (including the 20th century – especially rich in the civilizational theories). In doing so let's highlight the major periods.

The 5th c. B.C. – the 15th c. A.D. is the period when the fundamentals of history as a science were laid, views on the world history and history of individual countries formed.

The 16–19th cc. when the concept of civilizations appeared. Great geographical discoveries and archeological achievements extremely enriched the knowledge of people about the world history, history of individual nations and civilizations.

The 20th century when a breakthrough was made in the inquiry into civilizations. Modern scientific civilizational schools were formed

in the West and Russia, the world movement for the dialogue of cultures evolved; the problem of interaction between local civilizations came out to the forefront. Concurrently, the formation of global civilization is under way to completion. A civilizational approach became one of the key directions in the formation of the post-industrial paradigm in the social science, which will become prevailing in the 21st century [245, p. 200–210; 239, p. 339–340].

The foundation of the history as a science was laid in ancient Greece in the 5th c. B.C. In the works of **Herodotus** (481–425 B.C.), **Thucydides** (460–395 B.C.), **Polibius** (205–125 B.C.), **Titus Livius** (59 B.C.–17 A.D.) and other authors the history did not come to the description of the events in mother and neighboring countries. Multi-volume descriptions of the world history appeared (e.g., The Universal History of **Polibius** in 40 volumes). The concepts of the unity of human history, cyclical nature of historical process, alteration of the forms of government were framed in the works of Plato and Aristotle. In his poem «The Nature of Things» **Lucretius Carus** (99–55 B.C.) described the transition of humanity from the barbarism period when people subsisted through gathering and had no steady family relations to a more developed social system. The latter's well-being is based on the skills of people to till the ground, work metals, build ships and sea-faring.

Sima Qian (115–86 B.C.), a Chinese historian also advocated the idea of the cyclicity of the historical process in his «Historical Records»[189].

For the Medieval Society the prevalence of a religious view on the historical process, its understanding as the approved Kingdom on the Earth was typical. **St. Augustine** (354–430) framed the concept of the history strictly oriented to the other world's values, which rendered a serious effect on all further development of historical expertise. The Bible became the main and indisputable source of historical data. Alas, it was a step back against the historical views of the Greco-Roman world.

The works of Arabic scholars continued the Greco-Roman traditions. **Al-Biruni**, the Central Asian Scholar-encyclopedist (973–1048) published «The Chronology of the Ancient Nations, Description of India» and set forth an idea of large historical cycles. In the work «Book of Lessons» **Ibn Khaldoun** from Tunis, an Arabic scholar (1332–1406) expounded the philosophy of history and wrote about the existence of historical cycles. According to his system, society passes three stages in its development: savagery, rural and city life.

«According to Ibn Khaldoun's ideas of historical time, cyclical and linear concepts are closely entwisted. On the one hand, society's political life develops as cyclical. Each ruling dynasty, according to him, passes, within four generations, through all stages of cultural development from savagery to civilization and a decay of the foundations of power. But along with that the heritage of civilizations does not vanish. The next state inherits the civilization from the preceding state [71, p. 31]».

It is generally assumed that the term «civilization» was coined in the middle of the 18th century in France where the spiritual background for the Great Bourgeois Revolution matured. This term first appeared in the treatise of Marquis **de Mirabeau the Senior** (1715–1789) «The Friend of Men, or Treatise on Population». Civilization was studied in relation with the dissemination of Christianity, and liberalization of morals, enlightenment, justice, balance of economic and political interests were called its manifestations. «Its embodiment is developed agriculture, free trade, diffusion of education within the country and abroad» [ibid, p. 59–60]. These are the slogans under which the «Third Estate» was coming to power.

Voltaire's (1694–1779) book «The Essay on the Manner and Spirit of Nations» was published the same year. In this book the history of civilization was viewed as the history of man's reason: «The matter in question is what ways and steps the movement took place from the barbarian rudeness of those times to the civilization of our time» [ibid, p. 61]. Voltaire was an opponent of eschatological views of continuous linear history; he was committed to the idea of cyclicity in the historical process: «Unlike his predecessor J. Viko, Voltaire saw in the cycles of history not so much a form of degradation of civilizations or cultures but the process of an unceasing renewal of culture. According to him, the decline does not terminate the evolvement of civilization, but if opened it. It is not by chance that Voltaire wrote about dying, revival and progress of the human spirit» [ibid, p. 63–64]. It is here that we encounter for the first time the viewpoint that crises are beneficial for the historical process, for dynamics of civilizations. **I.N. Ionov** and **V.M. Khachatryan** conclude that Voltaire «managed to become the precursor of nearly all latest theories of civilizations both in France, and other European countries» [ibid, p. 67].

In the second half of the 18th century and within the 19th century the theory of civilizations was actively expounded by many western European historians, philosophers and sociologists. Three scientific

schools various in their structure – French, English and German – were formed. The period of bourgeois-democratic revolutions, Napoleon wars and formation of national states extremely promoted the interest of scientists and all educated people to the regularities of the socio-historical process, moreover, the formation and diffusion of industrial, world civilization was under way in that period, reaching its peak, in the mid–19th century the formation process of the fourth generation of local civilizations was underway to completion. All such processes required a scientific explanation.

The French civilizational school was remarkable for its biggest numbers and variegated views of its followers. **J. Turgot** (1727–1781) observed that a certain periodicity exists in the rises and downfalls of empires, forms of government, that a forward development of science and arts is now speeding up, now slowing down. In his works he proceeded from the general tendency of the society's progressive movement. «Progress, although inevitable, – he believed, – is mixed with frequent declines due to the events and revolutions interrupting its, therefore it was quite different with various nations» [ibid, p. 76]. The regularities of history, according to him, are formed entirely in the people's world, and the contradictions make the source of development of mankind. This is an optimistic view both on the course of history and the role of crises and revolutions in it.

Jean-Jacques Rousseau (1712–1778) adhered to the opposite viewpoint who believed that civilization is contradictory to the natural order of things. He believed that in the history of Egypt, China and other countries the efflorescence in philosophy, literature, arts results in the depravity of morals and military defeats. «Civilizations and vice are synonyms for Russo. The origin of sciences and arts, emergence of scholars are connected the same inseparable way with human vices. Meanwhile, the nature wants to keep man out of knowledge, «as the mother who snatches a hazard object from the hands of her kid». The philosopher appeared in the vanguard of the struggle of the civilizational periphery against the center of civilization» [ibid, p. 80, 81].

However, the majority of the French as well as other western scholars stuck to a positive, optimistic view on the development of civilization and its future. Thus, **D. Diderot** (1713–1784) was sure that «peoples always balance between the state of barbarism and the state of civilization» [ibid, p. 86]. In the correspondence with Catherine the Second he discussed the opportunities and ways to introduce Russia

to the European civilization, an even published the work «Civilization of Russia» in 1780, but he soon gave up this idea: «The Russian nation corrupted by despotism is in the state of barbarism and resists the civilizational plans of the despot» [ibid, p. 86].

The idea of a regular change of civilizations in the history of mankind was first introduced in the book of **M.J. Condorcet** (1743–1794) «Sketch for a Historical Picture of the Progress of the Human Mind», which was written in 1794 in prison while waiting for the death penalty. He spoke about ten periods in the history of mankind, each of them was remarkable for its special state of civilization:

➡ establishment of tribes by primitive hunters and fishers – first political institutions;

➡ division of city and village, accumulation of riches, nascence of states; social inequality and arbitrariness of public authorities give rise to the need for great revolutions without which the progress of civilization would stop on a low level;

➡ the dominance of Greek culture, which promoted the philosophy and sciences to a new level;

➡ a split of natural sciences and philosophy, dissemination of Christianity in the Roman Empire, which resulted in the decline of civilization;

➡ revival of sciences by Arabs;

➡ the Renaissance in Italy, revitalization of spiritual life, invention of printing;

➡ great Geographical Discoveries, powerful development of economy, the Reformation and religious wars;

➡ establishment of the French Republic as a result of all preceding natural progress of civilization; revolution in France which uncover the essence of civilization;

➡ the next, tenth period «when the inequality between nations is eliminated, when the most backward of them approach the level of civilizations of most enlightened, when property inequality is allowed only to the extent it promotes the progress of civilization, when intellectual, moral and physical abilities of man are developed rapidly and harmoniously» [ibid, p. 98–100].

We find with Condorcet, though in germ, the idea of a regular change of world civilizations and revolutions accompanying such change. It is curious to note that Madame **G. de Stael** (1766–1817) already in 1780 defined civilization as the essence of history. In her works she used such concepts as «world civilization», «global (universelle) civilization» [ibid, p. 102]. Although, it was not more than

a guess: Madame de Stael did not interpret civilization in the present-day understanding of such categories.

In the 19th century, the French scholars actively continued to elaborate the theory of civilizations. **H. de Saint Simon** (1760–1825) put forward a concept that mankind ascends from barbarism to civilization through 12 stages of historical progress; each stage is connected with a certain level of economy and society development, change of cultural forms and is implemented in a certain country – in Egypt, then in Greece, Rome and finally in Europe. «A certain intellectual order corresponds to each social form, each major social overturn concurs with the revolution in philosophy, beliefs and scientific notions» [ibid, p.130]. Here we see the beginnings of the idea of changing world civilizations.

August Kont (1799–1857) laid the foundation of a positivistic approach to the theory of civilizations. «According to Kont, the central phenomenon of the historical process was civilization as spiritual life of society finding its expression in religion, philosophy, science. It is from the civilization evolution laws, he was going to develop deductively the rational representation of all other manifestations of the history of society. The concept “civilization” was central both in A. Kont’s social dynamics and his “social statistics” describing the conditions of stability, structure of society. In 1822, Kont announced “the great law of three stages”, i.e. three stages in the development of civilization – theological, metaphysical and positive» [ibid, p. 131]. The principal law of social statics, according to Kont, is the compliance between the nature of public institutions and the «state of civilization», i.e. morals and ideas of society, position of science, arts and crafts. A. Kont believed that the original source of dynamics of civilizations is the development of society’s spiritual life concurrently emphasizing the value of industrial and military activities of people; but he was skeptical about the role of revolutions in the development of civilization. He saw prospects in reaching the stage when the «state is replaced with “sociocracy”, the power of people expressing a scientific viewpoint on the outlooks of civilization. Everything that impedes them, including also a “non-scientific” parliamentary system will be removed. There is just no room for conflict left in the society. Social concord prevents a further social development. History attains its objective» [ibid, p. 137].

The ideas of A. Kont rendered a strong impact on the development of the western civilizational schools, and also Russian scholars (**M.M. Kovalevsky**, **N.D. Kondratieff**, **P.A. Sorokin**) did not escape

that influence, which found its expression in the idea of the «end of history». F. Fukuyama turns out not to be original.

Francois Guizot (1787–1874), a French historian, made a prime contribution to the inquiries into the history of civilizations who in 1828–1830 published the books «History of Civilization in France» and «History of Civilization in Europe». «It was Guizot who first attempted to turn the concept «civilization» highly ideologized, rich in value content, philosophical intrinsically into the category of the historical science being formed as a special discipline of scientific knowledge» [ibid, p. 140]. He studied the history of civilizations in its synthesis and introduced first the notion of their diversity. Guizot analyzed the specifics of ancient civilizations, showed the specifics and multi-dimensionality of Europe's civilizations: «Its civilization is intricate, diversified and turbulent; all forms, all principles of social organization exist together and concurrently in it. Spiritual and secular authority, theocratic, monarchic, aristocratic and democratic principles, diversity of all kinds of classes and social states are mixed and twisted together. In the European civilization there are endless degrees of freedom, wealth and influence. Although all these elements are in a constant conflict between each other, however, none of them was ever able to override the others and establish its exclusive authority» [ibid, p. 145]. Guizot thereby came close to the elaboration of the theory of local civilizations and their comparison.

These ideas were further promoted by philosopher **V. Cousin** (1792–1867) who saw the way to the full development of civilization in revolutions; his follower philosopher **Ch. Renouvier** (1815–1903) who introduced the concept of «primary», «secondary» and «tertiary» types of civilization and showed their interaction; and also historian **J. Michelet** (1796–1874) who in his book «People» (1846) introduced the concept «semi-civilization» and demonstrated how «machine civilization deprives us of individuality, an independent being» [ibid, p. 191].

Historian **E. Kinne** (1803–1875) approached closer than others to the theory of local civilizations and attached a decisive significance to religion in the formation of civilizations, made a comparative study of religions of India, China, Persia, Egypt, Babylon, Phoenicia, Judaea, Greece and Rome. According to **I.N. Ionov** and **V.M. Khachatryan**, here is «a key to the theory of local civilizations: “Each civilization is an individual, self-sufficient world developing its own principles to the highest degree”. Here the historian approached closely to a breakthrough in the theory of civilizations... He speaks... about civilizations

that are able to become the organizing force in the world history» [ibid, p. 193].

The French researchers of the end of the 19th century made additional strokes to the development of the theory of civilizations. In the three-volume edition «Origin of Social Order in Contemporary France» historian and philosopher **H. Taine** (1828–1893) showed that the climate, locality, life way of people, fertility of race, national character and religion — all factors act as a system at that. He studied the manifestation of these factors in relation to the independent centers for self-dependent civilizations such as China, Babylon, Persia, India, Egypt and Phoenicia; Taine showed how Indian, Chinese, Mohammedan and European civilizations extended their influence on the whole world.

In the book «Depopulation and Civilization. Demographic Study» published in 1890 **A. Dumont** (1849–1902), a French demographer, opened a new edge in the dynamics of local civilizations. Based on demographic inquiries into ancient civilizations he showed that the final stage in the development of civilizations is connected with depopulation — fall-off in natality, extinction of population. «A threat of a dead-end in the development of civilization vividly described by A. Dumont told on the world outlook of many scholars. From a life-asserting value, symbol of progress, the idea of civilization under his pen turned into the symbol of dying of culture, a symbol of nation extinction. In front of the eyes, the term “civilization” was losing its value content, acquiring the nature of a scientific concept embodying diverse both positive and negative tendencies in the development of mankind» [ibid, p. 266].

Pessimism was also added to the evaluation of the development of civilizations by the leading French sociologist **E. Durkheim** (1857–1917), especially in his study devoted to the development of civilization and a number of suicides (1888). According to the views of Durkheim, civilization is a direct consequence of the population growth, increase in its density, deepening of division of labor. But an excessive refinement of civilizations gives rise to concern and fear with the people, entailing the growth in a number of suicides. The statistics show that the most developed regions of Europe are leading in a number of dementia and suicides. However, Durkheim also emphasizes a progressive side in the development of civilizations: division of labor gives rise to the need of people in each other, new culture, solidarity and altruism. Durkheim believes that the core of a regulative system of values of local civilizations is the system of cultural values, and also

singularity of ethical standards that must not be imposed from outside: «Each nation has its own morality determined by the conditions where it lives. Therefore it is impossible to impose other morals on it regardless of how high such morals could be – not disorganizing such nation» [ibid, p. 269]. The conclusion is educative for contemporary supporters of the world dissemination of the system of values of the western civilization.

The English civilizational school is less rich than French. In many ways, the industrial revolution evolving from the end of the 18th c. and a rapid expansion of the British Empire in the Asian and African, that subordinated many original civilizations, influenced its formation.

The Scottish philosopher and historian **A. Fergusson** (1723–1818) is considered the founder of the English civilizational school. In the book published in 1762 «Essay on the History of Civil Society» civilization was interpreted as the consequence of development of productive activity and increase in the wealth of people, establishment of the state institutions for protection of property and establishment of «civil society». The latter is the embodiment of man's reason in social life as it is based on the consideration of each other's interests [ibid, p. 68]. As we see, such wealth and public institutions that protect it are prime values of industrial world civilization in its western European variant. It was Fergusson who first proposed the idea of three stages in the history of mankind – savagery, barbarism and civilization (further on developed by **L.H. Morgan** and supported by **F. Engels**); the prevailing type of activity, level of social stratification and culture corresponds to each stage.

Fergusson adhered to a linear-stadial concept of the development of civilization. He idealized its looks believing that violence is not incident to civilization, and conflicts might be tided over using just rules of law; that it opens the opportunities of an unlimited progress of culture; that this is the society of temperance. He refused to recognize India and China full-fledged civilizations as they remain despotic. In many ways, it is a puritanical, purely English view on the essence and features of civilization.

Another English scholar **H.T. Buckle** (1821–1862) made a noticeable contribution to the theory and history of civilizations. He thought of a multivolume work «History of Human Civilization», but he managed to write only a two-volume «History of Civilization in England» (1857–1861). The first volume included his view on

the general theory of local civilizations. «In terms of the compliance with the requirements of his time Buckle's theory of civilizations had no parallel» [ibid, p. 243].

Buckle believed that two major forces form civilization: man influencing the nature, and the nature influencing man. Hence, he inquired into two groups of factors influencing the emergence and development of civilizations: physical (climate, food, soil, general type of nature) and intellectual (cognition level of natural laws and their technological employment). He came to the conclusion that the subordination of nature to man prevails in Europe, and in others – subordination of man to nature. «All prime steps which the human kind took successively on the way of civilization are remarkable for certain specifics of mind or convictions leaving their imprint on religion, philosophy and morals of the century» [20, p. 7].

The abundance of food in the countries with warm climate where soils are highly fertile results in the human population number's growth of and a manpower fall in the cost. Therefore the stagnation period began sooner or later in civilizations based on the harnessing of natural forces and they decayed. In those cultures only where people had to overcome the resistance of nature a rapid growth of knowledge, sustainable progressive development was observed.

Buckle laid the foundation of a comparative study of civilizations, although his desire to contrast European and non-European civilizations is unjustified. In India, China, Egypt, there were observed periods of a high intellectual rise, efflorescence in science and culture in those times when most part of Western Europe was still on the low level of civilizational development.

At the end of the 19th c. the star of a great calibre in the sociological theory of civilization appeared in the English scientific sky – it was **Herbert Spencer** (1820–1903). According to Spencer's idea, «...infinity is unconceivable. The rhythm is a necessary characteristic of any movement» [71, p. 250]. Civilization is a society as a social body changes from homogeneous to multiform, multivarious but seeking the balance society where early stages of social evolution depend largely on natural environment.

Spencer departed from a linear concept of A. Kont's progress. He believed that regress is as necessary for evolution as progress. «In the scheme of Spencer's historical development a full life cycle of civilization, including the stage of progressive development (differentiation), stability (adaptation) and regress of a society, was introduced for the first time in the sociology of positivism, i.e. the base for

studying discrete processes associated with evolution of civilizations is formed» [ibid, p. 251].

The German civilizational school rendered a greater influence on the world science than English though it was not as developed as French.

The prime role among the German theoreticians of civilizations belongs to **J.H. Herder** (1744–1803) and his work «Ideas about the History of Mankind» (1784–1791). Herder was critical about the idea of civilization trying to connect the linear movement of the history with a cyclical development of individual nations. He maintained that cultural traditions hinder the progress of the human mind; contrasted the uniqueness of individual civilizations with universalism of human wants; he suggested a genetic approach to the history. «The upbringing of the human kind is both a genetic and organic process; this is a genetic process due to transmission of traditions; this is an organic process due to retention and application of what was transmitted» [ibid, p. 18]. Herder emphasized a beneficial value of revolutions in the history of mankind: «Our human kind needs shakes as waves are necessary for waters so that a lake does not turn into a marsh. The genius of humanness renews perennially its look, efflorescing perennially and reviving anew in peoples, generations and tribes» [ibid].

The views of an outstanding German philosopher **G.N.F. Hegel** (1770–1831) also placed themselves on record in the development of the theory of civilizations. He was negative about the very idea of civilization seeing a false way in it, opposing a real freedom, nevertheless his inquiries into the influence of geographical environment, nature on human and historical progress (especially in the valleys of large rivers, coastal areas) help us understand the specifics of the emergence and dynamics of civilizations of the East and West. Hegel introduced the concept «worldwide historical nations» whose activity governs the course of the world history. Hegel included the inhabitants of Persia, Syria, Judaea, Egypt, Greek, Roman and German world in them.

H. Ruckert (1823–1873) is considered one of the founders of the theory of local civilizations, who in 1857 published a two-volume work «Book of World History in Organic Narration». Negating a possibility that a single cultural type exists, he studied cultural types existing concurrently: «According to Ruckert, cultural types exist not one by one, but all together in temporal space of man's being representing special cultural worlds within a single big world, cultural and historical organisms or individualities without cognition of which the

essence of history is not clear, i.e. it is exactly what we call now «local civilizations». We'll find a similar idea in the 20th c. with O. Spengler, A. Toynbee, F. Braudel etc.» [ibid, p. 233]. Let's add from ourselves in the 19th c. too with N.Ya. Danilevsky.

Each cultural formation in the history is destined to vanish: the incompleteness and mortality of all forms of a worldwide historical life, according to Ruckert, is the fundamental law of history. Each cultural and historical type is self-sufficient and independent of others. Ruckert believes that the European culture will «never be able to impose on these entire various major types one and the same ideal of their life and historical behavior...» as culture is only the «content of our own past and future civilizations» [ibid, p. 234]. Therefore, the intrusion of the European civilization in the area of other local civilizations is destructive. Historical experience has proven the truth of these Ruckert's provisions. Admittedly, he departed from his own position by the end of the book and proclaimed the Western European culture the highest and the only fully viable.

The American civilization school began to form only from the second half of the 19th c. Ethnologist **L.H. Morgan** (1818–1881) was its most outstanding representative whose views on civilization are given in the book «Primitive Society» (1877). According to Morgan, the age of civilization is only a small part of the historical way walked by mankind. The major signs of transition from barbarism to civilization were the establishment of a monogamous form of marriage, use of tools and weapons from bronze, developed farming, building of fortresses from stone, strengthening of military democracy, active accumulation of wealth, origin of private property and state, and the nascence of class society.

In his book «Origin of the Family, Private Property and the State» **Friedrich Engels** (1820–1895) received Morgan's ideas and developed them, departing in the preface to the book from the strict dogmas of Marxism: he brought the changes in the modes of reproduction of man into line with the modes of production. However, in general Marxism did not receive the basic ideas of western European civilizational schools as it assigned only a third-rate place to the system of civilizational values and laid the development of material productive forces and system of economic relations in the basis of the progress of society. At the same time, when studying the alteration of social and historical structures, Marxism employed extensively specific attainments of civilizational schools.

The Russian civilizational schools emerged considerably later than western European and reflected the attainments of the latter in many ways.

In his concept of world history, **A.D. Kantemir** (1708–1744) was based on the idea of the rotation of history, the so-called theory of four monarchies – cultural development of mankind within a closed loop: the torch of learning went from Greece to Italy, then to England, France and Germany and will be transferred to Russia and then back to Greece.

In his «History of Russia» (completed in 1739) **V.I. Tatischev** (1686–1750) took a transition from a natural state to a civil society (civilization) as a base of the periodization of the history. Society passed several stages in its spiritual development: rivalry of a human spirit (childhood); creation of writing (juvency); spread of Christianity and invention of printing (manhood); and development of civil society (maturity).

A.N. Radischev (1749–1802) saw a tendency to progress in history. In the length of time the enrichment of mind, knowledge occurs attained due to the continuity of generations. «Radischev explained a transition from savagery to civilization through three reasons: “need”, growth of “economic accumulation” and finally inventiveness of people who are able through joint efforts to create the benefits of civilization...» He attached great importance to the geographical environment: «Nature, people and things constitute the mentors of man; climate, locality, government, circumstances constitute the mentors of nations». However, the main driving force is still the «march of the human mind» for Radischev [ibid, p. 115].

In the first half of the 19th c. after a victorious war on Napoleon’s France and closer familiarization of the Russian society with the European scientific thought, an interest to philosophy of history, search for its own place in the world civilization considerably increased. Quite a lot of ideas on comparing Russia’s historical way and Europe was expressed by Decembrists **M.P. Pogodin**, **P. Ya. Tchaadaev**, Slavophiles and **A.S. Khomyakov** with his «Notes on World History».

P.Ya. Tchaadaev (1794–1856) saw the task of philosophy of history in restoring a religious and moral sense of «great historical ages, events and actions» [ibid, p. 203]. Tchaadaev was negative about the cultures of India and China adducing them as an educative example of decline, which is inevitable for civilization closed, not submitted to the general law of civilizations, deprived of enlightening influence of

Christianity. The aim of civilization, the final result of history, according to Tchaadaev, is in the fusion of all cultures and nations into a common world organism. Tchaadaev and Slavophiles overstated the specifics and advantages of the Slavic local civilization.

It is interesting to note that already in 1839 in Kharkov the first study of civilizations — the book of **A.L. Metlinsky** «Essence of Civilization and the Significance of Its Elements» — was published (it is attached to this work as supplement). It was the first publication on the theory of civilizations.

The author saw the essence of civilization in the physical and moral development of man and society. He believed man to be the main elements of civilization, his physical and moral development; diffusion of education; and the monarchy as the best regime. Metlinsky emphasized a beneficial influence of science on all other elements of civilization — language, character, customs, structure of society, industry, arts and religion. Noting the specifics of manifestation of civilization with various peoples, the author did not put a question whether local civilizations exist. The book of A.L. Metlinsky indicates that the study of civilizational problems began approximately in one and the same time with the western European science in Russia; furthermore it is the first publication on the theory of civilizations. More profound studies of civilizational problems expanded in the second half of the 19th c.

N.G. Tchernyshevsky (1828–1889) gave considerable attention to this problem. He believed that the main driving force of successes of civilization is the diffusion of knowledge: «Let policy and industry move noisily in the forefront of the history, the history still proves that knowledge is the main force to which policy and industry are subjected to and all in human life». Knowledge acquired by people gives rise to those benefits which body is called civilization [iIbid, p. 289] N.G. Tchernyshevsky connected the success of civilization with the factors favorable for human life, specifics of geographical environment, a lack of wars etc. He did not support the idea on a cyclical development of civilization, persisting in his opinion of the continuity of progress, revival of people's forces with each change of generations.

In his «Historical Letters» **P.L. Lavrov** (1823–1900) elaborated original views on civilization and culture in many ways He viewed culture as a tradition resulting in stagnation while needs develop culture into civilization. The progress of civilization is implemented by a small circle of an intellectual elite, «civilized minority». The main criterion for the level of civilization is the ability to transform: «The history of

thought predetermined by culture in connection with the history of culture changing under the influence of thought, this is all the history of civilization» [ibid, p. 296]. Here it is interesting that, speaking a present-day language, the ability to innovations, to transformations is viewed as a criterion for the level of civilization.

As an ideologist of Narodism (Going into the People) P.L. Lavrov could not leave aside a social side of a civilizational progress: «The only means for civilization to be more lasting is to constantly connect material, mental and moral interests of the poor majority with its existence» [ibid, p. 297]. This sounds especially topical under present-day conditions when the depth of economic stratification increases both between local civilizations and inside them.

A major event in the development of the Russian (as well as in the world) theory of civilization was the publication of the book by **N.Ya. Danilevsky** (1822–1885) «Russia and Europe» (1869). The research itself was heterogeneous and it was met not univocally both by his own nationals, and foreign scholars. It was not easy years for Russia when this work was created: it suffered a crushing defeat in the Crimean war, but the triumphs of the beginning of the century were still fresh when Empire played the leading role in the European and world policy. Furthermore, only a few years passed after the abolishment of the bondage and a chain of reforms followed thereafter, which drastically changed society with its century old traditions. This caused the intellectual elite to seek a new vision of its civilizational future and a model of relation with Western Europe, which seemed a dangerous and faithless neighbor at that time. Certain pan-Slavic reactionary ideas were a response to a geopolitical challenge of that time. At the same time, the book included a number of new postulate, which allowed advancing the theory of local civilizations (next to H. Ruckert who is not well-known in the academic community). This gave rise to the next evaluation of Danilevsky's role in the development of the theory of civilizations: «An integral concept covering various aspects of the world historical process and life of local civilizations was created only at the end of the 60s by N. Danilevsky» [ibid, p. 323]. And further: «The work of N.Ya. Danilevsky «Russia and Europe», which stands out against the general background of the world science, is a real breakthrough in the field of the theory of civilizations in Russia. Danilevsky did not only succeed in consistent pursuing the idea of the discontinuity in relation to the world historical process and the existence of many cultural (or cultural and historical) types independent on each other, whose value is first of all in their dissimilitude. For the

first time in the history of the world science, he did it not in the way of complicating the ideas on historical ways of Europe where the concept of civilization was born, but despite such ideas using this concept for the development of self-awareness by another cultural commonness, Russian, which after the Crimean War was learning to separate it from Europe. The concept «civilization» and the theory of local civilizations thereby from the tool for studying the European civilizations as they remained until 1869 turned into the tool for self-awareness and self-identification of non-European civilizations, and also into the tool for critics of the Western European civilization. It opened enormous outlooks for the theory of civilization and determined new cognitive problems and it took the 20th century to solve them and some still pending such solution» [ibid, p. 362]. Maybe the merits of this scientist are overestimated a little, but a novelty of his approach is disclosed convincingly.

In brief, what is the essence of N.Ya. Danilevsky's contribution to the theory of local civilizations?

The author specifies large communities in the historical past and his now present that are *cultural historical types* playing a prime role in the history of nations and continents: «These cultural historical types or original civilizations arranged in the chronological order include the following: 1) Egyptian, 2) Chinese, 3) Assyrian-Babylonian-Phoenician, Chaldean or old Semitic, 4) Indian, 5) Iranian, 6) Hebrew, 7) Greek, 8) Roman, 9) new Semitic or Arabian and 10) Germono-Romanic or European» [55, p. 88]. He completes it with the Slavic type being formed and Northern American at the stage of birth.

Danilevsky formulated the regularities in the development of cultural historical types [ibid, p. 91–113] and spoke about the period of civilization as a relatively short period of efflorescence in the spiritual activity with respect to each cultural historical type that drains its of its strength fast [ibid, p. 106].

At the same time, Danilevsky denied the existence of the civilization common to all mankind (global in our understanding): «No civilization common to all mankind... exists and can exist as it is an unachievable ideal or better to say an ideal achievable through a consistent or joint development of all cultural historical types, through a peculiar activity of which historical life of mankind in present, past and future manifests itself» [ibid, p. 124]. This was a reaction to an attempt to pose a western European civilization as a model of civilization common to all mankind and to which all cultural historical worlds would come sooner or later. Such attempts are also undertaken nowadays.

The publication of Danilevsky's book caused sharp polemic between opponents and supporters of the concept put forward by him. **N.I. Kareyev** (1850–1930), a well-known Russian historian, assaulted such Danilevsky's concept. While recognizing the diversity of ways in the development of various nations, he still believed that a gradual union of mankind is a prime core line in the world history. Kareyev maintained that Danilevsky negates for nothing the world historical synthesis of cultural products with relation to individual nations and was skeptical about the idea of historical laws and single schemes: «The history is not a straight line or a regular pattern built according to a mathematical plan, but a living tissue of lines irregular and meandering» [ibid, p. 299]. But the main line – theory of progress – exists there. Kareyev distinguished two periods in history – organic, reproducing traditional forms and critical (speaking modern language – innovative), where there is an intensive search for new ways to solve social problems.

It is interesting what distinction Kareyev made between the concepts «society» and «civilization»: «Civilization may die, and societies – a body of individual – break up, unite, join the others, are subjected to transformation, but do not completely vanish... Kareyev wrote that society renews with each new generation, and therefore its progress may continue endlessly» [ibid, p. 301].

V.O. Kluchevsky (1841–1911), a known historian, did not support the ideas of Danilevsky, he viewed the history as a change of various forms of human community life (unions) and believed that a civilizational approach may be implemented only on the level of analysis of the world history as «successes of people's community life, acquisitions of culture or civilizations are created through joint or successive efforts of all cultural nations» [ibid, p. 306]. In studying the history he united such aspects as universal and local, civilizational and sociological. Kluchevsky viewed a civilizational development of mankind as multi-dimensional and many-sided and stressed the role of a «civilizational advantage» in it, which «arms a new society with the means of development prior framed, speeds up and complicates its development» [ibid, p. 309]. Properly speaking, the matter in question is a regularity of inheritance in the historical process.

Among few advocates of Danilevsky's concept, let's mention **K.N. Leontieff's** (1831–1891) position who created an original theory of civilizations, but full of controversies and paradoxes, and a concept of the world-historical process. He paid special attention to a cyclical dynamics of civilizations and multi-linearity of the world-

historical process. Leontieff formulated a law of a «triune process» — from the initial simplicity to sophistication and strengthening the unity — and the «secondary mixing simplification» at the stage when the system decays [ibid, p. 351]. Leontieff anticipated the oncoming end of history: «Where are new, unknown tribes strong in spirit? All mankind is old» [ibid, p. 352]. Leontieff bores up a principle of diversity, pluralism of cultures, expresses fear of a ghost of uniform, acted as an opponent of the European world. «Similarly tuned and beatific mankind is a ghost and not half beautiful or attractive... Harmony does not constitute the world unison, but fruitful, fraught with creation, sometimes also tough struggle» [ibid, p. 354]. He was concerned about the fate of Russia: «We've lived long, created little with our spirit and standing near some terrible verge» [ibid, p. 355].

With fear Leontieff regarded the successes of scientific-technical progress, which may ruin the diversity of the organic world, destroy poetry and result in catastrophes. K. Leontieff may be considered one of the most pessimistic theoreticians of civilizations, although, to be quite honest, many of his fears materialized soon in the 20th century after him.

The names of scholars who studied a specific diversity of local civilizations stand somewhat apart. First of all, one should mention **L.I. Mechnikov** (1838–1888) and his book «Civilizations and Great Historical Rivers» found a wide response (including with **G.V. Plekhanov**). The author attached great importance to the formation of old civilizations of the East to the natural-geographical factor, a challenge of the great historical rivers that brought about a response in the form of cooperation of labor and emergence of the state; the origins of evolution of civilizations in «those relations between environment and ability given to people by this to cooperation and solidarity». Mechnikov spoke about three periods in the history of civilizations: river (in the valleys of great historical rivers), sea («Mediterranean» — Carthage, ancient Greece, Rome and medieval Europe) and oceanic (the British Empire). However, he managed to describe only the first period. He made an interesting remark about the formation of a global civilization: our centenary, wrote Mechnikov, is «described by a clear tendency of civilization to become general, universal and suppress all differences, all local, cultural shades» [ibid, p. 305].

A three-volume book of **P.N. Milyukov** (1859–1943) «The Sketch-book of the History of the Russian Culture» became one more

specific historical inquiries into local civilizations. He understood «culture in a broad sense identical with civilization, both economic and social, and state, and mental, and moral, and religious, and aesthetic» [ibid, p. 344]. He went to the regularities of historical process through the study of historical specifics. The research into the history of Russia made him come to a conclusion that Russia does not repeat and will never repeat the stages of Europe's historical life, but the similarity of two civilizations will increase with time. The growth of population, successes of industry and trade, a gradual weakening of the governmental guardianship, strengthening of the independence of the society — all this bring Russia closer to West, not depriving of its distinctness. Such tendency was really observed at the end of the 19th — beginning of the 20th c., but after the October revolution of 1917 the divergences increased.

One should also note such specific feature of P.N. Milyukov's study as a transition from the historical-chronological method of presentment to problematic based on rich statistical and factual material: «His book studies peculiar natural conditions under which the Russian civilization was formed, processes of population growth and territorial expansion, economic development and technological improvements, changes in the ethnic mix, specifics in the formation of the statehood and its role in the social dynamics of Russia, relations between power and society, and also the distinctness of the Russian religiosity, national awareness, development of literature, painting, music, architecture, and system of education. For the first time, the history of Russia, beginning from the ancient times and ending in the 19th c. in its statement is subjected not to a chronological principle and event principle, but *problematic*» [ibid, p. 346].

Thus, rich and diverse civilizational schools formed in Russia by the end of the 19th century, and such schools were equal to western European, and even in some points forestalled the same. And at the same time, they went in the general channel of the union of the world-historical civilization process with studying of the specifics and interaction between local civilizations. This became a key element of the industrial paradigm of knowledge about society completing its formation and establishing its dominance, which reflected the attained level in cognition of regularities and controversies of the industrial civilization and local civilizations. Cyclical-stadial and local approaches described the same process of multi-dimensional civilizational dynamics in different ways.

1.3 Theories of Civilizations of the 20th Century

In the first two decades of the 20th century, the researchers from various countries were involved in the preparations for and conduct of the First World War and paid less attention to the civilizational theories. However, already from the year 1918, since the publication of A. Spengler's book «Decline of the West» this problem came to the front. But only by its one aspect — theory of the development of local civilizations, where **Oswald Spengler, Arnold Toynbee, Pitirim Sorokin, Fernand Braudel** made a weighty contribution. The cyclical-stadial theories of the universal historical scale fell into the shade giving place to the dominance of the Marxist formation school. In the USSR civilizational researches (except studying individual questions how ancient civilization developed) were ceased at all as they did not meet the orthodox (vulgar in its essence) Marxism and historical materialism. Under conditions of the confrontation between two world systems, socialism rapidly extending its sphere of influence and as it anticipated inevitable the victory of communism in future the issues of differentiation and dynamics of civilizations, spiritual world incident to it and the system of values seemed to lose their topicality.

The situation radically changed since the end of the 1980s when the confrontation of two world systems actually played out and one of such systems, seemed inviolable with victorious future, nearly fell to pieces literally before the eyes as well as its core — the Soviet Union. At the same time the bonds of the orthodox Marxism thwarting progress of civilization researchers also broke. The outburst of civilizational researches began then; dozens of monographs and textbooks on this topic — translated, republications and original — appeared. The prevailing paradigm of social science changed; civilizational approach to history replaced the formation one, heightened attention was paid to the problems of interaction between local civilizations, prevention of their collision and transition to a dialogue, cooperation and partnership. It is not by chance that the UN proclaimed the first year of a new millennia the year of dialogue among civilizations.

Let's address in more detail the content of the first and second waves in the development of the theory of civilizations in the 20th century.

As it has already been mentioned, the book of **Oswald Spengler** (1880—1936) «The Decline of the West» [233], published in 1918,

gave impetus to the rise of researches in the field of local civilizations. He viewed the civilization as a completing stage in the development of this or that local culture at the decline of its cycle: «Civilization is an inevitable fate of culture. This very peak is reached here, from the height of which it is possible to solve last and most difficult questions of the historical morphology» [233, p. 163]. However, Spengler negated the existence of the world history and believed that each world culture develops singly and independently, going through its full life cycle. This position found its expression in four historical tables of concurrent epochs, which were made by him («spring», «summer», «autumn» and «winter»), through which four great cultures go through (Indian, Ancient, Chinese, Western), epochs of arts (for the same cultures) and political epochs (for Egyptian, Ancient, Chinese and Western cultures).

O. Spengler noted the poly-cyclicity in the dynamics of cultures and civilizations, a mix of cycles with various duration: «Each culture, each early period, each rise and fall, each of its internally necessary levels and periods have a certain, always equal, always with a significance of symbol, an activity periodically returning... What does it mean a 50-year period which is distinct in all cultures in the rhythm of political, spiritual and art establishing? Or 300-year periods of baroque, gothic, great mathematics, attic plastic arts, mosaic painting, counterpoint, and Galilean mechanics? What does it mean an ideal life period of one millenium for each culture?» [ibid, p. 55]. Here is an idea of a combination of semi-centenary, tercentenary and millenarian cycles in the dynamics of spiritual life of civilizations.

Spengler's book included not that many theoretical novations against the works of H. Ruckert and N. Danilevsky published in the preceding century and dedicated to the same topic of local civilizations. However, it was written with a vivid language, bristled with facts and reasoning. As it was published at the end of the First World War, which caused disappointment in western civilization, the book was sensationally successful.

Arnold Toynbee (1889–1975), an English historian who published a 12-volume research on this topic and summarized in the cumulative volume «Study of History» [191] made much more solid contribution in the research of the history of local civilizations. Where do A. Toynbee's fundamental concepts of the theory of civilizations come down to?

Studying the structure of mankind of the last millennium Toynbee identified five living civilizations:

- 1) Western society united by western Christianity;
- 2) Orthodox Christian or Byzantine society found in South-Eastern Europe and Russia;
- 3) Islamic society – from North Africa and Middle East to the Great Wall of China;
- 4) Hinduist society in tropical, sub-continental India;
- 5) Far Eastern society in the sub-tropical and moderate district of South-Eastern Asia.

The researches into the pre-history of these societies enabled Toynbee to make a conclusion that these are civilizations of the third generation: the civilizations of the second and the first generations anteceded them. In a total 37 civilizations were marked on the cultural map of the Old and New World, 21 of them were thoroughly studied and described. Unlike civilizations of the first and second generations – primitive societies, whose life was relatively short, restricted in terms of territory and inconsiderable in number, the life of civilization of the third generation is «longer, they occupy vast territories, and a number of people covered by civilizations, as a rule, is large. They have a tendency to expand through submission and assimilation of other societies» [ibid, p. 80.]

Civilizations constantly develop, have their own life cycle; they «constitute not static, but dynamic formations of an evolutionary type» [ibid, p. 87]. Each of them goes through the phases in its development from the emergence (genesis), growth, breakdown and decay. The reasons of genesis of civilizations should be sought not in racial feelings or environment, but in a response to a challenge, a reaction to a crisis where a society finds itself.

The effect of territorial expansion is militarization of social life, militarism that «is the most common and widely-spread reason for breakdowns of civilization throughout four or five millennia. Militarism breaks down civilization, involving local states in an internecine fratricidal war. In this suicidal process, all social substance becomes fuel for an omnivorous fire of Moloch» [ibid, p. 222]. A social decay becomes a favorable condition for geographical expansion. «Society experiencing a decay seeks to defer the day and hour of its end directing all its vital forces to material projects of a gigantic scale that is nothing else but a desire to deceive agonizing consciousness doomed by its own non-competence and destiny to death» [ibid, p. 224].

A. Toynbee details the mechanism underlying the decay of civilizations, which has a significant value to understand the content of a transitional period. He notes that «as the power establishes over the circle, a process of breakdown and decay begins, not growth. This manifests itself in escalation of internal wars. A series of wars lead to a breakdown, which increases transforms in a decay» [ibid, p. 335]. Social rifts grow, a decay of a society begins — vertical when «a society falls into a number of local states, which serves as a reason for bloody internecine wars» [ibid, p. 336], and horizontal when a society falls into three types of groups: dominating minority, not willing to part with its dominating position and establishing a universal state to support it; internal proletariat giving rise to the Universal Church; external proletariat that gets organized in mobile military detachments delivering attacks on a dying civilization. In the combat between these three forces a decay of civilization takes place. «In the history of a fall of any civilization one could catch a rhythm of decay... After a recession beginning at the moment of a breakdown, a revival follows, which coincides with the moment when the universal state is founded. However, this process also ends with a breakdown signaling a beginning of a new recession where no revival is followed, but a final decay» [ibid, p. 477]. In the decay of civilizations, outside influences might play a notable role, according to Toynbee — external proletariat who often blows up the boundaries of a stagnating society.

The concept of A. Toynbee is valuable not only because of tremendous materials on the history of civilizations involved in the research, but also because it provides a full-scale picture of life cycles of local civilizations, mechanisms underlying the alteration of generations that is to a considerable extent an effect of the alteration of world civilizations, to which the English scholar did not pay due attention.

Stating the value of A. Toynbee's contribution to the theory and history of civilizations **V.I. Ukolova** makes a well-founded conclusion: «Probably, nobody before Toynbee attached such value to the category “civilization”, category acquiring more and more epistemological value in recent years and is confidently included not only in the research tools of philosophers, sociologists and historians, but also the spiritual arsenal of mankind. It has become absolutely obvious now that Toynbee's philosophy is not either prophetic or immaculate, but it is impossible to imagine the mentality of the 20th century without it... Toynbee tried to prove by available means that the history is opened for comprehension and that mankind is able to give a worthy answer to the universal Challenge» [ibid, p. 13].

Another book of A. Toynbee — a collection «Civilization on Trial» — is saturated with optimism [192]. Answering a question whether the history could provide us with any information on our own outlooks, A. Toynbee writes: «A lesson of the history is more like not a horoscope of an astrologist, but a navigation map, which provides a sailor who knows how to use it a tool through employing its ability and courage to mark out a course between the rocks and reefs marked on the map» [ibid, p. 35].

The study of the history of civilizations contributes to it: «If we draw a chart of the main stages with relation to the history of civilizations featuring birth, growth, breakdown and fall, we may compare their experience from the stage to the stage..., may bring into confrontation common moments in their history as certain specific features, separating them from unit moments representing individual features. We can develop this way the morphology of the types of society called civilization» [ibid, p. 102].

Having studied the history of interaction between civilizations, temporal intervals of clashes between them, a decisive impact of the western civilization in the 20th century on all other societies, A. Toynbee forecasted a counterattack in future on the dominating role of West: «It's on the cards that the Russian volley in the form of communism would seem something inessential, when more powerful civilizations of India and China would answer our western challenge in their turn» [ibid, p. 132]. Long before S. Huntington A. Toynbee brought up a problem of the clash among civilizations: «It may happen that once clash of the West with other world would be recognized a most significant event in contemporary history... A comparative study of the course and effect of such clashes between civilizations, contemporaneous to each other, gives the key to the understanding of the history of mankind» [ibid, p. 155]. He noted the complexity and inconsistency of mutual penetration of technologies and cultures of various civilizations: «All individual elements of cultural space have a deep-laid internal connection between each other, so throwing aside old and accustomed technology and mastering new and foreign, one could not hold changes on the purely technological level, they will gradually penetrate deeper and deeper, undermining the original cultural tradition and conquering newer and newer spaces of the alien culture going forward step by step after penetration as a wedge of technology» [ibid, p. 127–128]. Today's mass spread of information technologies together with the values of western civilization and culture into

other civilizations corroborated the truth of such warning of the English historian.

In parallel with A. Toynbee, **Pitirim A. Sorokin** (1889–1968), an eminent macro- sociologist of the 20th century, took up the theory of civilizations.

The publication of a fundamental four-volume work «Social and Cultural Dynamics» [183] undertaken by him in 1937–1941 (translated by V.V. Sapov and published in the year 2000 in Russia) is in actual fact a spacious work on the theory of history and theory of civilizations – mainly early civilizations of the Mediterranean and European civilizations. A quantitative approach to the measurement of various sides with respect to socio-cultural dynamics of civilizations for two and a half millennia found its first wide application there.

Sorokin made a primary discovery in the field of macro-sociology, philosophy, history, theory and history of civilizations: a periodic alteration of socio-cultural systems – ideational (super-sensual), sensual, idealistic (further called integral) and mixed – was grounded.

Properly speaking, the matter in question is a regular alteration of ages in the dynamics of global civilization. Sorokin calls socio-cultural fluctuations, i.e. processes, recurrent from time to time, in a social and cultural life and in mankind's history as the main topic of its research. [ibid, p. 80]. He studies a cyclical path of socio-cultural dynamics in time and space: «*In a relatively cyclical crisis, a path of the next cycle does not coincide in full with the path of the previous cycles. Certain deviations are observed from cycle to cycle*» [ibid, p. 91]. This is an alternate or a creative repeating image of historical dynamics: «Historical and social processes constantly experience always new variations of old themes. In this sense, they are full of surprises and rarely predictable in the aggregate. In this sense, history never repeats in general» [ibid, p. 92].

Pitirim Sorokin studies the fluctuation of ideational, idealistic and sensual forms in the cyclical dynamics of various fields of social life (various sides of civilization) on rich historical data:

➡ in the field of arts (painting and sculpture, architecture, music, literature, drama) – Greco-Roman and Western European showing the specifics of fluctuations in the major styles of art [ibid, p. 245–253];

➡ in the field of systems of cognition, various directions in searching for truth, scientific discoveries and technological inventions, major categories of thinking, general and specific scientific theories, includ-

ing the theories of cyclical, wave-like course of historical process [ibid, p. 440–441], fluctuations of the theories in social sciences and humanities, including in studying culture and civilization [ibid, p. 467–471]. He made an interesting comment on the cyclicity in the succession of theories: «When we, in our zeal, extremely absolutize some given theory, a reaction comes, causing its decline. But also a new theory goes too far, negating not only the value of the history preceding it, but often that kernel of truth which was in it. That's why it is doomed in its turn that the period of its dominance will end and a new theory will replace it and that turns out to be very often a modification of the one that had been dethroned before. And it continues so endlessly» [ibid, p. 472].

Sorokin also studied the fluctuations of various forms of ethics and law, systems of social relations (family, contractual, forced), fluctuations of strengthening and weakening of governmental control — from absolute totalitarianism to absolute *laissez-faire*, ideal anarchy [ibid, p. 577–585]: «When a crisis situation worsens, the governmental interference, coercion and regulation increases, when a crisis is over, they decrease» [ibid, p. 598]. The study of dynamics of economic conditions showed that it has short-term and long-term fluctuations, periods of rises and falls, where the types of economic relations change with the change of a socio-cultural system: «Economic forms and modes of activity within ideational, ideological and sensual cultures are fundamentally different» [ibid, p. 616].

Pitirim Sorokin shows the availability of fluctuations, cyclical oscillations in the history of wars (as an example — the history of war conflicts in ancient Greece and Rome, China and European countries), domestic disturbances, resorting to quantitative measures here as well — percentage of war years, a relative value of armed forces (in percent of population) and losses. The research did not establish an accurate rhythm. It made Sorokin think that the nature of wars is different with the ideational and sensual types of culture. He also discovered that when these types change, war activity intensifies [ibid, p. 657–658]. The same tendency is observed in the dynamics of social upheavals.

The study of all the sides of civilizational dynamics of led Pitirim Sorokin to the conclusion on a deep-seated crisis of our time and so a near change of a socio-cultural system: «Not only economic and political systems, all key aspects of life, lifestyle pattern and culture of a western society are hit by a crisis. Its flesh and spirit are sick, and it is unlikely that any healthy spot or normally operating nerve

tissue could be found on its body» [ibid, p. 723]. Although Pitirim Sorokin emphasizes that his concept has little in common with the theories of a life cycle according to which culture and society go through the stages of childhood, maturity, old age and fading, in actual fact, the monograph shows convincingly that sensual culture and the type of society that prevails in West are coming to the end of their life cycle. An idealistic (integral) socio-cultural structure is replacing them. Sorokin emphasizes a prognostic value of his concept: «If I know that only three major forms of cultural super-systems are possible: ideational, idealistic and sensual..., then I have all grounds to assume that first these forms would repeat in the history of culture (or cultures)..., secondly, the rhythm of their sequence is likely to be triple, although the order of stages may vary» [ibid, p. 767].

Thus, the main work of Pitirim Sorokin is a complete, in all its diversity of the elements, picture of cyclical fluctuations in the dynamics of the socio-cultural structure (as it is understood in a broad sense of the word coinciding with our concept of «global civilization») for large historical epochs. Although not all postulates of this theory are indisputable (for instance, the postulate of «meaningless fluctuations»), this is a weighty contribution to the theory of dynamics of civilizations.

In 1996 Pitirim Sorokin specially addressed the analysis, comparison and evaluation of the theory of civilization in the book «Contemporary Sociological Theories». It is likely that the establishment of the International Society for the Comparative Study of Civilizations at the International Conference in Salzburg chaired by A. Toynbee and P. Sorokin gave impetus to this. (This society holds annual conferences until now and publishes a journal; in 2003 such conference was in St. Petersburg.)

Pitirim Sorokin critically analyzed macro-sociological theories addressing the functioning of big cultural and social systems assessing them generally high: «Whatever demerits they have, these theories may make the greatest achievements in modern sociology and allied sciences» [185, p. 38–39]. The matter in question is the theories of local civilizations of N. Danilevsky, A. Spengler, A. Toynbee, A. Kroeber, F. Konechny etc. Sorokin also noted the general principles of civilizational theories [ibid, p. 47–49]:

➡ there are large cultural super-systems (civilizations) that function as a real unity and do not coincide with the state, nation or any other social group;

➡ knowledge of the principles underlying the architecture of the super-system, all major cultural super-systems gives macro- categories for analysis of the overall cultural space;

➡ super-systems determine a major part of changes taking place on the surface of a socio-cultural ocean, including historical events and life activity of small socio-cultural units they comprise, such as ideology, behavior, material culture, their track and destiny;

➡ a general number of super-systems is not large in the history of mankind (it does not exceed thirty with Toynbee), while the number of small cultural systems is nearly illimitable;

➡ each large super-system is based on the finite value, to which a civilization gives rise, develops and implements throughout its track, and becomes a causal-conceptual unity;

➡ each cultural super-system keeps its originality, self-identity despite changes in the components making it, and external effects either speeding it up or slowing it down or facilitating the development of its internal potential;

➡ at each given moment the track of a super-system and mankind in general undergoes changes and along with that secures the continuity, being subjected to similar repetitions, rhythms, and tendencies;

➡ life cycles of all civilizations have similar phases; in all their life process, civilizations go their own way passing the stages of genesis, growth, efflorescence, fading, decline and revival;

➡ our time is marked with a deep-seated crisis as the end of the epoch where sensual, theoretical, secular, Promethean, scientific-technological culture dominated and a transition to an integral type of civilization.

At the same time, Pitirim Sorokin emphasized the specifics of his approach to local civilizations. He understood them not so much as cultural systems but as social systems formed on the basis of the nucleus consisting of cultural senses, values, standards or interests. Civilizations belong to various types of social systems. «The main organized community with the central cultural system inherent to it makes the nucleus of such civilizations and serves as a basis of their being. However, besides this main community, each civilization has one or more foreign groups with their own culture, which is different from the culture of the main community» [ibid, p. 50]. In short, civilizations differ in their heterogeneity. Each civilization interacts with several external groups and their cultures penetrate into such civilization and exist as accumulation. It is not correct to call civilizations social systems absolutely different and with varying aggregate cultures.

Pitirim Sorokin opposes the statements on an organic and standard way of development of civilizations. The track of civilizations is extremely multi-variant both in their emergence, development stages, and duration of their track. Some of them «go only one cycle emergence – existence – downfall while others go through several waves of growth and decline, efflorescence and fading, and some of them temporary break up in order to revive after» [ibid, p. 53]. In fact, each civilization has creative achievements in various spheres of culture in various periods of its existence.

Consequently, Pitirim Sorokin has considerably enriched the theory of local civilizations disclosing the complexity and heterogeneity of their structure, diversity of the types of their emergence and tracks, and ambiguity of fates.

The monograph of 1964 «The Basic Trends of Our Times» published in Russia in 1997 gives finishing touches to Pitirim Sorokin's theory of civilizations. The main contents of the book is the identification of tendencies and a long-term forecast of the dynamics of civilizations, which have begun to be implemented from the end of the 20th century and will take nearly all space of the 21st century.

Stressing one more time the differences between sensual, ideational and integral socio-cultural structure, Pitirim Sorokin showed that the sensual structure emerged in the western culture at the end of the 12th c. and became dominating after the 15th century (ousting the previous religious, ideational structure, which prevailed from the 7th to the 13th centuries) [ibid, p. 19] is at the stage of decaying and is subjected to replacement with a new socio-cultural structure being born, which promises to «ensure a voluntary union of religion, philosophy, science, ethics and fine arts into one integrated system of higher values featuring the Truth, Good and Beauty» [ibid, p. 86] «At present the first “tenuous budding” of this integrated order appears and is growing slowly. The epochal struggle between a dying sensual order and integrated order being born has a primary importance; this is the deepest and greatest struggle of our time and the decades to come» [ibid, p. 101]. At the same time it does not mean the unification of civilizations; the integrated, socio-cultural structure will have its own specifics in the West and the East [ibid, p. 102].

In such restructuring of global civilizational space, Pitirim Sorokin notes the «relocation of creative leadership of mankind from Europe and European West, where it has been concentrated during the latest five centuries, to a more extensive area of the Pacific Ocean and Atlantic, especially to America, Asia and Africa will definitely

occur» [ibid, p. 111]. «The European monopolistic leadership could be viewed nearly ended. The present and future history of mankind is already represented on a much more spacious scene of the Asian-African-American-European cosmopolite theater. And besides Europe, America and Russia, reviving the great cultures of India, China, Japan, Indonesia and Islamic world are getting ready to become the stars of the next acts in the great historical drama» [ibid, p. 114].

Despite the West using advanced information technologies for diffusion of their civilizational values on a global scale, the voices of other civilizations sound more and more clearly at the world's theater, Pitirim Sorokin's forecast begins to implement in the civilizations of the fifth generation. However, it has not been perceived yet and begun to master another side of Pitirim Sorokin's heritage — the doctrine of a creative force of altruistic love, which may hold out against the flows of hatred and terrorism, a threat of clash between civilizations. «An unforgettable lesson of catastrophe of this century shows convincingly that without an increase in “production, accumulation and diffusion” of energy of non-egoistic love, no other means could either prevent a future self-destructive war or establish a harmonious structure of a human universum» [ibid, p. 248].

Fernand Braudel (1902–1985), one of the prominent historians of the 20th century made a noticeable contribution to the development of the theory and history of civilizations. In his two-volume book «Mediterranean Sea and Mediterranean World in the Epoch of Phillip II» [22], he devoted a special section to civilizations focusing attention on their mobility and interaction. «Civilizations may be friendly and generous and along with that withdrawn and inhospitable; they exchange visits with each other; they are peaceful and along with that warlike; amazingly sustainable, they are also mobile, breachy» [ibid, p. 589]. Fernand Braudel disclosed cultural borrowings and turnover among civilizations of the Mediterranean [ibid, p. 594] and stressed that an «indication of a vital capacity of civilizations is their ability to diffuse their values, to expansion». It is impossible to imagine civilization whose representatives do not establish their way of thinking and life pattern outside it...» The life of civilization is unimaginable without exchange, transfer and borrowing» [ibid, p. 597, 598]. Properly speaking, the matter in question is the history of the dialogue and interaction among civilizations.

At the same time F. Braudel maintained that the stability of civilizations is one of their distinctive features: «Despite radical changes,

sometimes occurring with civilizations, they demonstrate a surprising constancy in space» [ibid, p. 504]. «This is a resistance force of civilizations clinging to the native soil, which explains the slowness of some processes of their interaction. Their change happens with a large delay, shifts, striking the eye, are being prepared long and by insensible degrees» [ibid, p. 609].

The Mediterranean is a demonstrative example of interaction and dialogue among the cultures of the East and the West: «The first turn in favor of the West occurred at Alexander Macedonian; Hellenism was the first experience of “Europeanization” of the Near East and Egypt lasting until the Byzantine times. With the downfall of the Roman Empire and great relocations of the 5th century the West loses the ancient heritage; its wealth goes to the Byzantine and the Moslem East, which has been returning it back to the barbarian West for centuries. All western Middle Ages are saturated with the influence of the oriental culture» [ibid, p. 639].

It is interesting to note that F. Braudel, already in this work, writes about long-term fluctuations in the history of the Mediterranean, alteration of periods of rises (1483, 1529, 1595, 1650 years) and falls (1460, 1509, 1539, 1575, 1621 years). «Thus, four successive waves are before us, each of them comprises the phase of rise and fall, their duration — 49, 30, 36 and 46 years» [ibid, p. 796]. These fluctuations cover the whole structure of civilization — economic conjuncture, deep-seated demographic shifts, territorial scales of states and empires, changes in social mobility, industrial growth rates; «but again the industrialization degree, state of governmental finances, wars add to the long-term conjuncture. Conjuncture woods help us to construct the building of the history» [ibid, p. 800].

The idea of historical cycles was expounded by F. Braudel in his three-volume work «Material Civilization, Economic and Capitalism. The 15th—18th centuries»[23]. He regards «worlds-economies» as spaces for the development of civilizations and active economic interaction among them [ibid, p. 15], having the city pole — city ensuring business activity. The latter is the center where goods, capitals, credit, people, families and trade correspondence concentrate. [ibid, p. 21].

F. Braudel inquires into the conjuncture rhythms in the historical dynamics of worlds-economies: short-term Kitchin cycles, ten-year Juglar cycle (10 years); Labrus intercycle (10–12 years); Kuznets hypercycle (double Juglar view); Kondratieff cycle lasting half a century or more; secular tendencies — Cameron logical cycles

(from 150 to 300 years) [ibid, p. 67, 72]. «It needs no saying, all these cycles were contemporaries of each other, synchronous; they co-existed, after mixing added own fluctuations to fluctuations of the whole or detached to fluctuations of the whole or detached from it» [ibid, p. 67] F. Braudel specifies four secular cycles in the history of Europe: 1250 (culmination in 1350) – 1507–1510; second (with maximum in 1650) before 1733–1743; third (with culmination in 1817) up to 1896; fourth from 1896 (with possible culmination in 1979). He observes a tendency towards a decrease of cycle duration: «These infinite waves showed a tendency to decreases» [ibid, p. 73].

Cycles interact: «If one adds... a secular tendency and Kondratieff cycle, then we will have “music” of a long-term conjuncture sounding in two voices... Adding their own movements to a rise or fall of a secular tendency, Kondratieff cycles strengthened or eased it» [ibid, p. 76].

According to F. Braudel, a turn of 1973–1974 opened a lasting fall: «A present-day crisis that does not negate us is more menacing as if it failed to succeed in showing its real self, found a name for it and a model that would explain it» [ibid, p. 77]. We could offer this name: a civilizational crisis brought about by the beginning of a change in the industrial world civilization followed by a post-industrial civilization. Fernand Braudel, though recognizing that the crisis of the 70s of the 20th c. threatens capitalism, still believes that capitalism taken as a system has all chances to get out of it strengthened in terms of economy [ibid, p. 647]. And this foresight of the historian has proven true, except that this is already not only industrial, but post-industrial capitalism deeply transformed.

Fernand Braudel specially devoted one of his monographs to the history of civilizations; it was published in French in 1987 and in English in 1993 and 1995 [252].

The first section of the book addresses the problems of the theory of civilizations emphasizing that the history of civilizations is the history of their interaction, however, each civilization keeps its originality [ibid, p. 8]. He uses the concept «civilization» both in singular («industrial civilization») and in plural; in our understanding it is a distinction between world and local civilizations. F. Braudel validly emphasizes that the study of civilizations requires pooling of efforts of all social sciences such as history, geography, sociology, economy and collective psychology [Ibid. – P.9]. He studies civilizations from different viewpoints: geographical (primate, natural environment and conditions for life), as a certain type of society (city, rural etc.) and

as an economic and technological unity as a certain pattern of thoughts, investigates the temporal framework of civilizations, their fates within a framework of a long-term historical process.

In the second and third parts of the treatise Braudel inquires into a historical way and specifics of development of individual civilizations – both the East and the South (Islamic world, Africa, China, India, Indochina, Indonesia, Philippines, Korea and Japan), and the West (Europe, America) and Russia.

Fernand Braudel noted a historical stability, duration of existence of civilizations going through various stages in their life activity: «Any society, any social group were strongly included in civilization in near or far away past, and more precisely – in a series of civilizations accumulated in each other, connected with each other and often very different from each other. Each of these civilizations and their ensemble in general are included in a tremendous flow of the history, and such flow is a source for each society of internal logic inherent to it, and equally of numerous contradictions... civilizations are the essences, to which a very long temporal duration is inherent» [22, p. 229].

H. Wells (1886–1946), a known English scientist and science fiction writer, made an interesting research into the history of civilization. In his fundamental work «The Outline of History» [204] he well and vividly reasoned the major stages of pre-history and history of mankind, key moments of the first and further civilizations development. He paid much attention to socio-cultural factors – writing, arts, and world religions. Wells viewed the First World War as the catastrophe of imperialism, and the Russian revolution as the downfall of modern western civilization in this country [ibid, p. 898]. He was sympathetic to the socialist ideas (although he observed that the Marxist doctrine is fruitless in its essence), welcomed the first five-year plan: «If this plan succeeded, then Russian should turn into the country of enormous production complexes managed by the people's government» [ibid, p. 906].

It is possible to overcome difficulties in the development of civilizations, – Wells wrote, – by establishing the World Federal State. The uniform religion (considerably simplified, and then more intelligible for understanding), world educational organization («education process will continue all life» [ibid, p. 931]) will become its pillars» as well as the world democratic organization. The issues of economy of such World State did not escape the writer's attention: it, according to Wells, should be «...in the employment of all natural resources and latest scientific achievements for the public good through the bodies and

officials of such uniform government» [ibid, p. 932]. At that Wells believed it is unnecessary to keep civilizational diversity.

A famous writer certainly understood how difficult it would be for mankind to form such World State (speaking modern language — the state-legal base of a global civilization). «It is probable that the historians have to put off the written chapters about the World State just begun and to start writing other chapter we don't even have guesses about. These chapters might be as long and as full of facts as our story about the emergence, development and rivalry of great powers. Possibly, tragic economic clashes, vicious fights between races and classes are still ahead... We can't venture to predict and state that the chapters to be written would tell about the final achievement of world political and social unity, although mankind would go through long pauses of defeats and catastrophes on the path to it» [ibid, p. 937–938].

Nearly one hundred years passed since Wells wrote «The Outline of History», and we see that mankind took the second path described by this dreamer, the sad one. The history of the Earth incorporated the chapters of the bloodiest war in the world — World War II, «Cold War», which brought humanity to the verge of self-destruction, threat of the clash among civilizations and a wave of international terrorism. Nevertheless, the tendency of the global civilization movement, even in the long view, to the political unity based on the dialogue and partnership of local civilizations keeps its force and vital necessity.

In the post-war period the American civilizational school that focused its attention on the problems of interaction among civilizations began to develop on a new scale. Let's mention two outstanding representatives of this school — **W. McNeill** and **S. Huntington** who are admittedly opposed to one another with respect to the content and role of interaction of civilizations in their progress.

The book of McNeill «The Rise of the West. A History of the Human Community» [118] was published in 1963 and immediately became a bestseller — it appeared in long run of 75 thousand copies unheard of for scientific treatises. In 1988 it was republished with the preface from the author where previous approaches were additionally pondered over in many ways, and it was published in Russian in 2005.

McNeill proceeds from the assumption that the contacts between civilizations have a decisive significance as well as «understanding of the contact with natives possessing new, unknown knowledge and skills as the prime factor contributing to the historically significant changes» [ibid, p. 13]. This implies a logic conclusion: «Contacts

between civilizations that existed in one and the same time should also be the prime object when studying world history as it is these contacts that destine to change the amount and diversity of knowledge and technologies inherent to each civilization and influence the overall picture of mutual penetration of cultures» [ibid, p.14].

The work of the US scientist shows all wealth of interaction and mutual influence of civilizations – Sumerian, Egyptian, Hittite in the ancient world, cultures of the Middle East, India and China in the next periods, civilizations of the West, East and Eurasia in the current age.

McNeill made an interesting statement about a periodical change of the leading civilizations: «The Mediterranean Hellenistic civilizations (500 B.C. – 200 A.D.), India (200–600), Middle East reintegrated by Islam (600–1000), hegemony of the Chinese civilization (1000–1500), European civilization of the West (1500–2000)» [ibid, p. 19] A concurrent borrowing of accumulated civilizational heritage occurs: «The heyday of China after 1000 also rested upon civilization of the Middle East as well as success of Europe after 1500 was based on the borrowing of the centers formed before» [ibid, p. 30–31].

The author emphasizes that with the improvement of means of transport and communications various cultures influence each other in increasing frequency and stronger [ibid, p. 21], which results in the «emergence of the oecumene world system... uniting more and more people on different sides of cultural boundaries» [ibid, p. 22]. Concurrently with cultural exchange there was an exchange of goods and technologies, which led to the emergence of the transnational system of a cosmopolitan type in 1700–1500 B.C., great empires – Egyptian, Hittite, Assyrian, Babylonian and Persian occurred [ibid, p. 24]. It appears that it is premature to speak about the existence of the transnational system of civilizations of a cosmopolitan type and great empires with respect to that period (maybe except Persian), although we observe the formation, beginning from the ancient period, of the global civilization as an aggregate of local ones plus their space of interaction.

McNeill regards the year 1917 as the key moment of a modern history of civilizations – when the US entered the First World War and the revolution occurred in Russia. «These events made 1917 a landmark in the history marking a new stage in the development of western and world civilization, which is described by transformation of Russia into the communist country, attainment of the status of the world empire by the USA, reducing the role

of Western Europe as an indisputable center and arbitrator of western civilization and a tremendous advance of opportunities to manipulate both man and various types of energy» [ibid, p. 1016]. The American specialist notes the process of approach, convergence of the Soviet and US social systems, and also a historical role of the Russian revolution, that «did not just remind French, but it was its next logic step. The Russian revolution concentrated successfully the power in the military-political and economic-psychological scale unseen before as the French Revolution did it in its time» [ibid, p. 1021, 1023].

In the deep of the cold war scientists again weakened their attention to the problems of civilizations; the researchers were mainly busy with the problems of struggle between two world systems – capitalism and socialism, choice of the way to get independence by the countries of the third world. However, with the end of the «Cold War», disintegration of the world socialism system, the issues of the development of various world cultures and their relations engaged attention of scientists and politicians again. First the publication of an article, and then the book of **S. Huntington**, a politologist, about collision of civilizations promoted a lot such attention [259].

The objective base of such transfer of the focus was a response to a challenge of a new age, a challenge related to the formation of a post-industrial world civilization, globalization and the achievement of an integral socio-cultural structure and found its expression in the formation of the fifth (more differentiated than the fourth one) generation of local civilizations.

The root of S. Huntington's concept is that after the end of the «Cold War» «cultural originality that is identified in a broad sense with a civilizational originality, forms the principles of both the unity and disintegration and conflicts in international relations» [185, p. 508] is giving rise to a threat of clash between civilizations, first of all, between Western and Moslem. The concept is grounded by the following provisions:

➡ for the first time in the world history international policy has become both multi-polar and multi-civilizational; modernization does not give rise to a universal civilization or results in westernization of non-western societies;

➡ a power balance between civilization is changing – the influence of the West is relatively decreasing, the Asian civilizations are accumulating their economic, military and political might, Islam is experiencing a demographic boom;

➡ a new world order is being formed, based on relations between civilizations, countries are grouping around the leading states of their civilization;

➡ the universalist claims of the West are more and more resulting in the clash between other civilizations, especially with the Islamic world and China; on the local level, wars along the rifts result in further escalation of conflicts;

➡ whether or not the West survives, depends on the ability of the US people to establish their western identity and ability of the West to accept its civilization as unique, and not universal, ability to unite for the preservation of civilization against challenges of the East and the South. A global war of civilizations may be eliminated only when the world leaders accept a poly-civilizational nature of global policy and begin to cooperate for its maintenance [ibid, p. 509];

➡ cultural, educational and social programs meant for fostering the concept of dialogue among civilizations are necessary, including through conferences and training material on this topic.

Two concepts – single human civilization and diversity of local civilizations – are recognized thereby.

New impetuses for the evolution of the theory of civilizations at the turn of the 21st c. were given after the adoption of the decision by the UN General Assembly to proclaim the year 2001 Year of Dialogue among Civilizations.

For a theoretical foundation of the dialogue among civilizations the UN Secretary-General **Kofi Annan** appointed a group comprising 18 scholars and political leaders from 17 countries (Prof. **S.P. Kapitza** represented Russia). They prepared the book «Crossing the Divide. Dialogue among Civilizations» [165] reported at the meeting of the UN General Assembly in November 2001. In the foreword to the book Kofi Annan states that «the need for dialogue among civilizations is as old as civilization itself. But today the need is more acute than ever. Today globalization, migration, integration, communication and travel are bringing different races, cultures and ethnicities into ever-closer contact with each other. More than ever before, people understand that they are being shaped by many cultures and influences, and that combining the familiar with the foreign can be a source of powerful knowledge and insight» [ibid, p.15].

The authors of the book observe that the world events of the end of the 20th c. showed that the concepts of the «end of history» and «clash of civilizations» are invalid [ibid, p. 25]. They emphasize that dialogue is a reliable tool for setting a new paradigm of international

relations within global civilizations: «We recognize the existence of a “global common denominator”, which somebody is likely to call “global civilization”, meaning common ethical standards and values for us as a basis of global ethics» [ibid, p. 37]. A fear of the clash between civilizations makes the dialogue among them inevitable. «In the 21st century the most serious threats to the intentional security will be cultural, and not economic or political problems... Fears connected with an inevitable conflict among civilizations make dialogue between civilizations not just desirable, but necessary» [ibid, p. 51].

A precondition for dialogue is the recognition of equality and difference among civilizations: «Dialogue among civilizations recognize many human civilizations, recognize equality and difference of cultures. Without equality no common soil for contacts would exist, without differences no contacts would be needed» [ibid, p. 61]. Wisdom is required for dialogue – an integral understanding, deep self-awareness, vision of a long-term perspective, common sense and sound judgment, continuous education is required [ibid, p. 77]. Society needs «a new paradigm of international relations under conditions of globalization, which will include equality, decentralization of power, revision of the concept “enemy”, interest, personal responsibility, establishment of unions for solving common concerns» [ibid, p. 90].

The authors of the book pay much attention to the enhancement of the UN role as an immeasurably important tool for a fruitful dialogue among civilizations. Among specific proposals – «scholars could take the first seats in this work of this world organization and make their contribution to political debates», establish a consultative security council under the auspices of the UN Secretary-General [ibid, p. 130].

More and more treatises are devoted to the theories, history and dialogue among civilizations in many countries worldwide. This problem has occupied firmly and for long one of the central places in the post-industrial paradigm of the social science being formed.

1.4. Contemporary Russian Civilizational Schools

In the USSR, under conditions when the Marxist world outlook and formation approach to the history dominated, the issues of civilizations were moved to the middle ground, if not to the rear at all.

They were mostly investigated in the historical aspect (the history of ancient civilizations, transition from barbarism to civilization). However, a real burst of scientific creativity in this field was observed since the 90s. Dozens of monographs and books on the theory, history, interaction and future of civilizations, place of Russia in a global civilizational field appear nowadays. Without attempting to give a general review of all sometimes diversified civilizational works and schools, let's dwell on some major trends in modern Russian civilizational thought.

Let's first of all mention the monograph of **E.B. Chernyak** «Civiliography. Science about Civilization» [227] among the works related to the theory of civilizations. In his work the scientist attempted to provide a general definition of civilization: «In a broad understanding, civilization is an integral, self-developing system of essential relations between people – micro-groups, big teams, taken with the environment and material and nonmaterial benefits and special system of values which is called culture» [ibid, p. 11]. The definition is not the best one, moreover, that the matter in question is not micro-groups, and the system of values should not be identified with culture. The author believes that science about civilization (civiliography) is at the stage of formation and tries to correct the deficiencies in the theoretical part of this science [ibid, p. 15]. Another definition appears better in the same book: «Civilization is a self-moving, integral system covering one or more socio-ethnic communities or mankind in general» [ibid, p. 71].

What is valuable in E.B. Chernyak's monograph is a clear differentiation of the conceptions «local civilization» and «world civilization» (in our understanding – global civilization): «World civilization has already existed in the Neolithic Age. It is possible to speak about the world civilization as a body of local civilizations maintaining constant ties with each other and sticking to some common values» [ibid, p. 181–182]. The author inquires into the specifics of world and local civilizations: «Local civilization is created on the basis of one dominating or at least some ethnoses, world civilization – of many such ethnoses. If a local civilization includes as a rule regions with a relatively same level of business development in economic relations, then world civilization – regions at all stages of socio-economic evolution. A local civilization has usually adherents of one religion, world – of all religions on the Earth... A local civilization comprises people connected by common historical destiny, common cultural heritage, world civilization

is all population of the Earth with its tremendous diversity of historical destinies and culture» [ibid, p. 184].

Chernyak investigates the influence of social revolutions on the development of civilizations and introduces the concept «civilizational revolution». «In the civilizational row, the periods of most rapid and scaled shifts clearly stood out. These periods quite deserve to be called civilizational revolutions» [ibid, p. 339]. The reasons of revolutions lie in the non-uniform development of civilizations: «one of the reasons of civilizational revolution — regional and continental — may be the influence of the historical correlation law, which is expressed in the «drawing» of the civilizational structure of this society to other — regional, continental — and world civilization» [ibid, p. 742]. Civilizational revolutions may be inside civilization and between civilizations.

B.S. Erasov (1932–2001) made a weighty contribution in the theory of local civilizations and their comparative study. Participating actively in the activities of the International Society for the Comparative Study of Civilizations, he undertook to make a spacious chrestomathy «Comparative Study of Civilizations» [185]. The chrestomathy reflects the views of scholars on the content of the civilization concept, development of civilizational schools and theory of civilizations, structure of society, relations between cultures and religions, state and wars, dynamics of civilizations. Here you find the characteristics of major local civilizations as European, Islamic, Indian, Far Eastern, Buddhist, Latin American (unfortunately, you'll not find the views on the essence and specifics of the Eurasian — Russian — civilization). The book discusses major problems of the interaction among civilizations, a possibility of their clash and the place in the world system. The body of basic concepts of the theory of local civilizations, their structure and relations was summarized thereby and included in the scientific use for the Russian-speaking readers.

The fundamental treatise of B.S. Erasov «Civilizations. Universum and Originality» [63], published post-mortem, includes a profound foundation of the modern theory of local civilizations. The author proceeds from the civilizational paradigm that «implies the overcoming of the “linear” history and studying the picture of co-existence of various societies, having as a basis the universal principles of structure, but implemented in a certain model inherent only to the given socio-cultural system» [ibid, p. 10]. He set before himself several prime tasks to disclose the contents and evolution of approaches to the study of civilizations, provide a system measurement of the general

principles of civilizational structure of society, identify the dynamics of civilizations, their specifics and factors determining the outlooks of civilizational interaction or confrontation [ibid, p. 111]. These objectives were successfully achieved.

Let's consider how the problem of the dynamics of civilizations, that is of interest to us, is shown in the monograph. B.S. Erasov emphasizes the cyclicity and inheritance in the historical process: «The category of civilization has reflected a basic dilemma in the understanding of the historical process where some things are proved by changes, but along with that something is kept and makes the basis for stability and succession in changes... The idea of life cycles in the development of society, its genesis, efflorescence, reason and decline of social life dates far back to the depth of centuries» [ibid, p. 221].

Academician Erasov formulates three preconditions for a scientific approach to the problems of civilizational dynamics: «The first is that time has a cyclical nature in civilization and possesses the ability to move forward first, towards the development and perfection, and then back, towards simplification, archaization and disintegration. The second precondition of civilizational dynamics is that special emphasis is laid on spiritual and moral spheres, on which a material side of life activity depends in this or that way... The third precondition is in the establishment of pluralism of the historical process, availability of parallel lines of cultural being which repeat each other in its essential features, but nevertheless they co-exist independently from each other» [ibid, p. 236].

Much attention is paid to the problems of dynamics of civilizations, change of the phases of their life cycle, reasons for changes, specifics of development of cultures of the West and the East, problems of revolutions in terms of the theory of civilization: «Revolutions were the landmarks of a common world process, confirmation of its invariance, and then the predictability of passing» [ibid, p. 253].

Also, in the monograph etatistic and civilizational facets of the state are discussed, including the role of empires and world religions in the development of civilizations (Ch. 9); principles and limits of civilizational comparativistics, experience of a mid-ethical study of civilizations, enucleation of the specifics of civilization of the West (Ch. 10). It discusses in detail the relation of ethical, national and civilizational approaches (Ch. 11); civilizational aspects of modernization, relation of cultural originality and modernization in a civilizational dimension, synthesis of heritage and borrowings (Ch. 12). A special chapter addresses specifics and dynamics of civilizational structure of

the Russian society, pessimorphism and also socio-cultural, political and economic disintegration.

In a number of works of one of eminent thinkers — encyclopedists of the 20th century **N.N. Moissejev** (1917–2000) the issues of theory, history and future of civilizations have been thoroughly studied into; his views on this problem are expressed in the most concentrated form in the monograph «Destiny of Civilization. The Way of Reason» published in 1998 [136].

N.N. Moissejev emphasizes a decisive role of spiritual world in the formation and life activities of civilizations: «Culture and technological basics of life are not civilization yet. These are only components of civilization. I would probably note the communion of spiritual worlds as a foundation of civilizational communion. I believe this is exactly what brings forth the communion of action» [ibid, p. 175].

Unlike Toynbee, N.N. Moissejev does not view religion as a constituting sign of civilization. According to him «Toynbee is hardly right asserting that religions form civilizations. Indeed, civilizations are older than any religion. And it appears to me that in such case everything happens exactly a reverse way» [ibid, p. 42].

Civilizations have walked a long and difficult historical way. «It was not a direct form, it was not similar to a tranquil flow of the river and was interrupted with riffles when the efficiency of old mechanisms supported the development of mankind was depleted. Then twilight came. And before a new dawn people had to look for new forms of life and pay an enormous price for learning to live in new conditions» [ibid, p. 63].

So far humankind managed to find an efficient way out of a civilizational crisis each time. But by the end of the 20th century mankind found itself on the threshold of an oncoming crisis common to all mankind and a timely change of a civilizational paradigm becomes necessary, otherwise, it is impossible to avoid the ecumenical catastrophe. Biosphere is unlikely to disappear, but there could remain no place for the existence of man there [ibid, p. 75]. There is only one way-out — humanity should enter «the age of noosphere, i.e. that period of the history when biosphere and society will develop as an entity, the evolution of which follows the goal-oriented beginning seeking, but not guaranteeing that homeostasis of... human and biosphere will be secured» [ibid, p. 79]. In other words, the matter in question is the formation of noosphere civilizations. The researcher warns about dangers of modern tendencies in the formation of an information society and suggests his own understanding of its content

as a society «where collective intellect (collective mind) plays a role similar to the role which human mind plays in his organism, i.e. promotes the development of society and overcoming of ever-increasing difficulties... and acts for the benefit of all mankind forming its homeostasis» [ibid, p. 86].

The scientist emphasizes that under present conditions of «an oncoming crisis common to all planet, a certain ideology common to all planet, which cements the endeavors of the planetary community should be elaborated, and also efforts are necessary for its survival» [ibid, p. 97]. In doing so, one should begin to elaborate noospheric ideology from the system of education: «One must learn to live in harmony with nature and its laws. These principles should be enfolded in man... I give the priority to these problems: new civilization should begin not even with a new economy, but with new scientific knowledge and new educational programs» [ibid, p. 100].

A growing threat of clash between civilizations is an obstacle on this way: «I see the inevitable clash of civilizations – not so much people as civilizations carrying diverse world outlook, diverse understanding of the place of man in the society and society in nature, quite inequable ranging of human values» [ibid, p. 105]. Joint, concerted efforts of civilizations should be counterposed to such threat: «Civilizational specific features have to play a significant, decisive role in the transformation of the situation common to the whole planet. Only joint, well concerted actions of various civilizations, which are able to elaborate necessary universals in relations of nature and man, hold out a hope for a favorable outcome of an oncoming environmental crisis» [ibid, p. 173]. These universals imply that civilizational diversity will be maintained: «Logic of interaction between civilizations based not on their standardization, but on taking differences into consideration is the next page of the logic of the history. And it meets the logic of nature» [ibid, p. 184].

An overall conclusion may be made: while V.I. Vernadsky formed the foundations of a doctrine about noosphere, then the merit of N.N. Moiseyev is in his laying the cornerstones in the theory of *noospheric civilization* as the future of global civilization provided that an optimistic scenario for its further destiny is implemented.

A contemporary school of Russian cyclism develops the theory of civilizations based on cyclical-genetic regularities of the development of society. Its leader, **Yu.V. Yakovets**, tackles the problems of the theory of civilizations and a civilizational approach to the history, milestones in the development of world and local civilizations, their

interaction, formation of humanistically-noospheric post-industrial world civilization of the fifth generation of local civilizations in the 21st century.

In March 1992 an international scientific conference was dedicated to the centenary of the N.D. Kondratief's birth. The report of Yu.V. Yakovets «Formation of the Post-industrial Civilization» was delivered at that conference [246]. The author formulated the concept of the world civilization as a certain step in the «historical rhythm of dynamics and genetics of the society as an integral system where material and spiritual reproduction, economy and policy, social relation and culture are intertwined completing each other» [ibid, p. 2]. The history of mankind is represented as a rhythmical change of civilizational cycles, reducing inexorably in terms of duration. An original scheme of the change — six world civilizations, beginning from the Neolithic, — is put forward [ibid, p. 160] and it is shown that since the end of the 20th century a transition to the post-industrial civilization evolves, also main features are determined as a higher level of knowledge and creative potential of man, humanization of reproduction, plural social-market economy, democratic law-governed state, national revival, revival of high culture [ibid, p. 8–9]. The advantages of a civilizational approach to the history and future against Marxist formation approach are shown. The diagnosis of a crisis at the beginning of the 90s in Russia is made and scenarios of ways out from such crisis are discussed.

These new ideas were developed, founded and detailed in the monograph «At the Cradle of New Civilization» [247] published in 1993 in Russian and English.

This treatise discloses the regularities of statics, dynamics and genetics determining the pulsation of human history. The concept of world civilization is refined and its structure identified («pyramid of civilization») [ibid, p. 40], mechanism of change of civilizations is disclosed, their main features and specifics are shown, a tendency towards reducing the duration of civilizational cycles is grounded. [ibid, p. 55–58]. Distinctive features of the universal crisis of post-industrial civilization are disclosed, outlined the contours of post-industrial society replacing it, main contradictions of a transition period shown.

The author could not skip over the issue about Russia's place, its past, present and future in the rhythm of change of civilizations, what are specific features of civilizational cycles and crises in its territory [ibid, p. 131]. The work demonstrates that the crisis of the beginning

of the 90s is a civilizational crisis. Russia's future scenarios are considered and a conclusion is made: «It is necessary to master historical experience for ways out from crisis situations and accurately reckon possible ways and effect of Russia's introduction to the trunk-line taking by mankind to a new civilization» [ibid, p. 131]. Unfortunately, this conclusion has not been taken into account by those who took the way of non-liberal market reforms leading to the disintegration of the Eurasian civilization.

The monograph «History of Civilizations» published as two editions – 1995 and 1997 [242] – and printed in English in the USA in 2000 as an enlarged edition and titled «The Past and the Future of Civilizations» [276] includes more profound fundamental relations of the proposed approach to the theory, history and future of world civilizations.

The book comprises four parts. The first includes the fundamentals of the theory of the historical process, its regularities – historical cycles, concept and structure of civilizations, mechanism underlying the change of world civilizations. The turns making a spiral of historical process are determined. The concept of historical super cycles uniting the triad of kindred world civilizations is first introduced. The interrelation in the dynamics of world and local civilizations is shown. The definition of the world civilization is refined: «*World civilization* is a stage in the history of mankind, which is characterized by a certain level of demands, abilities, knowledge, skills and interests of man, technological and economic mode of production, system of political and public relations, development level of spiritual reproduction. Actually, the matter in question is a super long (century) historical cycle. A change of civilizations expresses a translatory motion of the historical progress, self-development of mankind» [ibid, p. 41]. This self-development finds its concurrent expression in the dynamics of local civilizations: «*Local civilizations* express cultural-historical, ethnical, religious, economic-geographical specifics of an individual country, groups of countries, ethnoses connected through a common destiny reflecting also a rhythm of universal historical process, either finding itself in its epicenter or moving away from it. Each local civilization has its own handwriting, its own rhythm more or less synchronized with the rhythm of world civilizations» [ibid, p. 42].

The second and third parts of the books discuss the dynamics of world local civilizations by historical super-cycles. A description is given of world civilizations replacing each other and changes in the main elements making the structure of civilizations – in population

and man, technology and ecology, economic structure of society (based on the employment of multi-dimensional reproductive-cyclical macro-model), social-political relations and spiritual life of society — science, culture, education, morality and ideology (including religion). The dynamics of world civilizations is thus given in a three-dimensional measurement — by alteration of world civilizations, changes of their principal constituents and dynamics of local civilizations.

The last chapter of the book is devoted to future of civilization in the 21st century, in the period when the post-industrial civilization is being formed. A forecast how the third historical super-cycle comprising three world civilizations will be evolving in the space of the 21–24th centuries is given. Alternative scenarios of a transitional period are examined and a description of major outlines of the post-industrial civilization as a humanistically-noospheric civilization is given [ibid, p. 270–273]. The outlooks of transformation of all floors of the «pyramid» of civilization (democratic, technologically-environmental, economic, state-political and socio-cultural) in the vanguard countries and in Russia are discussed. In closing the conclusions are made on a spiral in the history, vector of historical advance, outlooks for the shaping of a post-industrial civilization and future of Russia.

The fundamentals of a civilizational approach — theories, history and future of world and partially local civilizations — thereby have been formulated first in one book.

In the monograph «Globalization and Interaction between Civilizations» [239] published in 2001 and 2003 the author expounds the theory of dynamics of local civilizations under conditions of globalization. The provisions on interaction among civilizations as a pivotal problem of the 21st century [ibid, p. 3–4] are formulated. The features of a historical change connected with a transition to the third historical super-cycle and formation of the fourth (but a modern approach of the fifth) generation of local civilizations are shown [ibid, p. 23]. The structure and the composition of this generation are grounded (including 12 local civilizations), outlooks for their interaction. The ideas that civilizations will melt in the global super-society, inevitability of their clash, and also a loss of civilizational diversity of mankind is challenged [ibid, p. 44–45]. The issue discussed is what place Russia and CIS (Eurasian civilization) will occupy in the post-industrial civilizational space of the 21st century. The main approaches to the formation of a multi-dimensional geocivilizational model are formulated [§1.7].

A complex pattern of interaction between civilizations of the fourth generation is viewed in the six aspects corresponding to the blocks of a geocivilizational model: demographic, ecological, technological, geo-economical, geo-political and socio-cultural. The problems of evaluation of the dynamics with relation to a socio-cultural system by civilizations, formation of integralism as the nucleus of a post-industrial paradigm of social science, civilizational aspects of social stratification and mobility, duality of modern information revolution are discussed as a part of the latter.

A new approach to economic interaction between civilizations is given in the monograph «Rent, Anti-Rent and Quasi-Rent in a Global Civilizational Dimension» published in 2003 in Russian [244] and English [277]. Economic relations between local civilizations of the fifth generation are viewed here from the angle of the generation and appropriation of super profit. The latter is formed on the world market as a result of the use of scarce resources (world natural rent), predatory use of natural resources and pollution of environment (ecological anti-rent), export of high-tech goods and services (technological quasi-rent) and operations on the world financial markets (financial quasi-rent). It is proposed to establish global funds (ecological, technological, and socio-cultural) on deductions from such super-profit. Such funds will be utilized for solving global problems and assistance to backward civilizations. The book also discusses the opportunities to build and to use a geocivilizational model.

The theoretical efforts of **B.N. Kuzyk** undertaken by this author and in association as well as fundamental researches conducted by research teams under his guidance are a significant contribution to the development of a modern theory of civilization and development of the ideas of the N.D. Kondratieff's school of Cyclicity. Such works include the following: «Russia Has One Efficient Way of Development – Its Own» [98], «A High-Technology Complex in Economy of Russia» [96], «Russian in Space and Time» [97], «Russia 2050: Strategy of an Innovative Breakthrough» [103], «Future of Russia: Inertia-based Development or Innovative Breakthrough?» [99] etc. A scientific development of the mechanisms of advance of Russia into the world civilizational space found its scientific formulation in the said books.

The treatises «Russia has One Efficient Way of Development – Its Own» and «A High-Technological Complex in Economy of Russia» put forward and examined the pivotal issues underlying the fate of our country. The matter in question is first of all an active innovative

activity in economy that changes its content and structure, establishes the conditions for formation of a progressive technological order, and forms a new system of relations between people in organization of production, economy and life itself.

In the conducted research the author proved the availability of objective national-specific factors for speeding up Russia's development and determination of their role in modern civilizational process. It is shown how a modern stage of development based on the recent development of science guaranteeing a fast economic and technological growth and advance of Russia in global economic and geopolitical space, is replacing traditional socio-economic evolutionary transformations made within the second and third technological orders.

The book summarizes research experience of scientific and practical projects in this sphere implemented by Russian and foreign scientists and opening a new page in cognition of a civilizational process.

The author analyzes global changes occurring in the world at the turn of the millennium, and first of all in the sphere of world economy and policy. According to the author, they are so considerable that might lead (and they have already led) to transformation of the so-called «geo-economic globe of the Earth».

The book studies profoundly complex problems of warfare as a social phenomenon, means and methods to prevent it. The place and role of the defense industry is shown in the development of a high-technology complex of the country.

In the collective work of **B.N. Kuzyk** and **A.I. Ageyev** etc. «The Rhythms of Russian History» [100], «Russia in Space and Time» [101], qualitatively new approaches to the measurement of the dynamics of the Russian civilization are put forward. In actual fact, scientific tools to measure the stages of the state and civilizations development have been created for the first time.

The evaluation of nine base factors of historical development united into the strategic management matrix such as territory, natural resources, population, economy, culture and religion, science and education, army (armed forces), foreign policy (geopolitical environment) is laid as a foundation of Russia's history for two millennia and a forecast nearly up to 2080 [101, p. 19].

The application of such matrix enables to assess a technological level of economy, include it to this or that technological order, determine a potential of the country in a geocivilizational space.

Based on the evaluation of events for 2000 years of the Russian history, two types of cycles — 400 and 80 years — have been identified:

«The analysis of historical dynamics allowed to identify and found the hypothesis that life cycles exist in the Russian history, a sort of frequency of manifestation of a stable total combination of factors. This hypothesis was formulated based on the analysis of dynamics of nine momentous factors for 2000 years of the Russian history after Christ. The recurrence of relative values of such factors, which was identified by us, indicates the availability of two types of cycles, nominally we called them long and super long, approximate duration 80 and 400 years, respectively. These cycles determine the unique “chronon” of the Russian history, its peculiar chronological “quantum”» [ibid, p. 9]. It is established that 400-year cycles began and ended with the time of troubles, military-political defeats, economic discrimination of the country on the part of other states. 80-year cycles are «more diverse in its typology, although they are fundamentally common in their structure» [ibid, p. 235].

The identification of the rhythm of the Russian history opens up a possibility to forecast the ways of evolution of the country in the 21st century: «Strategically and cyclically comprehended past appears already not as extrapolation of last tendencies, and considerably more informative procedure for foresight of the nature of problems, time of their aggravation, armoury of possible solutions... A scenario outline of the forecast for developing strategic events within the 21st century... shows a range of opportunities for positioning Russia in the world space and internal development» [ibid, p. 236]. The book gives a close analysis of the five 400-year historical cycles for two millennia (with the descriptions of 80-year cycles making them) and a forecast of a regular 80-year cycle up to 2080. This material is used in chapter 14 of this book in examination of cycles, crises and future of the Russian civilization.

In the researches of **B.N. Kuzyk** and **Yu.V. Yakovets** «Russia-2050: Strategy of an Innovative Breakthrough» [103], **V.V. Ivanter** and **B.N. Kuzyk** «Future of Russia: Inertia-based Development or Innovative Breakthrough?» [69] and also in a number of other works the said authors continue to study the ways of development of Russia in the 21st century with the use of the same methodology that has already been worked out in the earlier publications and first of all in the book «Russian in Space and Time».

The central and vital problem of modern Russia is the question: what direction should we go in? Only science is able to answer it. The strategy of development of Russia up to 2050 suggested by the scientists and the forecast of its innovative development set forth in the

book «Future of Russia. Inertia-based Development or Innovative Breakthrough?» is based on the following major postulates. The future of the Russian economy and achievement of the strategic tasks set before the country depends to a decisive extent on a reasonable choice and consistent pursuance of a long-term state policy oriented at a switchover to the innovative path of Russia's development, a technological breakthrough.

The forecast of an innovative-technological development of the world and Russia for a period to 2050 based on the theory of foresight of cyclical dynamics of N.D. Kondratieff enabled to identify the tendencies for several decades ahead. One of the major tendencies is that in the first half of the 21st c. the developed countries will be involved in the next scientific revolution. It will become a base for the formation of the post-industrial scientific paradigm and knowledge-based human community. A transition to the post-industrial technological mode of production and the sixth technological order that will determine the strategies of economic and social development of the whole world will complete in this period.

The foundational point in the inquiries into civilizational cycles and ways of development of Russia conducted by a team of scientists headed by B.N. Kuzyk is to bring general theoretical conclusions made by them in the fundamental works published earlier to real practical projects of the 21st century. The unique example of such close connection of fundamental theoretical and applied science is the project dedicated to the study of the key problems for the world of global energy revolution that is closely connected with the speeding up of development of Russia and all earth civilization. The book of B.N. Kuzyk, V.I. Kushlin and Yu. V. Yakovets «On the Path to Hydrogen Energy» [102] addresses these issues.

This really vanguard project means a transition from the use of fossil fuel to hydrogen power engineering, which is based on practically inexhaustible and environmentally sound source of energy. The project proves that modern science is really able to find the way-out of the world energy crisis, and along with that to raise the level of opportunities of the state in surmounting of all socio-economic problems.

This project rests on the theory and methodology of innovative development set forth in the works referred above, and also experience of working out the programs in the field of hydrogen power engineering, mastering of nuclear-missile and space technologies developed in Russia, European Union, USA, Japan and other countries. This project brings the researches of the authors to the substantiation

of mechanisms for the implementation of two scenarios of development of Russia for an outlook to 2050: inertia-based and innovative.

The priority is given to the innovative path of the development of the country, under which a technological breakthrough is made through the enhancement of the responsibility of the state and business community for a technological level and competitiveness of economy, choice of a restricted number of strategic priorities and concentration of resources for their implementation.

The result of the pursuance of such strategy will be the revival and restructuring of a scientific potential of the country based on integration of science, higher education and innovatively oriented production. The development of new market niches will occur and speeding up of economic growth rates on this basis and establishment of conditions for the improvement of level and quality of life of population, strengthening of the country, enhancement of its security.

Let's dwell in brief on other publications on the theory, history and future civilizations of contemporary Russian scholars.

There has already been referred to above the monograph of **I.N. Ionov** and **V.M. Khachatryan** [71] on the theories of civilizations — from the antiquity up to the end of the 19th c. (The materials of this publication have been employed in this chapter.) A series of educational books on the history of civilizations has been published. Let's mention such educational book of **A.V. Ostrovsky** for higher professional education where there is a description of civilizations of agricultural societies, civilizations of the industrialization time. However, we'll not find a close analysis of the history of modern local civilizations in this educational book.

Another example is the course of lectures of **L.A. Moisseyeva** «History of Civilizations» [137] where the alternative concepts of the development of world civilizations are examined with the description of ancient and medieval civilizations of the East, America and the West, and an attempt has been undertaken to determine Russia's place in the context of world civilizations. An extremely lot of place is given to the esoteric concept of development framed by E.I. Blavatskaya [ibid, p. 30–39], whose follower the author is likely to be. She is also convinced that Russia has to embrace the values of the European civilization: «The process of Europeanization is inevitable: in its genesis Russia was a part of Europe and it is going to it. Negating it, Russia learned from it borrowing technology from it. Even the ideology of Marxism it took was European... Time makes us enter the world civilization» [ibid, p. 324]. Although she moderates further her position:

«For a millennium, Russia is a civilized country. And this is a special civilization — Russian civilization... it is neither Asian, nor European» [ibid, p. 364].

The views of the Russian scientists on future of civilizations, their destiny in the 21st century are quite various, sometimes quite opposite. Thus, **I.V. Bestujev-Lada** states in the book «Alternative Civilization» [14] that a global catastrophe is inevitable under the continuation of the now tendencies in the development of the industrial civilization. In this connection he suggested and founded his project of an alternative civilization. «Thus, the most wide-spread formula of an alternative civilization was born: low energetic (in terms of efficiency in power consumption), highly resistant (in terms of restoring global balances on which mankind is based on), ecologically clean, demilitarized and artificially human» [ibid, p. 67]. The book addresses the direction of motion on each of such ways. In actual fact, the matter in question is the key features of a post-industrial world civilization. Admittedly, at the end the destinies of local civilizations — European, East-Asian, South-Asian, African, Eurasian with the most tragic destiny, north-American, Latin American and Islamic are stated in brief [ibid, p. 427–431]. In the forecast of Bestujev-Lada published in 2005 — «Russian and World in 2005–2015: Challenges and Responses» [15] — the key problems of the development of material resources, economy and policy, social and information sphere of world and Russian civilizations in the oncoming decade are considered.

V.L. Inozemtsev has a different view on the future of civilization. In the book «Split Civilization» [70] published in 1999 he divides them into three categories predicting different destiny to each of them. Thus, the most developed civilizations — Northern American and Western European — have entered the post-industrial period and are going through the post-economic revolution. The latter is a complex process, which will make the content of the development of civilizations throughout the 21st century [ibid, p. 8]. Its result will be the flourishing of production of material and non-material benefits allowing a person to get rid finally of the dependence on nature. Labor, as an activity dictated by external material necessity, will be replaced with creation. Declassification and dematerialization of production will occur, the world «will be able to overcome three main system-forming phenomena of economic society — exchange of commodities, private property and exploitation» [ibid, p. 54]. Indeed, the supreme stage of communism, isn't it? But this is communism «to the happy few», for civilizational elite. A bigger part of it (including Russia, Japan) that

will exhaust the possibilities of «completing development» will remain forever at the stage of the industrial society. «Constantly growing investments in the development of both material production and a human potential result in deepening and increasing a gap between the post-industrial countries and other world» [ibid, p. 103]. And, finally, the third group of the countries that are unable to solve independently the problems of development will find themselves in the system of renovated colonialism. These countries should be deprived of their sovereignty within the nearest decade by means of interference of international forces based on the UN mandate or a similar regulatory act, and the management with respect to them should be delivered by a group of international observers and experts resting on the UN troops. Through the next 15–20 years after such regime has been established for account of the funds earmarked from the budgets of the leading post-industrial countries and international financial institutions, the activities should be held to ensure a minimum subsistence level for nationals of such countries, formation of their production potential based on balanced agrarian technologies and preventing further degradation of their natural ecosystems» [ibid, p. 445]. As the «guinea-pig» of such execution it is recommended choosing 15–20 poorest countries. Curiously enough that even five years have not passed from the publication of the monograph of V.L. Inozemtsev and the US has begun to implement the doctrine of renovated colonialism first in Afghanistan, and then Iraq.

A good few of the monographs are devoted to the **Russian civilization** and its place in the modern world community; here a diversity of approaches is also observed. The educational book of **L.I. Semennikova** «Russia in the World Community of Civilizations» has been mentioned above [176] where the problems of a civilizational approach and history, dialogue among civilizations were considered and a description was given to the main stages in the formation and development of the Russian civilization. The author negates that a single world civilization exists [ibid, p. 83–88] and views the western civilization as a model of progressive development [ibid, p. 57].

A.A. Zinovieff [172], a well-known philosopher, holds a contrary opinion negating at all the existence of an independent Russian (Eurasian) civilization and foresees the end of local civilizations, their melting in a single global super-society: «Time of civilizations has passed on the planet at all... The peoples of the northern Asian region of the planet are not able to create civilization by own forces on the level of modern achievements and under modern conditions of

mankind's life. This refers to the peoples of other nations as well – African, Southern American, Southern Asian, etc. The process of west-ernization of this region is so well under way that one should not think at all about any special Russian civilization» [ibid, p. 24]. **N.N. Moissejev** does not positively agree with this in the article published in the same collection: «Russia is not simply the north of Eurasia populated with people of a various ethnical origin how sometimes they attempt to show this. Russia is an integral independent civilization... Russia is a symbiosis of peoples, synthesis of various cultures, an amalgamation giving rise to the general world view and common way of life» [ibid, p. 6].

The monograph of **S.I. Sukhonos** «Russian Renaissance in the 21st Century» [188] includes an original view on the future of the Russian civilization. He has introduced the idea of two-millennium scientific civilizational cycles. He distinguishes five such cycles in the world history: Egyptian (3001–1500 B.C.); ancient (1500 B.C. – 500 C.E.), oriental (500 B.C. – 1500 C.E.); western (500–2500); Slavic or Russian (1000–3000). Each cycle comprises semi-millennium stages. These are the stage of awakening; preparatory; creative (maximum activity and flourishing); final, conservative, the stage of the weakening of creative activity [ibid, p. 154–155]. The researcher arrives at the conclusion: «A system analysis of the history of civilization has shown that exactly Russia enters the age of its High Renaissance from the year 2000. It is called to create a new, Cosmic world view, which will integrally comprise the arts, religion, philosophy and science... Where the matter in question is not the victory over other civilization for the sake of might of the only one. No, the matter in question is a historical necessity to save the world from the energy and environmental catastrophe despite its movement to self-destruction headed either by blind or by egoistic leaders» [ibid, p. 68]. In many ways, it evokes Pitirim Sorokin's forecast of the formation of an integrated socio-cultural system.

The same approach is shared by **I.B. Orlova** in the monograph «Modern Civilizations and Russia» [149]. After consideration of the theory of a civilizational approach to the analysis of a social-historical process and this process itself as the movement of civilization, the author studies the Eurasian civilization as one of cultural-historical systems. The researcher shows the outlines of the modern Eurasian concept that is based on the «general methodological principle of multi-media of a social-historical process and parallel co-existence and

development of various cultural-historical systems (civilizations)» [ibid, p. 176]. The alternative of the civilizational development is formulated for the 21st century: «The opportunity of an alternative choice has not been lost for Russia and other Eurasian states yet: either further dispersion, turning into «ethnographical material», nutritive media for other civilizations, or re-integration, turning into an unspent potential of its own culture, originality, its own historical memory and technological modernization for restoring its existence at the high stage of the civilizational development» [ibid, p. 178].

Some scholars lay emphasis on the religious content of the Russian civilization. Thus, the monograph of **A.S. Panarin** «Orthodox Civilization in a Global World» [153] analyzes the specifics of the Orthodox civilization. The author writes: «The Orthodox world region is characterized by a certain amalgamation of civilizational and formation mechanisms: it is described by permanent polemics with local specifics (i.e. with itself) in the name of movement towards original universalism» [ibid, p. 10]. Panarin sees the world recognition of Orthodoxy in «establishing anew, “re-open” equally the unity of mankind... which first appeared together with the Christianity and was lost on the way of secularization» [ibid, p. 485]. The researcher sees a chance of the post-industrial world in it: «A secret of real post-industrialism is in the maintenance of “archaic” passionarity of a moral-religious type. Failing to gain such archaism, the modernity risks slipping down to barbarism and even to savagery. The Orthodoxy is a chance of mankind — one of the guarantees that the creative civilizational post-industrialism could be still saved in the oncoming global world» [ibid, p. 493]. However, it is unclear how the Orthodoxy could be perceived by Moslems, Catholics, Protestants, Hinduists, Buddhists. Let's not forget also about a considerable number of atheists. The collective work prepared by the Gorbachev Foundation and published by the RAS Institute of Philosophy «The Dialogue among Civilizations. The Order of the Day» [60] examines a wide range of pressing problems of interaction and dialogue among civilizations, and the outlines of their future are determined. In the introductory article **M.S. Gorbachev** writes that under conditions of intensifying contradictions of globalization «the emphasis and reliance on the dialogue of civilizations is assuming a special significance. I would say — *significance of a separation sign or a column between the future and the past...*» [ibid, p. 8]

The processes of *globalization* with their tendencies towards universalization and westernization accentuated the interest to the prob-

lem of *the destinies of civilizations*. Several collections devoted to this problem were published under the editorship of **T.T. Timofeyev**, inter alia «Globalizations and Destiny of Civilizations» [44], collection of papers to the conference held by the International P. Sorokin-Kondratieff's Institute together with the International Society for the Comparative Study of Civilizations in September 2003 in Saint Petersburg. The feature of these collections is that they represent the dialogue among scholars of various countries and civilizations (Russia, the USA, Japan, France, Italy, China, etc.) on the issue of globalization and civilization. It is significant to note that with all diversified approaches the scholars from various countries and scientific schools are common in one: globalization transforming civilizations does not remove a civilizational diversity. **V.S. Stepin** emphasizes it: «The leading tendencies of globalization require linking of development trajectories of various civilizations, not forced imposition of one model of development to the prejudice of other» [ibid, p. 264]. **W. Bledsoe** (the USA) believes that «globalization is more likely polarization of civilizations than evolution in a common culture» [ibid, p. 249]. **A. Marceri** (Italy) emphasizes that it is necessary to intensify the dialogue among civilizations: «*Civilization of dialogue* is also and possibly first of all *new globalization*, economy of cooperation in the context of interests of development of the poorest, political management of struggle against hunger and poverty» [ibid, p. 253]. Upon analyzing the content of five great civilizational revolutions in the history of mankind and development of the spheres of interaction among civilizations, **Sh. Ito** (Japan) expresses hope that in the 21st century not only achievements in collaboration and cooperation of civilizations will be observed and it will be managed to avoid the clash of civilizations, but new globalization will be shaped bringing peace and well-doing on the Earth [ibid, p. 91–92].

In the monograph of **O.A. Sergeeva** «Specifics of Modern Civilizational Processes» [178] the following is of interest: the studies of intercivilizational interaction various types and its effect – military conflict of civilizations or the dominance of one of civilizations (westernization). Admittedly, the model of equal cooperation, partnership based on the dialogue among civilizations has left nearly out of a view of the author. She also examined the influence of globalization on the intercivilizational interaction, statistics and dynamics of civilizational functioning and a mechanism of civilizational change. The following conclusions of **O.A. Sergeeva** are far from being unchallengeable: that «the highest form of the development of material-tech-

nological sphere of existence of civilization results in simplification of a value-standard system, stagnation or degradation of culture. The effect of it is a systematic civilizational crisis, transformation or a downfall of civilization» and that «the civilizational concept admits, for some period of time, building of a common planetary state-political system. But it does not admit a common world civilization as such civilization should exist on the basis of this culture, value-standard system, base principles, community of mentality. It is impossible» [ibid, p. 250]. However, the unity in any system, including civilization, does not exclude, but implies the diversity of its elements that ensures the viability and adaptability of the system.

A neoliberal trend of the Russian civilizational thought is most vividly represented in the works of **E.T. Gaidar** who is justly considered the key theoretician (and also an expert) of the Russian neoliberalism. His monograph published in 2004 «Long Time. Russia in the World: The Outline of Economic History» [38] is a catechism of modern liberalism in its Russian variant. Not dwelling on all its sides, let's describe just one aspect of the monograph rich in historical excursus, which define the place of Russia in the world civilizational space.

First of all, such paradox should be noted that the economist who heads a crusade against Marxism in Russia highly evaluates the contribution of **K. Marx** to science: «Possibly none of the scholars dealing with the issues of social development has rendered such impact on historical processes in the world for the last century and a half as K. Marx» [ibid, p. 47]. Though E. Gaidar criticizes «iron laws of the history» and other postulates of Marxism, a respectful attitude to this doctrine could be quite clearly traced. And this is not by chance. The matter is that with all their confrontation, these are two sides of one and the same medal — an industrial paradigm of social science. Both these trends of social-economic thoughts proceed from the primacy of economy (productive forces, economic relations) in the structure and dynamics of society, tending to its unification according to the western model. In this sense they confront with civilizational schools that give priority to a spiritual sphere, proceeding from the diversity of civilizations.

E.T. Gaidar clearly contradistinguishes these two periods in the history of society: the period of stagnant agrarian civilizations lasting within millennia — and the period of a present-day rapid economic growth: «The unprecedented changes have occurred in the world for two elapsed centuries only, life period of eight-nine generations. On this background, it is hard to believe how stable, static the main out-

lines of social life were throughout millennia followed after the formation of the first agrarian civilizations in the river valleys and the valley of the Nile with their gradual expansion on the Earth... The key features of economic and social life remained stable throughout millennia, suffering only slow, evolutionary changes» [ibid, p. 18, 20].

Such theories stating that the rates of economic growth of civilizations were low for millennia fundamentally disaccord with the real picture of dynamics of civilizations. In the works of Fernand Braudel, John Bernal, Lev Mechnikov, Karl Jaspers, Pitirim Sorokin, Igor Diakonov, a dozen of other scholars inquiring into the theory of civilizations it is shown, what revolutionary changes radically altering the face of society occurred with the change of world civilizations. Such transformations should not be restricted only to the economic growth rates averaged for centuries and millennia. The most noticeable changes in the life of humanity occurred during the formation of early class world civilization in the 3rd millennium B.C. It is exactly when a highly productive irrigative cropping was mastered, prime social institutions were established as local civilizations, state and law, tools so dear to the heart of the neoliberals as money and prices for goods expressed using them, taxes, foreign trade, etc. gained ground. Let's remember the «axial age» of Karl Jaspers — the period when monotheistic religions formed; periods of the efflorescence of civilizations of India, China and the Arabic world; the periods of the Renaissance and great geographical discoveries. One should look at the history through highly averaging economic spectacles so that not to notice such revolutionary changes in the history of civilizations.

The viewpoint of E.T. Gaidar on the place of Russia in the world civilizational process conflicts with reality. Manipulating the statistical data, he has arrived at the conclusion that «a nearly constant distance between Russia and leaders of a present-day economic growth on the key indicators of social-economic development is kept throughout a century and a half on the background of large-scale changes in the world» [ibid, p. 44] However, this «law of a steady lagging of Russia» opened by Gaidar collides with the real facts. According to the data of **A. Maddison** [264] the relation of Russia and Western Europe in terms of the GDP per capita (in comparable prices) made 57% in 1820, 43% — in 1913 and 53% — in 1973. Only as a result of neoliberal market reforms undertaken according to the recipes of E.T. Gaidar a «jump back» was made in 2001, and the said relation decreased by 24%. The gap increased more than 2.8 times! [ibid, p. 262]. What «regular lagging» one should speak about?!

Even a brief overview far from being complete of the Russian scientific literature on the problems of civilization shows, on the one hand, the outburst of a scientific interest to these problems — they become the volume of advanced interdisciplinary studies, one of the key directions in the post-industrial paradigm of social science being formed. The Russian scientists play a leading role in this process. On the other hand, we see a diversity of civilizational schools, approaches to the theory, history and the future of civilizations. It indicates the need to further develop such productive trend of the Russian and world social-economic thought.

1.5. Essentials of the Theory of Civilizations

Having inquired into a long and contradictory path of the formulation and development of the theory of civilizations and having given an overview of the works of scientist who have made their contribution to this field of socio-economic thought, let's proceed now to the expounding on our vision of this problem — the foundations of the theory of civilizations in the form it appears before us as a result of many-year researches, reflections and discussions. Of course, we fully realize that our work is not a completion stage at all in cognition of such complicated category as civilization, and constitutes only one of consistent steps on the long path of cognition.

Let's base our reasoning on the following logic:

➔ **content of the concept** of civilization, its differentiation in three categories — global, world and local civilizations;

➔ **structure** of civilizations, succession and interrelation of their major elements, «pyramid» of civilizations;

➔ **development of civilizations in historical time**, their changes by stages of life cycle and periods;

➔ **evolvement of civilizations in space**, a stage by stage spread on the populated part of the Earth (oecumene) and outside it;

➔ **a civilizational approach** to history and future of civilizations, its difference from other approaches;

➔ **place of the theory of civilizations in the system of sciences** in the post-industrial paradigm being formed, in a more general sense — integralism.

Next chapters of our research address our vision of cyclical dynamics of civilizations, major stages of their historical path and their possi-

ble fate. Furthermore, the outputs of cliometric measurements of civilizational dynamics will be given.

1.5.1. Concept and Types of Civilizations

Civilizations is the highest level of organization and development of human society, highest both in a logic and historical aspect. Society as a totality of interconnected, interactive individuals consists of a number of hierarchical levels (fig. 1.1).

The primary social unit, a cell, brick on which all structure of society is based is *family*. It is exactly here reproduction of the major atom of all social universe, man, is made, its biosocial genotype forms, a larger part of the end product made is consumed. The decay of family, decrease of its role in society constitutes is the prime sign of crisis that hit society, and all civilization.

The second level comprises the *unions of people*. They may be established either for joint residence (villages, cities) or joint production activity (enterprises, institutions) or joint social-political activity (trade unions, political parties, etc.).

Fig 1.1

Hierarchical structure of society

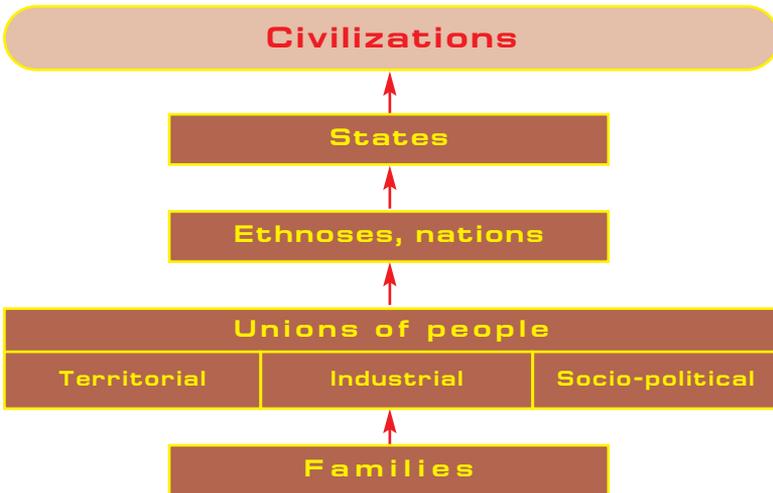


Figure 1.2

System of civilizations

The third level comprises *ethnoses, nations*. Although, these forms of interaction among people residing on a more or less ample territory are different by nature, but they have similar structuring signs – communion of language, order of life, traditions, historical experience and beliefs.

The fourth level – *states* that unite several ethnoses or nations and have characteristic, recognized institutes – boundaries, state power, nationality, economic and cultural space, its own history.

Finally, **the fifth highest element** in the structure of society is *civilization* that unites all humanity being at a certain level of development or its large part. Civilizations may coincide in their boundaries with the state, but it is not always the case. The main point in civilization is a certain system of values worked out and supported by long historical experience, general or similar conditions of existence and development.

In their turn, we consider civilizations in a three-dimensional space-temporal aspect (*fig. 1.2*):

➡ **global civilization** is a part (or all) humanity that reached the level of civilizational development and is passing through certain levels, stages of life cycle;

➡ **local civilizations** as the prime integral parts of global community that differ in the system of civilizational values, conditions of dwelling and activity, and historical experience; they also pass through certain stages of a historical path – change of generations of local civilizations and phases of a life cycle of each civilization and each of their generation;

➡ **world civilizations** as major stages in the development of the global civilization and cycles of local civilizations generations, periods in the development of humanity as a uniform mega system.

Each of the said types of civilizations fulfils its function in the formation and dynamics of civilizations. At the initial stage (after the Neolithic revolution) a narrow field of a global civilizations forms. It gradually expands, its differentiation occurs into local civilizations. By lapse of time their number increases, and its body changes in the general historical flow of dynamics of the global civilization. The system of civilizations evolves continuously, and qualitative leaps in its development recurrently occur and find their expression in the change of world civilizations and generations of local civilizations.

1.5.2. Structure of Civilizations

Civilization is a complex, multi-layer higher social organization. Its structure may be represented in the form of a **«pyramid» of civilizations** comprising several «floors» and many «apartments» (fig. 1.3).

The top of this pyramid is occupied by **spiritual sphere** that forms and transmits the system of civilizational values from generation to generation, which is the main point that distinguishes one civilizations from another.

The spiritual sphere (or the sphere of spiritual reproduction) includes the following elements:

➡ **science** — the level of cognition of regularities of nature and society and skill of their use for the development of technological, economic and ecological modes of production, in socio-political structure of society;

➡ **culture** — esthetic perception of nature and society, their harmony in dynamics, sense of beauty;

education — methods of conveying accumulated knowledge and experience, scientific and cultural heritage permitting the oncoming generation to perceive a social genotype, adapt to the environment and changes in it;

➡ **ethics** — the system of rules of human behavior in society, ethical accounts of acts, compliance with social standards;

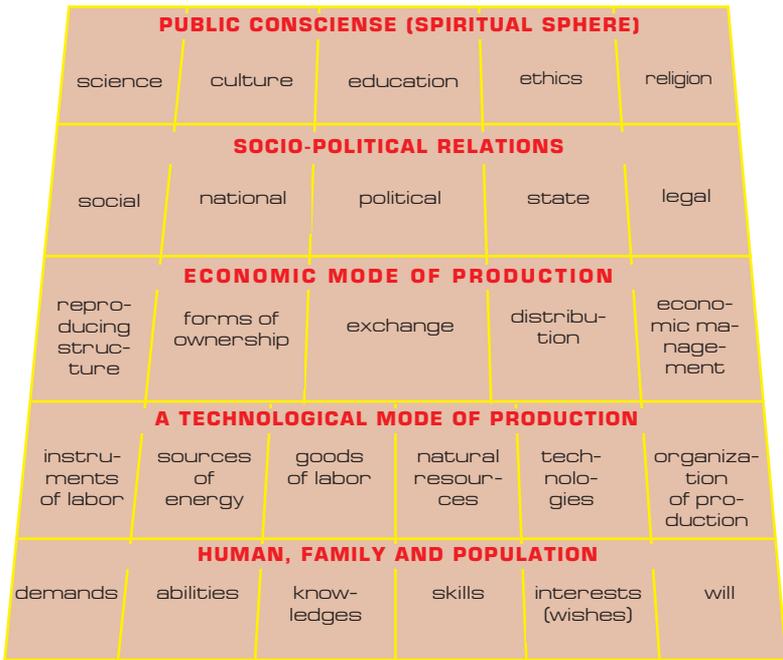
➡ **religion** — ideas of man and society about the world, system of goals and motives for people's activity based on their ethical standards and relations with other denominations.

All these elements are closely connected, intertwined and differ from civilization to civilization, change from period to period.

A socio-political system that characterizes the forms and modes of union and differentiation of people by large social groups (social stratification), ethnical and national identity, forms of political activity, and

Fig. 1.3

The Pyramid of Civilization (Structure of Society)



state-legal structure is found on a lower «floor». This system changes regularly as a result of wars and revolutions.

Economic mode of production makes the third «floor». Its major institutions include:

- forms of *ownership*, appropriation of means of production and products produced;
- modes of *distribution* of product made (including surplus) between various social groups;
- forms of *exchange*, development of the market with all its categories (money, price, credit etc.);
- dynamics of the *structure* of economy by functional purpose of products made (reproduced structure) and by other criteria;
- forms and methods of *management* of economic activity.

The structure and nature of this «floor» is determined in many ways by a **technological mode of production** that follows it. The latter includes the following elements:

- ➡ *instruments of labor*, the system of tools (machinery), buildings, structures, transportational routes etc.;
- ➡ *sources of energy* both in production activity and everyday life;
- ➡ *goods of labor* – natural and processed;
- ➡ *technologies*, modes of uniting manpower with the instruments and goods of labor using power sources;
- ➡ social, sectoral and trade *division of labor* in productive activity;
- ➡ forms of *organization of production*, its specialization, concentration, cooperation and diversification.

The efficiency level of production, extent of human demandsatisfactions depends on interaction among all these elements.

The foundation of the pyramid of civilization is **population** – its size, rates of dynamics (birthrate, death-rate, and natural increase), family structure, sex-age structure, migration, level of demands and extent of their satisfaction (level and quality of life). The resulting effect of functioning and dynamics of civilizations manifests itself on the lowest «floor».

However, one more floor is found below this «floor» that determines outward conditions where civilizations function – **nature and ecology**, scale of territory of civilization; climate conditions, density of population (demographic pressure on the environment), endowment with various natural resources, level of environmental pollution and interference in biosphere processes. It is here that the area of interaction between nature and civilization is found, area of their co-evolution.

As is evident, each of the civilizations «floors» fulfils its functions and has its structure. But they constantly interact and transform concordantly and balance thus expressing the essence of the **law of proportionality in the structure and dynamics of civilization**, strict harmony in their development. A breach of this law, especially in the transitional periods, impairs effectiveness of civilizational system.

1.5.3. Evolution of Civilizations in Time

Civilization is a changeable category, continuously transforming. Its evolvement in time may be traced in three aspects.

Each civilization has its **life cycle**. It consists of several stages:

- ➡ *nascence* (in the depths of preceding society);
- ➡ *establishment* in the epicenter, diffusion (in space) and improvement by structure;

- ➡ *maturity*, full implementation of the potential inherent to it;
- ➡ *crisis*, decay (giving way to the next civilization);
- ➡ existence in the remnant, *relict state* at the next stage of development of society, in a new civilizational system.

Life cycles are inherent to local, world and global civilizations. Not all local civilizations pass through all stages of their life cycle, evolving in time in full scale. A cycle of some of them is terminated due to natural catastrophes (it was the case with the Minoan civilizations and legendary Atlantis) or clashes with other cultures (pre-Columbian civilizations of Central and South America and the Scythian proto-civilization).

Dynamics in time finds its expression in a regular ***change of generations of local civilizations*** changing by their nature and structure. The 1st generation emerged on the planet at the end of the 4th – beginning of the 3rd millennium B.C. when the formation of the «pyramid» of civilization completed – a socio-political «floor» was built (classes, state and law emerged) and economic «floor» changed radically (private property emerged and market with the institutes inherent to it – in the expanded form). Local civilizations changes each other and at the threshold of the 21st c. time came to form its regular, fifth generation.

Global civilization evolves in time through a ***change of world civilizations***. Their countdown runs from the Neolithic revolution, establishment of productive economy and a gradual sophistication of the structure of society. We call the first four millennia of that period *the Neolithic world civilization*, although it was more likely a proto-civilization in the nascent «pyramid» still incomplete. Only at the next stage, with the formation of the 1st generation of local civilizations and «completion» of all its «floors» and «apartments», it is possible to speak about the existence of world and global civilization in its full scope. According to our classification, early class, ancient, medieval, early industrial and industrial world civilizations changed each other. At the end of the 20th c. time came for the formation of the post-industrial civilization and this rhythm will continue in future.

One more change of a global civilization will be observed in time – ***change of historical super cycles*** uniting the triad of allied world civilizations and one-two generations of local civilizations. Super cycles are the largest of the element of temporal dynamics of civilizations. The first historical super cycle (end of the 4th millennium B.C. – middle of the 1st c. A.D.) united the Neolithic, early class and ancient world civilizations and the 1st and 2nd generations of local

respectively. The Second historical super cycle (its chronological framework — 6th—20th c.) included the Medieval, early industrial and industrial world civilizations, 3rd and 4th generations of local ones. The third super cycle begins in the 21st c., only its first levels are known — post-industrial world civilization and the 5th generation of local civilizations.

*The inquiry into the history of civilizations has made us draw a conclusion that **compression of historical time is regular**. Each next step in the history of civilizations (world, generations of local) is characterized by a shorter life cycle, speedup of the historical advance rate, quickening of the pulse of cyclical dynamics of society. While a temporal space of the first world civilizations and generation of local made several millennia, then the latter — only several centuries. Such tendency seems to persist in future.*

1.5.4. Diffusion of Civilizations in Space

The history of civilizations began on a relatively small area of the firm land to the north of the equator on the Afro-Eurasian continent and to the north and south of the equator — in America. The other populated part of the earth (oecumene) was still at the pre-civilizational stage of development, and ample territories were wild at all.

Stage by stage, one world civilization by another civilizational space was extending, ties between separate local civilizations expanded and strengthened. The development of transport roads (river, sea, land) conduced to it, the emergence of new means of vehicles — horses and camels, river and sea vessels, steam-engines and steamboats, motor cars and aircraft. The age of the Great Geographical Discoveries in the period of the early industrial civilizations ended with the inclusion of nearly all territory of the Earth in the global civilizational space (except Antarctica, some regions of the far north, separate regions of primeval tropical forests and deserts). It embraced all oecumene and left the boundaries of the planet — space conquering began.

However, it does not mean that civilization distributed throughout the earth as an even and homogeneous «layer». The congelations of civilizational energy — *vanguard civilizations* — exist on the planet. They are followed by (in the second echelon) allied, close by their level of development. Lagging behind civilizations, which are late for one-two rhythms and are climbing the second step, are found on the

periphery of the progress. The fourth echelon is less-developed civilizations and countries, which are unable unassisted to wrest out from the sucking down bog of the backwardness.

Consequently, the territory of the Earth, global civilizational space is a varicolored «quilt» in each specific period of time, in which civilizations on various stages of development are tightly «stitched together». The color of such «quilt» changes from time to time as either one or other civilizations take up becoming the leaders of a civilizational advance, and other retreats to the second, third echelon.

The unity of space-temporal dynamics of civilization may be pictorially represent as a ***spiral of civilizational progress*** (fig. 1.4), whose whorls expand in space and change in time.

The first whorl of the spiral covers the life cycle of the Neolithic civilization. It is the longest by its duration — covering (in the epicenter) more than four and a half millennia — nearly a half of all historical time. The genotype of civilization was formed that period, and the outlines of the civilizations «pyramid» were gradually taking shape, its «floors» and «apartments» become occupied.

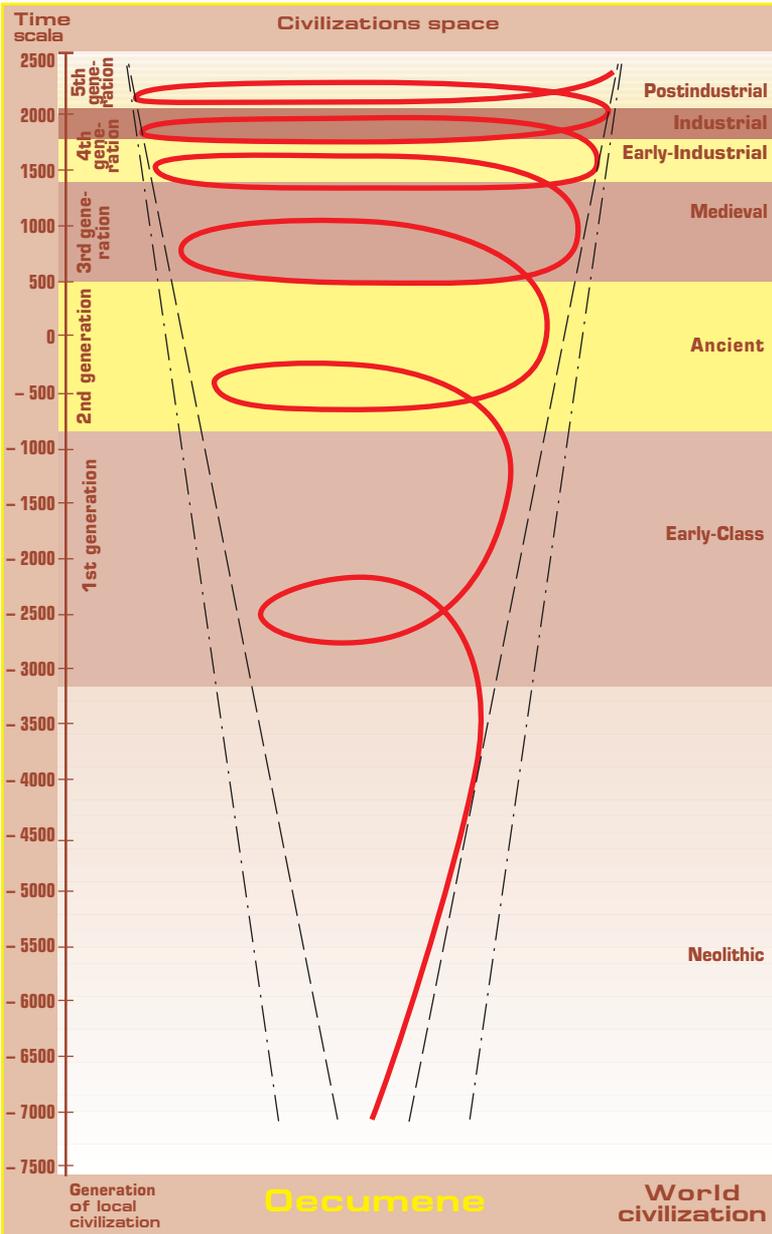
The second whorl began from the second half of the 4th millennia B.C. when the 1st generation of local civilizations formed, classes, states, law, private property and market emerged. All «floors» and «apartments» had been already occupied, the system of civilizations — world, local, and global — formed (although they settled on a small part of the oecumene — about 15–20%).

The third whorl includes the period of the prevalence of the ancient world civilization and the 2nd generation of local civilizations when their geographical range expanded to 35% of the oecumene, the first world empires sprang up. This is the peak of the development of the first historical super cycle.

A transition to **the fourth whorl** of the spiral — medieval world civilization and the third generation of local — turned to be hard and long as it coincided with the change of historical super cycles. The center of a civilizational progress shifted to the East (India, China), the western European civilization, that was in a permanent state of a military conflict with a newly emerged Moslem and other civilizations, began to form. The latter was also aggressive in their turn (the conquest of nearly all Eurasia by the Mongolians). The ideational socio-cultural system prevailed, the dominance of world religions consolidated in the spiritual and political spheres.

The start of **the fifth whorl** of civilizational spiral was marked by a transition of humanity to the early industrial world civilization,

Figure 1.4
Spiral of Civilizational Dynamics



manufactory, technological mode of production, beginning of the development of industrial capital, classes of capitalist wage workers, the first bourgeois revolutions (Netherlandish and English) and formation of the bourgeois democracy as a political system — after the period of absolutism in the vanguard countries. The fourth generation of local generations formed. While by population size and GDP output the Chinese and Indian civilizations prevailed that time, but in actual fact the leadership was taken by young and aggressive western European which developed at the priority rates. In the period of the Great Geographical Discoveries it conquered a larger part of the world and destroyed the pre-Columbian civilizations of America. The great scientific revolution of the 15th—17th cc. evolved exactly in Europe, it embraced the bright achievements of the Renaissance, the overturns of the Reformation and Enlightenment of prime significance for the spiritual sphere occurred. Only Eurasian (Russian Empire) and the Moslem (Ottoman Empire) were able to resist the West.

The top of the second historical super-cycle was reached at the **sixth whorl** of the civilizational spiral, in the period of the industrial world civilization, bloom, and then decline of the 4th generation of local civilizations, triumph of the sensual, socio-cultural system. The industrial revolution transformed technological and economic spaces; it speeded up many times the economic growth rates that became one of the factors of a rapid growth of the population size. The Independence War in North America and the Great French Revolution opened the path to radical transformations of the socio-political system and establishment of bourgeois democracy. All these events were accompanied by a train of wars and revolutions happening at the end of the 18th — beginning of the 19th cc. and the 20th c. The decline of the industrial civilization was marked by the establishment of totalitarian states, and a deep crisis of culture. In the 19th c. a colonial system of imperialism sprang up, which involved many ancient civilizations. The 20th century is characterized by a series of national-liberation revolutions, disintegration of the system of imperialism, and by the end of the century — the world system of socialism, liquidation of the bipolar world. The planet is hit by a deep-seated civilizational crisis associated with the end of the second historical super cycle.

At the threshold of the 21st c. the **seventh whorl** of the civilizational spiral that is likely to include the space of two centuries begins and leading to the radical transformation of the global civilization at the beginning of the third historical super cycle. A humanistically-

noospheric post-industrial civilization and the fifth generation of local civilizations are underway. There are signs that a sensual socio-cultural system prevailing in the West is being replaced by a harmoniously integral in its western, eastern and Russian modifications.

At the beginning of the seventh whorl the global civilization encountered three epochal challenges. The first of them — demographic: depopulation, aging of population is observed in most countries. The second — ecological: prime power and other natural resources are nearly exhausted, a threat of a global ecological catastrophe has arisen. Globalization, its neoliberal model, tosses the third challenge to humanity, when an abyss between the rich and poor nations and civilizations becomes already insurmountable. A scientific-technological revolution evolving nowadays and formation of the integral socio-cultural system create prerequisites for settlement of the said contradictions, for a worthy response to the challenges of the century. To what extent such prerequisites will be used, on a timely manner and the essence of such response depends whether the global civilization will enter a regular **eighth whorl** of the civilizational spiral in the 23rd century or humanity will come to an end.

1.5.5. Civilizational Approach to History and Future of Humanity

The theory of civilizations is a part of the nucleus of the *post-industrial paradigm of social science* that will be established as a result of the great scientific revolution evolving in the 21st c. and a new picture of always changing world being formed now. A civilizational approach to the history and future of humanity as a major component of *integralism* is coming to replace liberal and Marxist formation approaches, which prevailed in the period of the heyday and decline of the industrial civilization (in the 19th—20th centuries) and with its seeming antagonism had common roots and features as integral parts of the industrial scientific paradigm.

What are the major distinctions of such approaches?

First, both liberalism and Marxism proceed from the *primacy of economy* in the structure and dynamics of society — property and market, Homo economicus (liberalism), productive forces, relations of production as a basis (Marxism). A civilizational approach establishes the priority of spiritual sphere — science, culture, education,

ethics and religion, the *priority of the system of civilizational values* that determine motivation of human activity in all its aspects. It is the principle the «pyramid» of civilization is based, logic of interaction and dynamics of all its «floors» and «apartments».

Second, both liberalism and Marxism take as a base the *linear-progressive trajectory of the development of society*, its direct ascend from step to step. Although all scientific schools of liberalism and Marxism give attention to the study of cycles and crises, they do so only for proving that deviations from a direct development make exceptions. The theory of civilizations, on the contrary, lays stress on the recognition of *cyclical-genetic regularities* in the dynamics of society, its fundamental bases necessarily inherent to it in the past, present and future. These regularities are considered not deviations from the norm, but the norm. Therefore the inquiries into the cycles and crises in all spheres of society and at all stages of its development are the cornerstone of the theory of civilizations.

Third, the effect of the differences referred to above is a different approach of the formation and civilization theories to *periodization of the history of humanity*. Liberalism distinguishes a pre-history, pre-market stage of development; the history proper when the establishment and diffusion of capitalist market economy and bourgeois democracy occurred; and the end of the history when these systems triumphed all over the world. There is nowhere to move further and no need. Marxist historical materialism is based on the theory of socio-economic formations changing each other: primitive-community lasted for million years; slave; feudal; capitalist; communist that begins from socialism and will establish itself forever. This is also the end of history, but dishing up in a new form unlike liberalism.

Integralism proceeds from the assumption that a civilizational stage in the development of humanity (beginning of its history) started from the Neolithic revolution; that the rhythm of historical process finds its expression in a regular change of historical super cycles, world civilizations, generations of local civilizations, socio-cultural system; that the regularities of socio-genetics — inheritance, variation and selection — underlie such cyclical dynamics.

Finally, fourth, the said three trends of a socio-economic thought have a fundamentally different *ideas of future of society*. Both liberalism and Marxism view future as a complete implementation and final triumph of the ideals exercised by them — either capitalist market economy and bourgeois democracy or unified and monotonous communist society that surmounted all social differences where «there

will be a total flow of wealth» and the principle will be implemented «from each according to his abilities — to each according to his needs» and each kitchen lady will administer society.

On the contrary, the advocates of integralism are sure that cycles and crises, a regular change of historical super cycles, world civilizations and generations of local civilizations will persist until human society exists. The same way new challenges of time will arise and the need to provide adequate responses to them, civilizational diversity will persist. Humanity is not to be quiet in future too: risks will be modified, but not disappear, and people have to exert every effort so that to minimize them.

1.5.6. Place of the Theory of Civilizations in the System of Sciences

The last question remains to answer: what place the theory of civilizations will occupy in the system of sciences, first of social?

The theory of civilizations has mainly a fundamental nature and is included in the fundamental researches. The applied researches are built on them, and not only in the field of social and human, but natural, engineering and ecological sciences.

The major action field and use of the theory of civilizations are **social sciences** as it makes, as it has already been mentioned above, a part of the nucleus of the post-industrial paradigm of social science, integralism as a modern expression of such paradigm. However, this theory does not claim an exclusive place in the system of social sciences at all implying the existence of other trends and schools (synergetics etc.). Being a key element in such sciences as history (first of all the philosophy of history) and archeology, the theory of civilizations is also used in the system of economic, political, cultural and other social sciences.

The theory of civilizations occupies the leading positions in the fundamental and in particular, applied researches in the field of **human sciences** — linguistics, art criticism, ethnography, etc. How objects of these sciences will develop is impossible to understand failing to gain an understanding of the essence of change of civilizations, content and interrelation of their elements (spiritual sphere, demographic and socio-political factors).

Knowledge of the theory of civilizations is also necessary for development of **ecological sciences**, awareness of the role of a natural-ecological factor and the formation of noosphere.

Engineering sciences also has an allied field with the theory of civilizations, especially in the issues of study and use of a technological factor in the development of society, regularities, prerequisites and consequences of the technological modes of production, technological orders and generations of technology change.

Knowledge of the theory of civilizations is also important for representatives of **natural sciences** who study cyclical-genetic regularities of the development of science, changes in scientific paradigms, specifics in the diffusion of new knowledge and formation of knowledge-based society in various local civilizations.

Thus, based on first of all social sciences the theory of civilizations is basically of *interdisciplinary nature*, it penetrates into all branches of knowledge, its understanding is necessary for scientists and specialists of any sciences, although, of course, in various scope and various aspects.

It follows from the said that the theory and history of civilizations should take one of the leading places in the **system of education** — both general and trade education, and continuous and distance learning. It is necessary not only to work out dedicated textbooks on the theory, history and future civilizations (in various languages and various structure for different countries and civilizations), but also incorporate special sections in the textbooks on other specialties. Sites and portals on the Internet should be constructed covering these problems. All this would allow making civilizational knowledge more accessible for new generations.

It appears that this work package should take salience in the programs of the World Decade of development of education proclaimed by the UNESCO. This will conduce not only to a more profound assimilation and diffusion of a new paradigm of social science, but to the development of mutual understanding, dialogue and cooperation of civilizations, fostering tolerance, prevention of international terrorism, establishment of the humanistically-noospheric post-industrial civilization.

Summing up, it should be noted that modern civilizational schools both in Russia and abroad are remarkable for their extremely wide gamut of concepts and recommendations. It indicates that the science about civilizations (civiliography) has not completed its way of the formation, shaping the acknowledged paradigm. But one thing is obvious — that the problems of the content, dynamics, diversity, future of civilizations occupy the central place in the socio-economic thought of the end of the 20th — beginning of the 21st centuries.

Chapter 2

CIVILIZATIONAL CYCLES AND CRISES



The world of civilizations is non-uniform and variable. World civilizations come to change each other. Local civilizations flicker in the historical space from time to time. We see a change of stages — historical super cycles — in the dynamics of the global civilization. It seems that the entire variegated picture is full of uncertainty, chaos, a set of occasional events, and zigzags of the historical progress. A researcher's task is to identify internal regularities in cyclical dynamics of civilizations behind this chaos, in order to examine on the basis of the found tendencies and regularities the stages of development and changes of civilizations in the past and predict their fate in the future to a rather high extent of reliability.

2.1. Regularities in Cyclical Dynamics of Social Systems



Let's start with a brief description of regularities in socio-cyclical dynamics as identified in works by **Nikolai Kondratieff**, **Pitirim Sorokin**, **Alexander Bogdanov**, **Wesley Mitchell**, **Joseph Schumpeter**, **Fernand Braudel**, representatives of the modern school of Russian cyclicalism.

1. Cyclicity is a common form of developing social systems. One cannot find any system of the society — in the range from a family to the global civilization — that would not be governed by the laws of cyclical dynamics, passing through the phases of initiation, assimilation, dissemination (diffusion), maturity, crisis and transition to a new turn of the development spiral or into a relict state. Cyclicity of dynamics is measurable, though features no well-shaped mathematical certainty similar to the movement cycles of celestial bodies, seasonal or daily cycles. A social system's path of cyclical dynamics is overlapped with a mutual influence of various types of cycle and sporadic fluctuations, which modify the duration of cycles, the depth of fluctuations by phase, etc. Therefore, regularities in cyclical dynamics of social systems operate as trends, they are full of unexpected deviations and twists

and are much less predictable than cycles and crises in dynamics of the physical (natural) systems. However, cycles and crises of a society are cognizable and predictable, and, if taken into account in governmental economic and social strategies, in corporate and institutional operations, they improve the efficiency of these social systems.

2. Crises are a ubiquitous component of cyclical dynamics of the social systems. They serve as a painful though essential phase of cyclical dynamics, performing useful functions:

➡ destruction of still predominating obsolete system components, which have exhausted the potential and prevented development of the system (a destructive function);

➡ creation of conditions to establish and disseminate a new system or new system components that have already shaped though suppressed by obsolete, conservative components (a creative function);

➡ refinement from obsolete components and enrichment with new ones of the system (or super-system) genotype and its transfer to the next generation (a successive function).

A crisis is an impulse, push for a further progress, and a chaos, which a new order originates from, according to **Iliya Prigojin**.

Crises can be of a different depth and duration, depending on a nature of the cycle which phase they present. Crises are predictable and amenable to a regulatory impact from the society — not in terms of a transition to the development free of crises (as some people understand the development steadiness), but in terms of a prior prediction of the dates when a crisis phase is coming, correct diagnostics of the same, passing through this cycle phase as soon as possible and with as few losses as possible at the cost of purposeful and prompt innovative refreshment of the social system. In other words, the point is a peculiar «social medicine» relying upon a theory of crises and a methodology of anti-crisis governance (although «anti» is not an adequate word here and leaves a room for Utopian expectations to get rid of crises).

Multiple attempts to override crises having declared them a social disease specific to capitalism only and replace them with planned governmental control over the development of economy and social processes have not resulted in any good outcome: crises were driven inward, not overcome and, finally, resulted in the collapse of the super-centralized socialist system.

3. Crises in cyclical dynamics of social systems are overcome with the help of revolutions, reforms and innovations.

Revolutions in technology, economy, socio-political and socio-cultural sectors (science, culture, education, ethics, religion) are the most acute, painful and destructive form of social transformation. Social revolutions can be accompanied with bloodsheds and substantial destructions, though these can take a softer shape («velvet revolutions»). Revolutions are accompanied with major changes in the system genotype or their destruction and replacement with another system with its own genotype. Reforms mean a systematic, rather soft, and less painful substitution of a system's obsolete components. Innovations permit to substitute a system's obsolete components for new, progressive, more efficient ones, and adapt to the varying conditions. However, both revolutions and reforms cannot be endless, while decreasing a system's vital functions. A painful period of revolutionary transformations is followed by a long period of evolutionary development when new system components can implement their potential capabilities. Continuous revolutions and reforms undermine a system, reduce a system's efficiency and sometimes can result in its downfall. It is necessary to change the forms of transformation at different cycle phases.

4. Cycles and crises of a different duration and in various social systems interact. This interaction takes three following shapes: resonant (amplifying a range of fluctuations, exacerbating a crisis); damping (damping a range of fluctuations and alleviating crisis phenomena); deforming (disturbing a cycle pattern, interrupting its normal course, for example, a war impact on an economic cycle).

Cycles of a different duration overlap each other, that is mid-term, long-term (Kondratieff's), and very-long-term (civilization) cycles. Regularity of interaction among the economic cycles of a different duration was first shown by **N.D. Kondratieff**. «Long-term cycles of economic conditions are identified in the same single process of economic development and depression dynamics. That's why mid-term cycles appear as if these are strung onto the waves of long-term cycles» [86, p. 379].

Following him, the same regularity was described by **Joseph Schumpeter** [268] (*fig. 2.1*). Interaction between cycles and crises is shown in *figure 2.2*.

Cycles and their crisis phases interact regionally (in interrelated countries and civilizations) and in various sectors (demography and environment protection, technology and economy, governmental and political, socio-cultural sectors).

5. Every cycle offers its own pattern, regional epicenter and leading industries. For example, a long-term technological cycle features a set of fundamental disciplines (a technology core) and applied disciplines of transformation (material production equipment, weapons and service sector). A very-long-term cycle being a technological mode of production is implemented through a change of technological orders (long-term cycles). Each technological order emphasizes a cluster of leading, most quickly developing industries where the advantages of a new system manifest themselves primarily. When cycles change, those industries can recede into the background or, having transformed, remain in the leading cluster.

Every cycle features its geographical epicenter — a country or a cluster of countries where a revolution occurs initially and then spreads to countries coming next; some countries and civilizations can lag behind and be on a margin of the progress. Also, an epicenter country has leading regions.

Figure 2.1
Interaction between the Economic Cycles
(by J. Shumpeter)

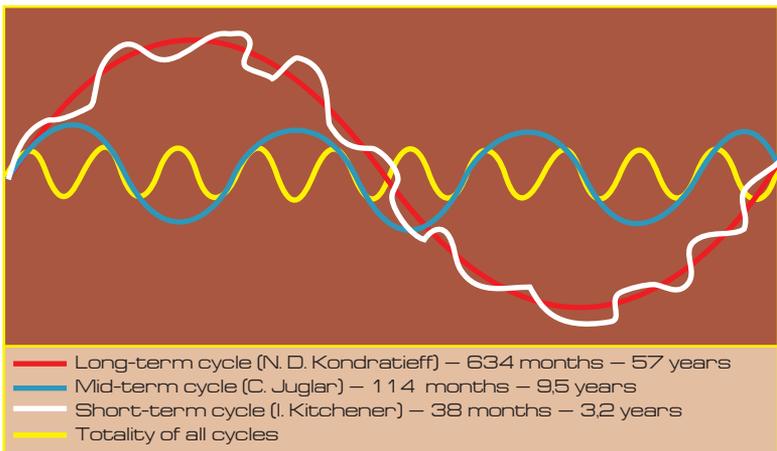
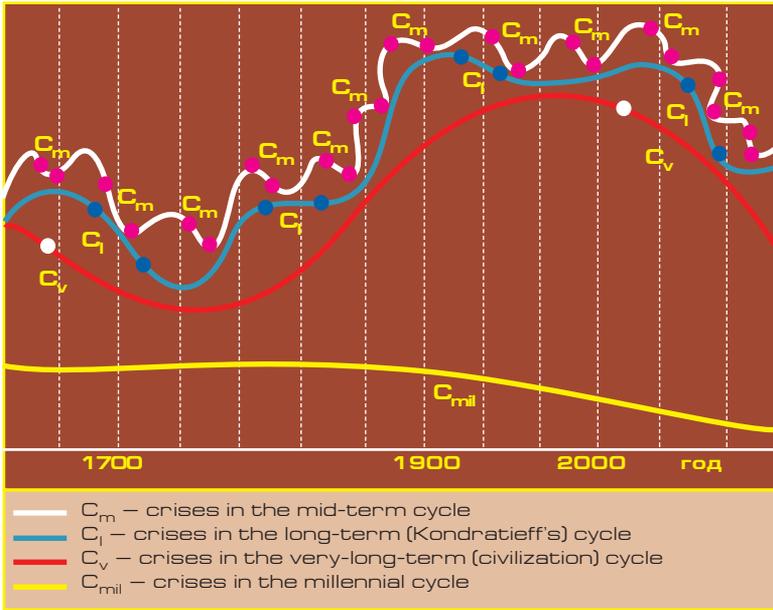


Figure 2.2

Interaction between the Cycles of Different Duration



6. Cycles and crises are individual and unique and at the same time regular and predictable. A society features no uniformity or strict, mathematically well-defined periodicity and duration of cycles and crises. A society's movement offers no templates or standard values. Every cycle is individual, unique in all the diversity of its predetermining forces, duration of phases, depth and effects of crises disturbances. At the same time, behind this mixed character and diversity, one can see common advancement features and trends. It provide an opportunity to classify cycles and crises, identify their movement regularities and, most importantly, predict to a certain extent of reliability all of cyclical fluctuations and crisis disturbances in the short- and long-run, diagnose the nature, pattern, duration, and potential effects of each specific crisis and phase of a cycle. As the result the society can undertake activities in order to prevent an «overheating» of the system at the end of an upswing phase and go through a cruel though inevitable crisis phase as soon as possible, at the cost of as low losses and distresses of the society as possible.

In this case, it is possible to provide an analogy with human physiology and medicine. Physiology studies the eurhythmics of a human's normal operation during a period of his or her life cycle, the pattern and interaction of its subsystems and bodies, fluctuations in a rhythm of daily and annual cycles and life cycle phases. Medicine studies deviations from a human's normal operation as a system, his or her subsystems and bodies, identifies the ways to diagnose and treat diseases. It is not able to cancel those deviations from a standard at all, as these are innumerable, though it helps to find and diagnose them in time, and suggest some ways of treatment and prevention. The same tasks are typical of «crisis science» – a kind of social medicine that has not evolved adequately still. Social scientists have dealt more with «social anatomy» and studies of equilibrium than with a research into various crisis situations and «exit paths» from them – «social medicine».

It is not worth setting a Utopian problem to overcome cyclical fluctuations and crises as diseases specific to a certain type of the societal development, i.e. capitalism. Such problems have been set both in Marxist and liberal literature repeatedly and failed every time. Such terms as an «anti-cyclical» or «anti-crisis» strategy, which are used commonly at a governmental or corporate tier, as well as a «sustainable development» understood as a uniform straight-line movement, are equally Utopian ones. It is impossible to cancel cycles and crises as it is impossible to overcome a daily or annual rhythm of the Earth movement, although a path of cyclical dynamics in the society is indeed much more bizarre and less predictable than in the nature.

Prediction of cycles and crises is one of the most complicated branches of social science and practice, which has been underdeveloped still. However, the problem can be well solved by science armed with understanding of regularities in cyclical dynamics and by practice based on this science.

7. General regularity in cyclical dynamics of social systems is a shorter duration of cycles and crises, a more rapid pulse of the historical progress. While the first stages of the society's history measured duration of life cycles of world civilizations (Neolithic and Early Class ones) in thousand years, now it is measured in centuries. One can see a trend towards a shorter duration of life cycles and phases in dynamics of local civilizations. Also, the duration of transition crisis periods tends to be shorter.

It's quite another matter that the historical time compaction is a non-linear process, and it comprises opposite elements as well. For instance, as the average human life duration increases, a cycle of change, refreshment of symbolic generation extends; it is 30 to 35 years now, while the same was 20 to 25 years and even shorter at initial stages of the history. Nevertheless, a historical time compaction process has its own limits – hardly is it possible to predict that a period of change of world civilizations by the end of the third millennium will contract to a few decades. Every cycle in a society's dynamics must take advantage of its potential before the time will come to replace it with a next cycle. Attempts to artificially precipitate or slow down these processes will lead to no good. Any deceleration will result in a slowdown of the progress, stagnation, decay and, sometimes, in the downfall of a social system. On the contrary, an attempt to accelerate a transition artificially, results in an «abortion», long-lasting crisis. It was the case when attempts to implement some communism principles were undertaken in Russia and China.

The above list of regularities in cyclical dynamics is far from being full or comprehensive one. Our knowledge of cycles and crises is incomplete, and it will expand and enrich as this most important component of a post-industrial scientific paradigm will evolve during forthcoming decades.

2.2. Cycles and Crises in Dynamics of Local Civilizations

Every local civilization features its own fate, its own unique path of cyclical dynamics, which is from time to time interrupted by crisis phases differing in a duration and depth. One can distinguish several varieties of cycles and crises in this colored picture – a bobbling boiler of historical civilization fates.

1. ***A local civilization life cycle*** comprises a period from its origination to the termination of a life track. This cycle consists of several phases: origination; establishment; diffusion; upswing, revival; maturity with growing elements of obsolescence; crisis; relict condition, removal from the historical arena or a transition to a new spiral of historical dynamics.

The local civilization life cycle duration as such is quite dissimi-

lar. Out of the fourth generation civilizations existing now, Indian and Chinese are in **the first line**. They are the most ancient ones — they are four or five thousand years old. During such a long period they have passed through a number of historical epochs, rises and falls, and are now in a revival phase again following a long-lasting stagnation period. They have been part of all local civilization generations, while transforming and modifying every time after a hard and long-lasting transition period.

Second line are civilizations with a shorter history, which established as part of the third generation and absorbed relicts of the previous generation civilizations. These include, first and foremost, West European civilization being a successor to Greek and Roman antique civilization of the second generation; Eastern European civilization, whose fate have been bound with Western European one in many respects (and, judging upon appearing trends, these can merge); Eurasian civilization that is 13 centuries old and facing a half-decay period now, while maintaining its core — Russian civilization. Muslim civilization also belongs to the second line, it absorbed relicts, having modified the heritage of Ancient Egyptian and Persian civilizations, and faces now a period of passionary rise; and also African civilization, facing a formation phase.

Third line in terms of age are the youngest fourth generation civilizations originating from the Western European: North American, Latin American and Oceanic ones. Their emergence was based on destruction of the preceding civilizations in North and South America and they show a mixed nature in many respects, having absorbed some fragments of various civilizations. These three civilizations, especially the North American one, see a phase of upswing. The latter occupied leading positions already in the 20th c., and in the 21st c. it claims for the total leadership with a unipolar arrangement of the world. The Oceanic civilization is only beginning its life cycle.

Many local civilizations which had left the historical arena featured life cycles of a different duration. Perhaps the longest track was typical of Ancient Egyptian civilization that measured three thousand years and went through several rises and crisis transition epochs in its history. Civilizations of Mesopotamia, Persian civilization, civilizations of New World (those of Inca, Maya, and Aztec) had rather a long period of their cycle. A vivid flash was the fate of Mongolian civilization, which occupied most of Eurasia during sev-

eral centuries and then continued in the history of Kazan, Astrakhan, and Crimean Khanates.

Cycles and crises in of Russian civilization were investigated by **B.N. Kuzyk, A.I. Ageev** and others. They discovered super long 400-year and long-term 80-year cycles; the transition from one to another are followed by crises of various depth [100;101].

A life cycle of every local civilization (both existing now and having left the historical arena, both ancient and young) is unique. However, it comprises inevitably the periods of origination (establishment), upswing and crisis. Sometimes, a civilization fails to go through an entire life cycle — it is destroyed or absorbed by a stronger civilization at initial phases of its cycle, then we can speak about a protocivilization.

2. Local civilizations are dynamic in terms of area. They are in a state of territorial expansion during upswing periods, extend their boundaries, conquer neighboring areas and, sometimes, subordinate adjacent civilizations to establish global empires. When in a phase of crisis condition and collapse, civilizations contract like a shagreen leather, lose a part of their area, global empires collapse and, sometimes, a civilization itself becomes part or falls under the influence of a stronger and more aggressive civilization (as it happened to Roman Empire, Byzantium, ancient civilizations of America, and, most recently, to Eurasian civilization after the USSR disintegration).

One should also note that local civilizations often have no well-defined regional boundaries, and they do not embrace the whole inhabited part of the globe. There are some areas at a state civilization development stage, as well as adjacent areas being a kind of road crossing and a field of confrontation between civilizations. Vietnam can provide an example. Early in the Common Era it was under the influence of Indian civilization and then subordinated to Chinese civilization for a thousand of years. Following a number of independent development centuries, it became a colony of Western European civilization. After the World War II (when its area saw a collision between Western and European civilizations), it became an arena of confrontation between the USA and the USSR before it gained independence. At present, hardly one can speak about an independent Vietnamese civilization as various segments and fields of interaction between different civilizations are observed there.

3. Cycles and crises of local civilization generations are a phenomenon that is limited in time more definitely, though less distinctive in terms of mix and sequence of phases, as a generation comprises a set of local civilizations existing during a certain historical time and expressing specific features of the contemporary global civilization. As in case of human generations, this is rather a symbolic though real notion carrying a certain pattern and changing origination, diffusion, maturity and crisis phases.

First generation of local civilizations originated more than five thousand years ago and lasted for about two thousand years. Its composition was rather diverse. It is possible to mention here ancient civilizations of Egypt, China, Mesopotamia and Cretan-Mycenaean civilization late in the period. It is possible to classify civilizations of New World as the first generation, though with a shift in time. The first generation phases of rise and maturity fall to the 2nd millennium B.C. Early in the 1st millennium B.C. most of its civilizations were in a crisis phase.

The first half of the 1st millennium B.C. saw the origination of the **second generation** of local civilizations adequate to the antiquity period of antiquity. The life cycle of the generation extended up to about the middle of the 1st millennium. The period of rise in this generation of local civilizations fell on late 1st millennium B.C., and a number of them went through several periods of rise and fall. Thus in the history of Greek and Roman civilization we can define the stages of leadership of Greek cities-poleis, a period of prosperity of Alexandria and a long period of the classic Roman Republic and then the Empire. However, as early as in the 3rd and 4th c. A.D. most of the second generation civilizations faced a crisis that extended for several centuries.

The middle of the 1st millennium A.D. saw the beginning of establishment period of the **third generation** of local civilizations – Western European, Moslem and Russian (later Eurasian) ones. Chinese and Indian civilizations achieved their utmost potency: in 1000 they accounted for 22% and 28% of the global population and 23% and 29% of the world GDP, and in 1500 – 24% and 25% of the population and 25% and 24% of the global GDP, respectively [262, p. 258, 261].

The 15th c. saw the beginning of establishment of the forth generation of local civilizations; its life cycle embraced the periods of early industrial and industrial world civilizations and came to the end late in the 20th c.

Firstly, the leadership was gained by Western European civilization: while it accounted for 13.1% of the global population and 17.8% of the global GDP in 1500, then these figures turned out to be 12.8% and 23% by 1820, and 14.7% of the population and 22% of the GDP by 1870. Then North American civilization captured the leadership: a share of the USA was 0.2% in the world the population and 0.1% in the GDP in 1700 and 5.4% and 19% in 1913. As regards Chinese, Indian and African civilizations, it was the time of crisis and stagnation and drastic reduction in their percentages of the global GDP [ibid].

However, as early as the 20th c. some increasing symptoms of a crisis were observed in the fourth generation of local civilizations, which manifested themselves as two world wars. They were caused by a conflict between major powers of Western European civilizations with the involvement of Eurasian, Japanese, and Indian ones.

A post-war period of «Cold War» was seen as a confrontation between the two civilizations, i.e. Western (headed by the USA) and Eurasian (the USSR) ones. At the same time a revival process of other civilizations, e.g. Chinese, Indian, and African, resulting from a collapse of the colonial system established by Western European powers began. The bipolar world was on the edge of a nuclear war and struggled for an influence in the «third world» where the most of the mankind resided.

A geopolitical and geocivilizational picture of the world changed abruptly late in the 20th c. The end of the «Cold War» and the loss of a mortal enemy image resulted in a crisis of the fourth generation of civilizations and intensified centrifugal trends. The first victim of the crisis appeared to be the Eurasian civilization represented by the USSR being the core of a pole of the bipolar world and maintaining a vast influence area within the Comecon framework as well as in a number of socialism-oriented countries. The second victim, although this fact is less obvious and acknowledged, appears to be Western civilization. It is losing the former unity, differentiates into several civilizations, which realize their own interests to a growing extent, such as Western European, North American, Latin American, and Oceanic ones. Both activity and independence are growing in Chinese, Indian, Japanese and Muslim civilizations; the latter faces a passionary rise period in its confrontation with the West. ***We are witnessing formation of the fifth generation of local civilizations.*** The generation will establish for at least the first half of the 21st c., following which a maturity phase will come.

4. **The system of local civilizations goes through a crisis phase in its five thousand-year dynamics early in the 21st c.** It faces two challenges gaining increasingly apparent features. First of all, it is **a challenge of globalization**. With its neoliberal pattern, that is prevailing now, and drive towards a unipolar world, global empire where the single superpower left predominates, a threat to the preservation of civilization diversity turns to be real. The threat was expressly pronounced by **A.A. Zinovieff**, a Russian philosopher, who stated that the time of civilizations had elapsed, that these were dissolving in the global super-society, conceded to «another kind and a higher level of social organization, and integrated into «new social organization of a global scale» [172, p. 24].

A trend towards dilution of specific civilization features is actually observed. This is promoted not only by the global market unity, but also by an attempt to build and inflict a global information space (Internet, telecommunication systems) based on a western system of values and boilerplate English language.

However, those civilizations of the fourth generation which have recognized the threat and focused themselves on self-identification and inherent benefits stand against the threat. Along with the globalization, **a localization process**, i.e. expansion of diversity in civilizations and cultures, is in progress. This was stated in international documents 2001 — a UN Resolution «Global Agenda for Dialogue among Civilizations» and a UNESCO Declaration on Preservation of Cultural Diversity.

A struggle between the two trends is likely to last for several decades. However, there is no doubt about the outcome of the struggle: a drive towards the preservation of civilizational and cultural diversity and a principle of cultural diversity will prevail. The principle «diversity in the unity and a unity in the diversity» will triumph. The mankind will never be a boilerplate ruck. A process will prevail, which some refer to as **glocalization**, i.e. discordant, dynamic diversity. For a loss of diversity in the society invites stagnation, degeneration and downfall of the mankind, a loss of the source and impetus of its progress from stage to stage, from cycle to cycle, going through rise and crisis phases, radical innovative refreshment periods.

Another challenge of the 21st century is **a threat of clash between civilizations**, which was expressed clearly by **Samuel Huntington** and caused an outburst of resentment all around the world. However, the threat is quite realistic, and it stems from objec-

tive roots. It is not only a growing comprehension of interests specific to each civilization, but also a divergence of these interests during transitional crisis epochs.

Stratification, a certain level of differentiation inside a common system, i.e. a level fluctuating with cycle phases, aggravating during a crisis period and recovering in a maturity phase, is inevitable and progressive, as it determines the society's dynamics, is a prime mover and impetus of its transition from phase to phase, from cycle to cycle. However, when stratification turns out to be excessive, then it degrades into **polarization**, the system loses its steadiness and movement power and can perish. According to **A.A. Bogdanov**, a system in this state appears to be disorganized, when a whole is less than the sum of its parts, a growing percentage of the system's power is spent for a struggle among its components, which all can be harmful for the system. A response to the challenge seems to take as much as the first half of the 21st century.

2.3. Cyclicity in Dynamics of World Civilizations

In our understanding of this notion, world civilizations are major stages of the society's development history, which origin we date, as **N.N. Moissejev** did, to the Neolithic revolution. «The Neolithic revolution was the origin of all the civilizations existing now... Following the Neolithic revolution... the modern history started — the history of a “producing” civilization, better to say, civilizations!» [136, p. 32,37].

Every world civilization goes through certain phases of its life cycle:

- ➡ origination in vanguard countries in the previous cycle and preceding world civilization entrails;
- ➡ establishment within the framework of a transition period in confrontation with obsolete components of a civilization escaping in the history;
- ➡ diffusion over countries and continents, expansion of potential capabilities contained in it;
- ➡ maturity, predominance in the most parts of the world;
- ➡ transformation of local civilizations existing at previous historical progress stages;

➡ exhaustion of most of a movement power, a state of stagnation transforming into a crisis phase;

➡ gradual escapement from the historical scenes, constriction of its habitat;

➡ existence in a relict, subordinate state in countries and local civilizations lagging behind advanced civilizations and countries for some reasons.

Therefore, a pattern of the global civilization at every historical point of time offers a three-, if not more, layered structure; civilizations and countries representing predominating, forthcoming, escaping and, sometimes, relict world civilizations.

Along with that, the historical time counts in vanguard countries of predominating civilizations.

We distinguish the following world civilizations changing each other:

➡ **Neolithic civilization** whose structure had not established totally (8–4th millennia B.C.); local civilizations just started establishing at its end;

➡ **Early class civilization**, when the civilization structure had established totally and the greatest number of innovations had been implemented, which defined the society's image (late in the 4th millennium to early in the 1st millennium B.C.);

➡ **Antique civilization**, which had reached the highest peaks of the spiritual life («axial time») and the governmental and legal sector (Roman Empire, Roman law) (early in the 1st millennium B.C. to the mid–1st millennium A.D.);

➡ **Medieval civilization** (6–15 cc.), when the third generation of local civilizations had started establishing, the leadership had been gained by Western European and Oriental (Chinese, Indian, short-lasting Mongolian, Moslem) civilization, and the reign of religions, an ideational socio-cultural order had been observed.

➡ **Early Industrial civilization** (the 15–18th cc.) – the predominance of Western European, Chinese, Indian and Eurasian civilizations, the establishment and diffusion of the fourth generation of local civilizations, capitalism, a sensitive socio-cultural order, first bourgeois revolutions;

➡ **Industrial civilization** (the end of the 18th – late 20th c.), which had started from the industrial revolution, French bourgeois revolution and independence of the USA At that time the Western civilization dominated and was opposed by the Russian one; a system colonialism was established and then disintegrated;

a socialist experiment covering a substantial part of the world was carried out;

➡ **Postindustrial civilization** (early 20th c. — presumably, late 22nd c.), whose distinctive features are likely to be a humanitarian and noospheric nature, the globalization of economy, sociopolitical and information processes, a prevailing trend towards depopulation, the establishment of a new scientific paradigm and the establishment of an integral socio-cultural order.

A life cycle of every world civilization provides its own peak where its typical features are disclosed to the greatest possible extent and a potential embedded in its genotype is implemented. Everything ends in a long transition period, which expresses a total civilizational crisis, exhaustion of a predominant world civilization's potential, and its gradual curtailment under an aggressive pressure of the next civilization that perceives and modifies a heritage accumulated by previous civilizations relating to a new stage of the historical progress (a world civilization genotype).

Therefore, **civilization crises are of the two types**. The first one is a crisis phase in a life cycle of every specific local civilization, while they can differ by time and depth in various civilizations. The second is a predominant world civilization crisis at the latest phase of its life cycle, at the end of a transition to the next stage of the society's historical evolution. Let's refer to the first type as **a local civilizational crisis** and the second as **a world civilizational crisis**.

The latter comprises a number of interrelated local crises, first and foremost in civilizations being vanguard ones at this historical stage.

Each of the local and world crises provides its own complicated structure. It includes a number of interrelated components such as demographic, environmental, technological, economic, governmental-political and socio-cultural ones, while a component can play a leading role in a crisis and entail the others. For example, a demographic component played a crucial role in a crisis of the medieval civilization when the European population numbers dropped from 73 to 43 million people as a result of a plague epidemic (Black Death) during a century between 1300 and 1400. This was also a main cause of a crisis in Mongolian civilization. Important causes of a crisis in Industrial civilization appeared to be a demographic explosion and environmental contradictions during the second half of the 20th c. A most drastic environmental crisis late in Mesolithic era turned out to be a major factor of the Neolithic revolution and

the emergence of the first world civilization. A technological factor was the content of the industrial revolution and a shift from the early industrial world civilization to the industrial one. A crisis of an economic, sociopolitical and socio-cultural system manifests itself clearly during transition periods when world civilizations change each other. One can foresee that civilization cycles and crises will persist in future, when successive world civilizations change each other at an accelerated pace, unless the distracted mankind crosses out the historical progress as a result of a nuclear war, a collision between civilizations, a global environmental or technological disaster.

2.4. Historical Super Cycles in the Development of the Global Civilization

The utmost form in a society's dynamics of *cyclical processes that we investigate are cyclical fluctuations in the evolution of global civilization* as a single system subjected to common regularities of the evolution of systems.

The *life cycle of the mankind* as Homo sapiens, which has been lasting for 40 thousand years, can be split into several phases:

➡ origination (about 30 millennia) when a man had not yet lost contact with the belly stalk of his mother nature, existed at the cost of hunting, fishing, picking like other species of the live nature; this is rather a pre-history than a history of the human society;

➡ establishment of a reproducing society, when a society's entire structure established — a «pyramid» of civilization. The point is the first historical super cycle, which embraces a triad of ancient (Neolithic, Early Class, Antique) civilizations. The period ended in the «axial time» during which a civilization structure established;

➡ diffusion, i.e. dissemination outwards and inwards during the second historical super cycle (Medieval, Early Industrial, and Industrial civilizations), which embraced almost all the oecumene (the inhabited part of the globe) and transformed all the aspects of the society's life.

If we follow that logic, then one can expect that, *starting from the 21st century, the mankind (society) enters a maturity phase of its life cycle, the third historical super cycle to embrace the three successive world civilizations* and will last for 500 or 600 years (in view of historical time compaction). Indeed, this is only a suggestion,

a hypothesis with a great uncertainty extent, as a lot of unpredictable factors can arise, which will influence the path of historical dynamics and the mankind fate.

A change of historical super cycles is accompanied with civilization crises of a surprising length and depth. When a society's genotype transforms radically, then its fate changes as well. Let's refer to such civilization cycles as **super-historical** ones. Each of them realizes itself in the deepest crises of local and world civilizations accompanied by a radical rearrangement of the global civilization.

The emergence of the first historical super cycle was preceded with the deepest and longest crisis late in Mesolithic era and early in Neolithic era, which has been described above. A shift from the first historical super cycle to the second one had taken a great part of the first millennium (3—4 hundred years) and had been accompanied by a drop in the world population numbers, a change in leading local civilizations, an intense rearrangement of all the society's pattern. A global crisis that started late in the 20th century promises at least the same depth and radical changes, and is related to a transition to the third historical super cycle and an integral socio-cultural system. This crisis, a transformation period, will probably take a prevailing space of the 21st century and will be accompanied by changes, most of which are impossible to predict right now. It is only possible to state for sure the following: a society of the 22nd and 23rd cc. will differ from the industrial society of the 19th and 20th centuries much greater than the latter differed from the early industrial society of the 15—18th cc.

Which way and when will the life cycle of the mankind as a single mega system end? According to the above logic, the fourth historical super cycle in the second half of the 3rd millennium (if it is possible to look so bravely into a remoter future) will be a phase of decline, a crisis of the mankind as a global social system. Whether this phase will end in the mankind's degradation and death or will be a starting point, an impulse to a new spiral of its history — there is no definite answer to the question still. Let's leave it to the generations to come. We can and we must point to a potential historical choice to be made. And we leave the choice to them.

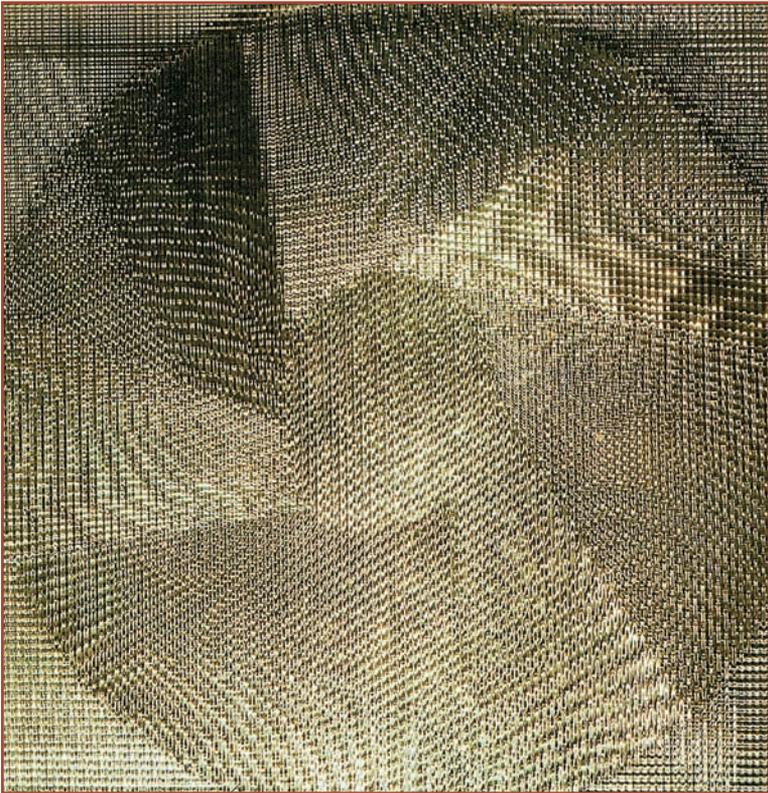
Besides super historical, there are also **world and local civilizational crises**.

A specific feature of the present era starting from the late 20th c. is that it is involved in all three types of interacting civilization crises which have been predetermined with a shift towards the third

historical super cycle, postindustrial world civilization and towards the fourth generation of local civilizations. It results in a tuning effect, a special length, depth, and painfulness of transformations occurring within the society, calls scientists to comprehend the essence, predict forthcoming changes and effects, and to make an informed, purposeful choice. It is necessary to consolidate the efforts of all civilizations and social forces to go through a critical segment of the historical track with a lower risk, minimal losses and distresses.

Chapter 3

CIVILIZATIONAL SOCIOGENETICS



Both the world and Russian socio-economic sciences have accumulated a considerable volume of knowledge on history, development and prospects for the world and local civilizations. However, the theory of civilization development is considered to be unfinished until the basic principles of the cyclical and genetic mechanism of these complex social systems, which cause their germination, cyclical fluctuations, regular crises resulting in the conversion of civilization into an absolutely new state (a new coil of the historic spiral) or cause them to retire from the historic stage. In other words, it is necessary to understand the *mechanism of civilizational self-development* and realization of the genetic triad – heredity, variability and selection in their cyclical dynamics.

The corner stones of formation of sociogenetics were laid by Pitirim Sorokin and Nikolai Kondratiev in the 20s–30s of the 20th c. However, for a long time this peak of the theory of society cognition was not conquered. Only in the 90^s this branch of social science began to develop actively. The time has come to add one more side to it – the research in the field of genetic regularities in the civilizational dynamics.

3.1. Sociogenetics as the Cognition Top of Regularities in the Dynamics of Society



Staying in Butyrskaya Prison in 1930, **N.D. Kondratieff** continued to develop his ideas. In his work written there he determined three levels of nomographic (abstract) science as follows: statics, dynamics and genetics. He wrote: «Without having a clear idea of economic genetics, the modern methodology of economic science determines and tends to formulate only the concepts of economic statics and dynamics» [90, p. 275].

Being in Suzdalsky political prison, N.D. Kondratieff outlined a grandiose plan in order to prepare manuscripts for his five monographs, writing in his letter dated 7 November, 1934: the theory of trend; large market cycles; minor cycles and crises; the basic principles of economic statics and dynamics; «and, finally, the fifth work related to the synthetic theory of socio-economic genetics» [90, p. 520].

He managed to write only his first book — «Theory of Trend», the manuscript of which was destroyed after he was executed by shooting, and also to create a macro order of economic dynamics,

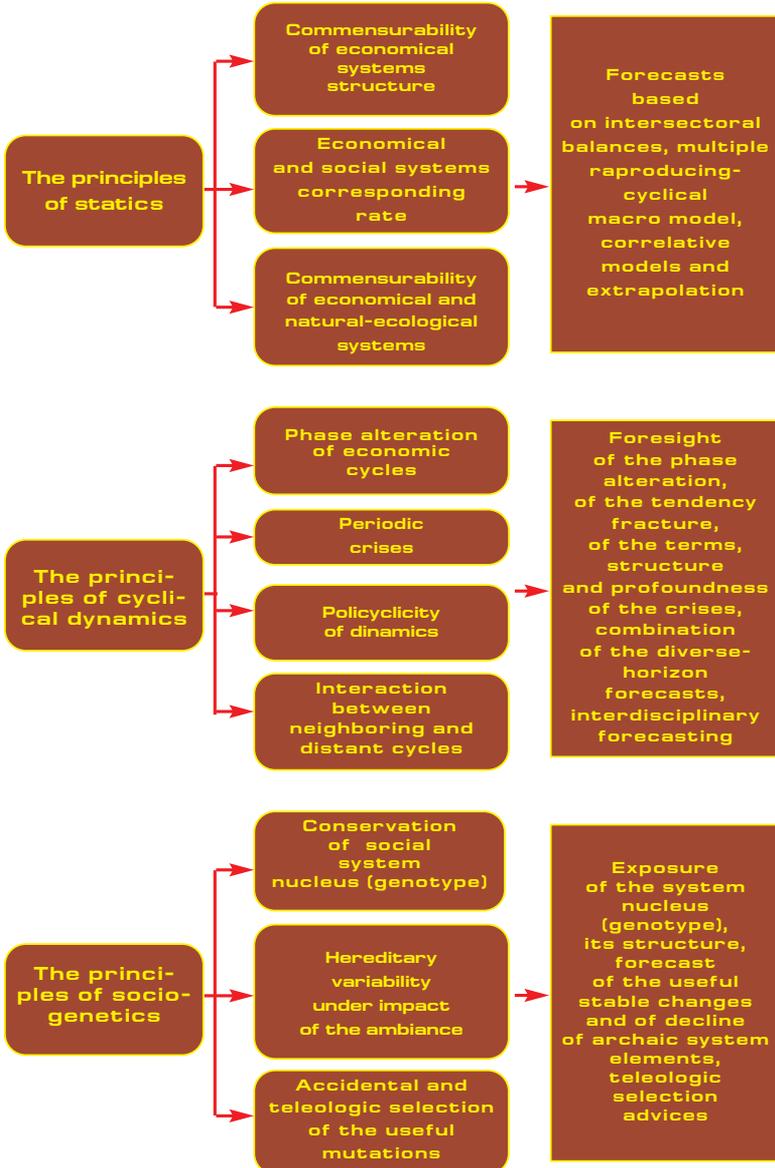
which Kondratieff himself considered to be a scientific discovery. If he had implemented his plan, it would have been a valuable contribution to the theory of economic dynamics and genetics for both the Russian and world sciences. This would considerably change the course of further research and brought the formation time of post-industrial paradigm of social science forward. Stalin's repressions had crippled not only the Russian socio-economic thought but the world one as well.

According to N.D. Kondratieff, science comprises three parts – three sequential stages of perception: statics, dynamics and genetics (*fig. 3.1*). **Statics** deals with a structure (ratio) of functioning and correlations of the system, whether it is in a quiescent state or in the period of the relatively even evolutionary development. **Dynamics** studies cycles and crises taking place in the period of development of the system, disturbance and renewal of the balance, correlation between cycles and crises of different duration in the related or distant fields. **Genetics** is aimed at studying the mechanism of heredity, variability and selection during the development of systems, composition of their genotype (the hereditary nucleus), the mechanism and results of its renewal and enhancement and the range within which the genotype can change in crisis situations.

Genetics is the top, the highest degree of cognition. Natural sciences, primarily, biology, reached this level only in the 20th c., although Mendel, a monk from Czechia, established the laws of heredity at the end of the 19th c.

Unfortunately, the USSR considered sociogenetics to be contrary to vulgar Marxism prevailing at that time, and halted its development for more than fifty years. Only in the 90s this problem aroused the interest again. **A.I. Subetto**, who published several works related to systematic genetics [187] and was rewarded with a medal named after N.D. Kondratieff, was a pioneer in this field. In 1993, the V Interdisciplinary Discussion «Sociogenetics: Principles, Contents, Prospects» was held, the report on this issue was released, a long-range research project was drawn up. However, this project was not implemented, the research was carried out only in respect of individual directions. At the same time an attempt was made to apply the laws of sociogenetics to the study of development of civilizations, which was reflected in the monograph «Near the Cradle of New Civilization» by **Yu.V. Yakovets** [247].

Figure 3.1
The Principles of Statics, Cyclical Dynamics
and Sociogenetics



B.N. Kuzyk and **Yu.V. Yakovets** showed socio-genetic principles of the development of consumer market in their monograph «Russia-2050: Strategy for Innovative Breakthrough» [103, p. 248–300].

Still, one is forced to accept the fact that sociogenetics, which is considered to be a specific, unifying and the most advanced in the cognition of society science, is still at the stage of formation, although **Nikolai Kondratieff**, **Pitirim Sorokin** and modern Russian researchers made an outstanding contribution to it. Meanwhile, sociogenetics, along with the theory of cyclical dynamics and in its development, ranks very high in the upcoming post-industrial scientific paradigm. **It is likely that more than ten decades will pass before sociogenetics will become a fully formed (but still developing) branch of social sciences.** For this purpose we will have to find solutions to a number of complicated problems:

➡ *the essence of the social genotype* (the hereditary nucleus) of various systems of a society, including local, world and global civilizations;

➡ *the principles and mechanism of transferring the social genotypes* from one generation to another, including a change of world civilizations and generations of local civilizations;

➡ *the principles of hereditary variability*, renewal and enhancement of the genotype, as applied to changes in internal and external conditions of the development as well as changes in the genotype of the world and local civilizations;

➡ *the mechanism of selection* of necessary and useful changes in a system, the principles and driving forces of innovative renewal of a society, formation of the new world and local civilizations.

In what follows we will deal with only a *geo-civilizational* aspect of the sociogenetic problems, as applied to heredity, variability and selection (an innovative renewal) in terms of the development of the world and local civilizations and a change of stages of life cycle of the global civilization. This problem should be further developed and balanced against other branches of sociogenetics – the science of the 21st century. It has to be created, included into our educational system and practically used for long-term forecasting and strategic planning.

It is also necessary to solve the problem of *the genetic structure of civilizations*, proportion and composition of its constituent elements – the hereditary nucleus, an area of hereditary variability

and an area of complete transformation (*fig. 3.2.*) as well as the degree of the transformation of civilization in the period of a change of different kinds of cycles – mid-term, long-term (Kondratieff's cycles), super-long-term (civilization cycles) and the thousand year long historic super cycles (*fig. 3.3.*). It is clear that all estimations can be measured only crudely and do not claim to be accurate.

3.2. Heredity: Social Genotype of Civilizations

Any system in wild nature and in a society exists and properly functions until its hereditary nucleus and genotype that determines its essence, distinguishing features, proportion and interaction between elements constituting genotype itself remains intact. The disclosure of the genotype and the hereditary nucleus of social

Figure 3.2
Transformation of the Social System

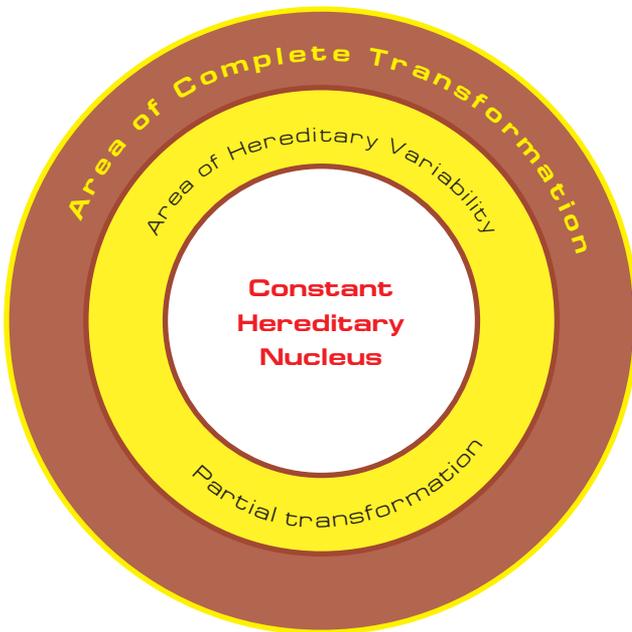
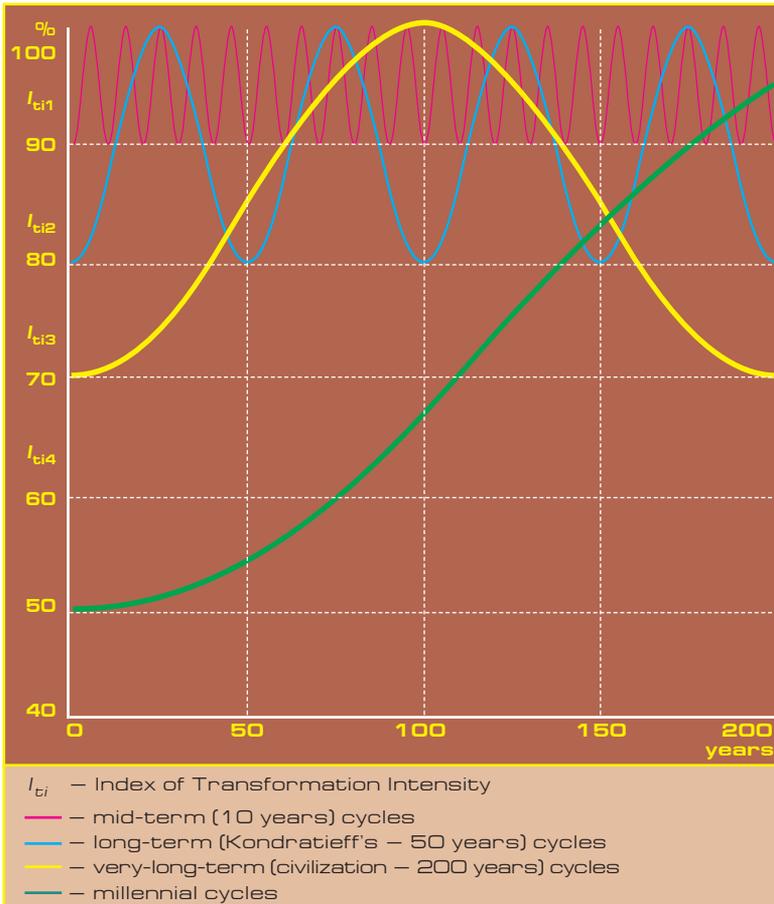


Figure 3.3

The Social System Transformation Profoundness

systems, including human beings (whose genotype has biosocial nature) and their families as well as the global community and all the humankind with all diversity of its elements is the most significant advancement of scientific cognition of a society.

One must accept that *the genotype of civilizations (both world and local ones) has not been thoroughly described in scientific literature so far*. We will make the first attempt to study this complicated problem, but without aspiring to the final solution.

In our opinion, the *structure of the civilization genotype* (if the matter concerns local civilizations) can include eight primary elements (a kind of social chromosomes).

1. Natural and ecological environment where the civilization forms and exists. This environment includes:

➡ *climatic conditions* in an area where civilization appears and develops, i.e. a torrid, cold or temperate climate, level and seasonal fluctuations in temperature, abundance or shortage of precipitations, etc. It is not accidental that the first generation of local civilizations appeared in the 4th–3th millennia B.C. in a hot narrow area to the north of the equator which was the most favorable for formation and development of the society. **A.L. Chizhevsky** wrote: «If we analyze the conditions under which civilizations appear and develop, we will see that the greatest centers of intellectual life of the humankind were initially concentrated in areas with a maximum temperature. It refers to the Chinese, Babylonian, Egyptian, Indian, Antique and Arabian cultures» [229, p. 21]. Only thousand years later the civilization area extended to the north and south, almost over all the land of the planet;

➡ abundance, sufficiency or shortage of *natural resources* necessary for people's activity. Civilizations appeared and started developing primarily in areas where there were natural conditions for a high rate of labor productivity. The effect that this factor produced on the development of civilizations was studied by **Henry Buckle** who spoke about two groups of factors determining the conditions for appearance and development of civilizations: the first group are physical factors that find their expression in climate, food, soil and «general look of nature», and the second group are the factor of intellectual growth and development – in other words, the level of cognition of the laws of nature and their technological adaptation [20, vol. 1, ch. II]. The first civilizations appeared in valleys near large rivers where there were fertile lands and enough water to irrigate them;

➡ the level of *environmental safety*, exposure to natural disasters such as flooding, earthquake, volcano eruptions, drought etc.

➡ *the extent of an effect produced by people's activity on environment* and the ability of the latter for self-reproduction and overcoming an adverse effect produced by this activity.

The natural and ecological factor primarily determines the distinguishing features and natural environment where the civiliza-

tion appears and develops but it can not be considered the main factor that influences the formation of a genotype of the civilization.

2. A demographic component of the genotype of civilization is mainly concerned with a natural and ecological one, influences both nature and society and, as a result, is dual in nature but works independently. In this case the following should be distinguished:

➔ *population and rate of its change*, the critical minimum level of the number of people that is necessary to establish large-scale complicated society; sufficient density of population, its concentration in cities, etc. Dispersion and the low rate of population growth delayed the start of formation of civilizations in north-east Eurasia for thousand years;

➔ *race structure of population* (prevalence of this or that is mainly dependent on natural factors);

➔ *conditions for reproduction* of population, its gender and age structure, nature and structure of families;

➔ *national and ethnic structure of population*, linguistic structure, presence of the prevailing (dominant) nation (ethnic group), closeness of national and ethnic contacts;

➔ *migration characteristics* of the population structure: comparative homogeneity and stability (for example, the present Japanese, Chinese or Indian civilizations) or formation due to an inflow of immigrants from other civilizations. Population of such civilizations either is «smelted» into one and indivisible people in the «melting pot» (for example, the North American civilization) or contains enclaves of people belonging to different civilizations (this process is underway in some countries of the Western European and Eurasian civilizations).

In the course of time, as the population and its density increased and divided into different civilizations, the influence of the demographic constituent of the genotype became stronger. According to calculations made by **A. Maddison**, in the 1st millennium A.D. the average annual rate of population growth was only 0.01% and varied from 0.09% in Japan, 0.07% in Africa and Latin America, 0.06% in the USA and the former USSR to the zero rate in Western Europe, China and India. But in the following five hundred years (1000–1500) the rate of the population growth increased ten times – up to 0.10% in the world (0.17% in the former USSR, 0.16% in Western Europe and 0.15% in Eastern

Europe, 0.07% in Africa and 0.08% in India). Then the rate of population growth in the world increased from one epoch to another (0.27% in 1500–1820, 0.40% in 1820–1870, 0.80% in 1870–1913, 0.93 in 1913–1950). The acme was attained in 1950–1973, when the average annual rate of population growth amounted to 1.93%, and differentiation ranged from 2.73% in Latin America and 2.37% in Africa to 0.71% in Western Europe. An evident change on demographic trends started in the last quarter of the 20th c.: 1.62% on average in the world (2.69% in Africa, 2.05% in India and 1.96% in Latin America; 0.32% in Western and Eastern Europe, 0.54% in the USSR) [264, p. 257]. This tendency will be strong in the 21st century in accordance with the medium variant of the UN population forecast, the rate of population growth in the world will decrease in 2045–2050 up to 0.33% (a little higher than the numbers of 1500–1820). Differentiation will range from 1.08% in Africa, 0.41% in the USA, 0.26% in India, 0.20% in Latin America to –0.86% in Russia, –0.56% in Japan, –0.15% in Germany, –0.37% in China [272]. In our opinion, if this tendency remains at the same level, the general world population will have returned to 6 billion people (the level of 2000) by the end of the 22nd c. Demographic trends, growth and depopulation will be more and more important for local civilization as well as the whole humankind.

3. A technological component of the genotype of civilization implies a certain technological standard (that changes from one epoch to another, during the transition to the next technological order of the production and technological structure within the limits of this order) of the development of productive forces of civilization and all their elements: certain means of production and technologies of their functioning, power and raw material resources, forms of industrial engineering, a skill level of employees. The technological standard of civilization determines competitive capacity of goods, labor productivity, living standard of population and the position of civilization in the world technological environment – either its leading role or its lag. But this doesn't mean that all branches and regions of a civilization are of similar technological nature. On the contrary, there is direct evidence of a technological gap between industries and regions, a technological multi-pattern nature of economy. However, this gap does not go beyond its own bounds: leading branches and regions act as a kind of the motor that pulls those who are lagging behind. We can

determine the average technological standard of each civilization and its dynamic development in respect of each epoch and classify civilizations according to this factor. During the periods of transition there is a frequent change of technological leaders. For example, at the beginning of the 21st c. the North-American, Western European, Japanese and Oceanic (only in respect of Australia) civilizations are considered to be technological leaders, while the African and Moslem ones (except for the Near Eastern countries which export oil products) – lagging; other civilizations can be considered at the medium level.

4. An economic component of the genotype of civilization includes several elements that change from one epoch to another, along with economic orders of production:

➡ *the level of economic development* that finds its expression in manufacturing the gross domestic product (GDP) per capita;

➡ *the prevailing form of ownership* of natural resources and other means of production (state ownership, private property in one or another form, communal or public ownership, etc.); the ways of realization of the prevailing forms of ownership;

➡ *the prevailing forms of exchange*, the ratio of commodity output to the total output, a stage of the development of market mechanisms and commodity-money relations, the ratio of market sectors to non-market ones;

➡ *nature and forms of distribution of the manufactured product*, the level of economic stratification of a society (economic polarization);

➡ *the role of the government in function and development of economy*, appropriation of means of production, rent and other constituents of net income, the control of domestic economy, intergovernmental and inter-civilizational relationships, working out and implementing a long-term strategy, and the degree of the planned development of economy.

The North American, Japanese, Western European and Oceanic (in respect of Australia and New Zealand) civilizations refer to rich and economically developed. Poor (developing) civilizations having a low level of average income per capita include the African (to the south of Sahara but except for South Africa), Indian, Buddhist (except for South Korea, Singapore and Thailand), Moslem (except for Saudi Arabia and other countries which export oil products). Other civilizations can be considered at the middle level of development.

Table 3.1

Dynamics of GDP Growth Rates *

Regions		1— 1000	1000— 1500	1500— 1820	1820— 1870	1870— 1913	1913— 1950	1950— 1973	1973— 2001
World as a whole	a ¹	0,01	0,15	0,32	0,93	2,11	1,82	4,90	3,05
	b ²	0,00	0,05	0,05	0,54	1,30	0,88	2,92	1,41
Western Europe	a	-0,01	0,29	0,40	1,68	2,11	1,19	4,79	2,21
	b	-0,01	0,13	0,14	0,98	1,33	0,76	4,05	1,88
Eastern Europe	a	0,03	0,19	0,41	1,41	2,33	0,86	4,86	1,01
	b	0,00	0,04	0,10	0,63	1,39	0,60	3,81	0,68
Former USSR	a	0,06	0,22	0,47	1,61	2,40	2,15	4,84	-0,42
	b	0,00	0,04	0,10	0,63	1,06	1,76	3,35	-0,96
USA	a			0,86	4,20	3,94	2,84	3,93	2,94
	b			0,36	1,34	1,82	1,61	2,45	1,86
Latin America	a	0,07	0,09	0,23	1,22	3,48	3,42	5,38	2,89
	b	0,00	0,01	0,16	-0,03	1,82	1,43	2,58	0,91
Japan	a	0,10	0,18	0,31	0,41	2,44	2,21	9,29	2,71
	b	0,01	0,03	0,09	0,19	1,48	0,88	8,06	2,14
China	a	0,00	0,17	0,41	-0,37	0,56	-0,02	5,02	6,72
	b	0,00	0,06	0,00	-0,25	0,10	-0,62	2,86	5,32
India	a	0,00	0,12	0,19	0,38	0,97	0,23	3,51	5,12
	b	0,00	0,04	-0,01	0,00	0,54	-0,22	1,40	3,01
Africa	a	0,07	0,07	0,15	0,75	1,32	2,57	4,43	2,89
	b	0,00	-0,01	0,00	0,35	0,57	0,92	2,00	0,19

* [264, p. 260, 261, 263]

¹a – GDP growth rate, %, expressed in comparable prices²b – GDP growth rate per capita, %

In each civilization there is economic heterogeneity, the presence of different types of ownership and economic structures, a different ratio of market sectors to non-market ones, a gap between rich and poor sectors of population. These ratios are changing from one epoch to another during the periods of a change of the world civilizations and Kondratieff's cycles.

The civilization progress finds its expression in acceleration in the rates of economic growth from one epoch to another and

a change in the civilization share of the world GDP, especially, during the industrial epoch (*table 3.1*).

The civilization share of the world GDP has changed as well. If in the pre-industrial epoch China and India were the leaders (in 1 A.D. their share accounted for 57% of the world GDP, in 1000 A.D. — 51.6%, in 1500 — 29.3%, in 1700 — 46.7%), by 1913 their share decreased up to 14.3%, by 1973 — by 7.7%. The Western European civilization was the first which emerged as a leader (from 21.9% in 1700 to 33% in 1913), the next were the North American (the USA's share increased from 0.1% in 1700 to 18.9% in 1913 and 27.3 in 1950) and the Japanese (an increase from 2.9% in 1600 to 7.8% in 1973) civilizations [264, p. 261]. The economic constituent of the genotype of local civilizations changes at different stages of their life cycle; periods of prosperity alternate with periods of stagnation and crisis; their share in the world economic environment also changes, for example, the Eurasian civilization (the former USSR) took the unprecedented step backwards in the 90^s of the 20th c. — the catastrophe was due to neoliberal market reforms and disintegration of the USSR.

5. **A social structure** of civilization is no less important. There is a division of a society into different classes and social strata, which are of different importance for reproduction and appropriation of the manufactured product and management. From the moment when the early-class civilization (since the 4th—3rd millennia B.C.) appeared, several social classes typical of each civilization can be distinguished:

➡ *ruling class* that includes the rulers of states and the nobility, major owners, religious and military leaders, rich businessmen;

➡ *middle class* that includes officials, army officers, scientists, doctors, culture workers, independent manufacturers, builders, landowners, traders, middle and minor businessmen, ministers of religion;

➡ *prevailing class* that includes peasants, craftsmen, workers, small traders, low-rank officials, soldiers;

➡ *lower class* that includes slaves, serfs, untouchables, those deprived of rights and personally dependent, beggars.

As the social structure of civilization changed from one epoch to another, the economic and political one changed as well. After the slavery in North and South America and then the caste order in Indian had been abolished, the lower class practically ceased to exist. Nowadays, a three-tier social structure is typical of all civi-

lizations, although in some places there can be seen some relics and facts of personal dependence. However, each civilization has its own peculiarities and distinguishing features typical of the social constituent of its genotype. For example, the social structure of the North American, Western European and Oceanic (in respect of Australia and New Zealand) civilizations significantly differs from that of the Chinese, Indian, Moslem or African civilizations; the social structure of the Eurasian civilization dramatically changed twice: at the beginning and at the end of the 20th c.

6. A governmental political component of the genotype of civilization includes the following basic elements:

➡ *a state structure*, form of political power (monarchy, parliamentary or presidential republic, tyranny, totalitarian regime etc.);

➡ a degree of *democracy* and citizens' participation in solving major problems, forms of self-government etc.;

➡ *a legal structure*, legislative control over different parts of life of a society, the degree of independence of the judicial system;

➡ *a political structure*, existence and competitive struggle of parties representing the interests of different social strata;

Existence of a *civil society* and the institutions representing it, the degree of control over the state machinery.

The state-political constituent is the most complicated and rapidly changing constituent of the genotype of civilization. A change of forms of the state structure was showed as early as in «The States» by **Plato**. Accumulation of the democratic principles and involving more and more people in the decision-making process is considered to be the historic trend in the dynamic development of civilizations. However, in this case there is also some instability during the periods of political coups and revolutions. In some civilizations and countries the political constituent did not undergo any changes during the long period of time (for example, the North American and Oceanic civilizations), while in the others (the Eurasian and Western European civilizations) this constituent frequently changed and was characterized by some instability. From the end of the 20th century there was a tendency towards approximation of the state-political structures in different civilizations, although they still significantly differ.

7. A socio-cultural component (the field of spiritual life) is one of the most important elements of the hereditary nucleus of local civilization. This component comprises the following elements:

➡ *nature and the level of scientific knowledge*, a composition and development of scientific schools changing each other, originality of philosophic thinking, civilizational peculiarities in the enhancement of scientific paradigms;

➡ *diversity of cultures* in respect of civilizations as well as their internal structure (national and ethnic variety), differences in art and architectural styles, literary and musical heritage, aesthetic valuations;

➡ the existing system of assimilation of knowledge and culture by the next generation by means of the *educational system*, training and retraining of personnel, the established pedagogic schools and traditions;

➡ the system of *ethic values* as well as standards of people's activity and behavior in a family or society which are partly regulated by law but more general in nature and directly connected with the prevailing type of religion;

➡ *religious ideology*, the ruling or prevailing confession and religious institutions that put religious principles into practice. Some contemporary civilizations have the only one confession (Moslem), other civilizations have many collaborating and confronting religions (the West-European, Eurasian, African civilizations), while the others are indifferent to religious faith (the Japanese and Chinese civilizations).

Arnold Toynbee considered that religious affiliation was a constituent feature of civilization. In doing so, he distinguished the Western Christian, the Orthodox Christian, Moslem and Hindu civilizations [191, p. 133]. **N.N. Moissejev** had another point of view. He thought that it was the business of civilization itself to choose a kind of religion appropriate to its spiritual system: «In contrast to Toynbee, I do not think that the religion forms civilizations, it is civilizations that assimilate those moral principles and religious ideology which is consistent with civilizational traditions of the people to the greatest extent. In other words, the civilization chooses the right religion and adapts it for its needs and ideals» [136, p. 105].

This approach is based on the following arguments. Firstly, local civilizations had appeared three thousand years before the monotheistic world religions originated, and, initially, all the civilizations passed through the period of polytheism. Secondly, according to **Karl Jaspers**, the reason why the world monotheistic religions appeared in the «axial age» was connected with the crisis

point in the development of civilizations of the second generation, which became one of the reasons for formation of the third generation. Thirdly, the formation of the fifth generation of local civilizations at the turn of the third millennium is associated with an increase in a number of various religions and adialogue among confessions.

8. A historic component of the genotype of local civilizations represents the historic experience that they accumulated in respect of the understanding of community of the peoples vital interests as well as relationships with other civilizations. These relationships are differentiated: from a dialogue, collaboration and partnership to confrontation and conflicts that sometimes resulted in a collapse or absorption of the weaker civilization. The historic experience was a kind of binding force which emphasize the importance and interaction of all the constituent parts of the local civilization genotype, its maintenance and enhancement at different stages of the life cycle of civilization.

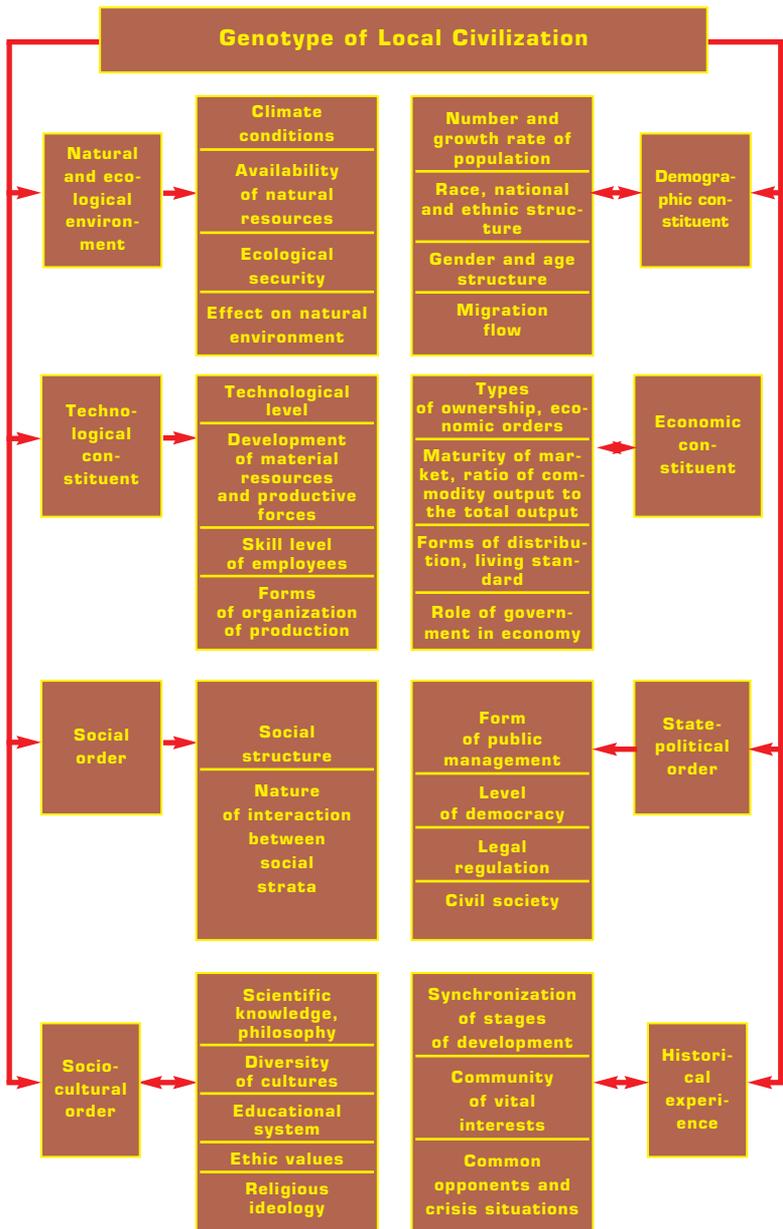
The structure of the local civilization genotype is illustrated in [fig. 3.4](#).

The genotype of the world civilization slightly differs from that of the local civilization. The genotype of the world civilization is a crucial stage in the history of the development of the global civilization – of the whole humankind at a certain stage of its life cycle. Like **N.N. Moissejev**, we start keeping a chronicle of the history of global civilization from the Neolithic revolution, the formation of reproducing economy and the beginning of social division of a society (on the basis of social division of labor). It took place about ten thousand years ago, when Homo sapiens were threatened with extinction due to the major ecocatastrophe in the late Mesolithic epoch and had to carry out epochal innovations such as cattle breeding, agriculture and then handicraft and building.

During the period of the first world civilization – *the Neolithic one* – the genotype of the world civilizations only started developing. It comprises natural and climatic, demographic, technological, partly economic and socio-cultural components. However, at that time there was no social division, state and law. Local civilizations did not start to exist yet. Therefore, the first thousand years of the history can be considered as a stage of the origin of the global civilization, its two components – the world and local civilizations – and their genotypes.

Figure 3.4.

Structure of the Local Civilization Genotype



These genotypes completely formed and started interacting between each other during the period of *the early class world civilization* (approximately from the middle of the 4th up to the beginning of the 1st millennium B.C.). At that time there was a series of major events: the society divided into social classes, commodity-money relations developed, state and law started existing, socio-cultural life underwent some significant changes (the revolution of moral standards supported by religions; creation of the written language, providing the basic framework of scientific knowledge and education), people began to acquire their historic experience. The first generation of local civilizations that developed primarily in cities («city revolution») came into existence and passed through all the stages of its life cycle. This epoch is characterized by a great number of dramatic changes in social life and epochal innovations that laid down the foundation for the development of society for many thousand years. Using the terminology of **Karl Jaspers**, we can say that it was the first «axial age». It was the period when the genotype of both the world and local civilizations constituting the matrix structure of the dynamically developing global civilization completely formed.

During the next world civilizations: ancient (the beginning of the 1st millennium B.C. – the middle of the 1st millennium A.D.), medieval (6th–13th cc.), early industrial (14th–the middle of the 17th c.), industrial (the middle of the 18th – the end of the 20th cc.) and post-industrial (developing from the beginning of the 21st c. and having an expected period of life cycle up to the end of the 22nd c.), these genotypes were developing, enhancing and getting renewed. They were mutually complementary in general environment of transition of the humankind from one stage to another, through the cycles of different duration and crises of a different extent.

So what is the difference between the genotype of the world civilization and that of the local one? Basically, it comprises the same eight components as the genotype of local civilizations but with reference to a certain stage of human society, which offers the potential for the clearer understanding of qualitative and quantitative characteristics of the development level of each component. Besides, in this case there are two elements, two components. The first one is a *definite composition of local civilizations* representing a civilizational diversity at a certain stage of the historic progress. The second one is *geo-civilizational environment* that is a part of

the inhabited area extending from stage to stage and occupied by civilizations (a civilizational belt) in contrast to the areas where civilizations did not form completely or just started to exist. In doing so, it is necessary to take into account a *multi-layer nature of geo-civilizational area*: along with the prevailing world civilization, the area is occupied by dying, ousted and the relic ones, which have become a thing of the past a long time ago, and by a new incipient civilization that is coming to take the place of the prevailing one.

The composition of local civilizations is also of multi-layer nature. Some civilizations are the leaders in assimilation and distribution of the basic principles of the prevailing world civilization. The others are trying to catch up with it, gradually assimilating the main components of the prevailing civilization. The third ones turn out to be in the rearguard, mainly representing the dying world civilization. At the same time there are local civilizations that refer to different generations.

Local civilizations are of the same multi-layer nature. Sometimes these civilizations can demonstrate the very queer combinations and zigzags. For example, in North America before the Civil War in the middle of the 19th century, the prevailing industrial order went with the relic slave-owning system which was a thing of the past a long time ago. As for modern Oceania, Australia and New Zealand, which are now in the period of transition to the post-industrial world civilization, they coexist with such countries as Polynesia, Micronesia and Melanesia that have still preserved relics of the primitive society typical of the Neolithic civilization.

However, one should not take the global civilizational area as a number of separate elements. This is *the developing unified system, the relationships between separate elements of which are becoming closer and closer with the course of each historical epoch*. The more synchronizing global cycles (although each element of this system has its own cyclical rhythm) act in this area; sometimes this system goes through the periods of crises involving a bigger or smaller part of the geo-civilizational area (although their behavior significantly differs in each part of this environment).

Consequently, the socio-genetic principle of heredity influences the multidimensional civilizational area by means of handing over the following three types of modified and enhanced hereditary genotypes: the global type that represents the unity of the

humankind and passes through certain stages of its historic development; the world civilizations representing the essence of these stages; local civilization representing the diversity of separate elements of the humankind and specific nature of its dynamic development – unity through diversity. Graphically it can be presented as a giant spiral with the very complicated structure, the individual coils of which comprise of intertwining threads of local civilizations. The direction of this spiral represents the general trend of the historic development of the humankind (the world or global civilizations) increasing the speed from stage to stage of its life cycle.

3.3. Variability: Transformation of the Civilization Genotype

One shouldn't suppose that the hereditary genotype of either local or world civilization will remain intact over hundred and thousand years – the whole life cycle allotted by the history. Although the composition of abovementioned «social chromosomes» remains intact, each chromosome undergoes more or less great periodical changes and transformations. This process is absolutely essential for the adaptation of civilization to the changing external and internal conditions of its development. Therefore, the genotype is considered to be a permanently changing hereditary nucleus of civilization which is handed over to the next generation in the less or more modified form. It is the essence of the hereditary variability as a principle of sociogenetics.

Factors causing variability – both internal and external ones. *Internal factors* are associated with the development of civilization in the course of time, a change in stages of its life cycle (appearance, formation, development, maturity, aging, a general crisis) and going through the same stages in a new cycle (as it was with the Chinese or Indian civilizations) – or absorption by another civilization or disappearance from the historic scene and existence in the relic form (as it happened to a great number of the ancient civilizations). An effect produced by *external* factors is the other reason for transformation. These factors include a change of natural and ecological environment caused by territorial expansion (as it was with the short-lived Mongolian civilization occupying the most part of Eurasia), major natural disasters and ecocatastrophes; wars, conflicts between civilizations, etc. changing the

geopolitical structure of the world; appearance and assimilation of the world religions and ideological tendencies drastically changing the socio-cultural component of the genotype of civilization and its spiritual life.

The principles of variability work in harmony with cyclical dynamics of local civilizations and a change of world civilizations. As a social system, each civilization has its own genotype (this genotype works while this civilization exists), which produces a considerable effect on the composition and the hereditary genotype of the group of local civilizations existing in the same historic period. **Arnold Toynbee** discovered 37 civilizations in three generations and gave the detailed description of 24. However, this does not mean that this list is completed. New archeological finds and historical data enable us to make this list fuller. Besides, there existed a lot of *protocivilizations*, whose genotype was not fully formed due to different reasons.

The first generation had the highest population and was similar to the early class world civilization (the end of the 4th – the beginning of the 1st millennium B.C.). These civilizations occupied the narrow area to the north of the equator; often they did not go through the whole life cycle, so we have little information about them. In Central and South America civilizations of the first generation (Mayan, Aztec, Incas) existed much longer – until the 16th century when they were actually destroyed by the aggressive West European civilization of the third generation. In that period the genotype of local civilizations of the first generation was unstable; this social institution itself went through the stage of origination and formation.

A number of *civilizations of the second generation* existing during the period of the ancient world civilization (approximately from the beginning of the 1st millennium B.C. up to the middle of the 1st millennium A.D.) and local civilizations decreased, the genotype became more stable. Some civilizations moved up from the first generation to the next one, radically transforming their genotype (Indian and Chinese civilizations), others were absolutely new (the ancient Greco-Roman, Persian). The area occupied by civilizations (a civilizational belt) extended towards north and south; civilizations established manifold relations and a system of trade, technological and cultural exchange, which accelerated the civilizational process. However, the isolation of the American continents was impeding this process in the New World.

In the middle of the 1st millennium A.D. the civilizations of the second generation found themselves in a state of long-term crisis and went through the period of transition, which lasted for several centuries. At the same time there was a process of origination of the *third generation* of local civilizations — the Western European and Eurasian civilizations, and, from the 7th c., the Moslem one, which spread rapidly across North Africa, Persia, some part of Volga region and penetrated into Pyrenees. This period was associated with a short-lived upturn of the Mongolian civilization in the 12th–14th cc., which assimilated cultural heritage of the Chinese civilization. It spread across the most part of the Eurasian and conquered many ancient cultures. The life cycle of the Byzantine civilization preserved the heritage of the Greco-Roman antiquity and, along with the Arab world, handed over the main part of this heritage to the Western European civilization. The Slavic (future Eurasian) civilization that was of mixed nature in many respects started developing in Eastern Europe.

The fourth generation of local civilizations originated in the period of the early industrial world civilization in the 15th–17th cc. and occupied the area of the industrial civilization up to the end of the 20th c. According to **A. Toynbee**, it included five existing civilizations:

- ➡ Western society united by Western Christianity (Catholicism, Protestantism);
- ➡ Orthodox Christian or Byzantine society, which occupies South-Eastern Europe and Russia;
- ➡ Islamic society — from North Africa and the Middle East to the Great Wall of China;
- ➡ Hindu society, which occupies the tropical subcontinental region of India;
- ➡ Far-Eastern society, which occupies subtropical and temperate regions of South-Eastern Asia [191, p. 133].

However, this classification suffers from some disadvantages. It is based on the religious principle, although this principle is not always realized; the Far-Eastern society does not have any common religion and includes not only the ancient Chinese and Buddhist civilizations but the relatively young Japanese one. The Moslem civilization includes also Indonesia. Africa with its great civilizational past (except for North Africa) was not taken into account at all. In addition to this, it is hardly reasonable to reduce the Orthodox Christian society to the Byzantine past.

In A. Toynbee's classification there is no place for the independent Eastern Slavic (later Eurasian) civilization. It can be admitted that the civilizational area of the early industrial and industrial epochs was more diverse and changeable than that described by A. Toynbee. In contrast to him, we think that in the period from 6th till 20th cc. there were two instead of one generations of local civilizations: the third generation of civilizations existed in the Middle Ages (the 6th–14th cc) and fourth generation includes the early industrial and industrial civilizations (the 15th–20th cc.).

The new aggressive Western European civilization became the main agent in geo-civilizational environment. It spread its influence over the most part of the inhabited area, destroyed ancient civilizations in Central, South and North America, conquered India, Africa, Australia and most of the Moslem countries and established control over China. The Eurasian (the Russian Empire and then the USSR) and Japanese civilizations remained the small islands of independence.

No other civilization has ever spread so much and produced such an effect on the transformation of the genotypes of other civilizations as the Western European one did. All the elements of the genotype of the Western civilization underwent radical transformations as well, especially, after the industrial and bourgeois-democratic revolutions (revolutions in Netherlands, England, France and North America). The pace of the historic progress and changes in the existing genotype of both the world and local civilizations sharply increased.

However, the Western civilization itself was not homogeneous. The apparent contradictions in the civilization still persisted, some long wars broke out. Most tragic was the 20th c., when in the period of the decline of the world industrial civilization the two most bloody wars in the history of a world war broke out and invention of nuclear weapons brought the humankind to the brink of self-destruction – the last epochal anti-innovation.

Fortunately, the civilizations managed to avoid their end. When the «Cold War» as well as the contradiction between two world systems came to the end, *civilizational diversity* has become of a great importance again. The foundations for this process were laid down in the course of national liberation wars and movements, which took place after the Second World War. When the colonial system of Imperialism ceased to exist, the free countries

started recovering their original civilizational values and the influence of the Western civilization with its specific genotype became less strong. However, a new threat of a clash among civilizations sprang up right away. **S. Huntington** was the one who gave the most thorough description of this process [259].

The process of formation of the *fifth generation of local* civilizations started under these circumstances. Differentiation and transformation of the civilizational genotypes have formed the basis for this process. The Western civilization, which previously acted as a single whole, has fallen into the parent Western European and daughter North American, Latin American and Oceanic civilizations. The ancient Chinese and Indian civilizations are going through the period of their revival. This was preceded by the upturn of the Japanese civilization that has become one of the leaders in the industrial field. After the USSR had ceased to exist, the Eurasian civilization found itself in a state of crisis, and the Eastern European civilization drifting towards the Western European civilization became evident. The Moslem civilization, the binding force of which is considered the Islam itself and which is very different in nature, has exerted their activity again and is becoming more and more aggressive. After the short post-war period of the upturn, the African civilization (to the south of Sahara) is also in decline. Thus, the matter concerns twelve local civilizations of the fifth generation. Although they are at the different stages of their life cycle, all of them are more and more aware of their interests in geo-civilizational environment. This is the way the principle of variability of the genotype of local civilizations works under existing conditions.

The process of differentiation of the local civilizations new generation may be not over yet. There is a possibility that in the middle or the end of the 21st c. the Moslem civilization (if its confrontation with the North American civilization becomes less tense) will fall into the Arab, Persian (Iranian), Indo-Moslem and Indonesian civilizations, with no differentiation of their common Islamic values.

To the less extent the genotypes recover and improve within **historic epochs** (civilizational cycles) and during the periods of a change of long-term cycles (in the industrial epoch – Kondratieff's cycles). The ratio of technological order to the economic one as well as a political structure changes, wars and revolutions happen, new art styles appear etc.

The principle of variability also works in respect of the *world civilizations* in the full course of their life to assure their adaptation to external and internal factors of the development. The genotype of each following civilization is formed during the period of transition. It absorbs and transforms useful elements of the dying civilization and then replenishes them with new elements typical of the developing world civilization. In doing so, there is a possibility that the epicenters of the civilizations progress, leading countries and civilizations will change. The degree of renewal of the genotype is the highest during the periods of a change of civilizations cycles (during the period of crisis common to the whole civilization). Nevertheless, it is preserved and handed over through the heritage to new local and world civilizations. At the same time, changes in the genotype of individual local civilizations are more significant, as their composition can be changed too. Crucial epochs, in which there are radical changes of the genotypes of world and local civilizations, can last during centuries, but in the course of time they gradually shorten.

The process of *globalization* has become a new factor in the development of the global civilization genotype at the turn of the millennium. It finds its expression in a tendency towards smoothing over the differences between civilizations. It formed the basis for the idea that civilizations became a thing of the past and they will disappear in a united global super society — a kind of global «man hill» [172, p. 24]. There is a process of thrusting a set of values typical of the Western civilization upon other civilizations; informational channels and the Internet are widely used for that. This is a kind of «civilizational colonialism» which is similar to the colonial empires established by the West in the 15th–19th cc. It is the North American civilization but not the Western European one who is playing the leading role now.

However, the tendency towards unification posing a direct threat to civilizational and cultural diversity is temporary and will hardly ever manage to become prevailing. The genotypes of local civilizations have the many-thousand-year history, stability and the ability for adaptation to any changing conditions. However, the genotype of the post-industrial world civilization as an information technological society was diagnosed incorrectly; this is an attempt to bring the order and system of values of the late industrial society into the 21st c. Actually, as the research shows [238], the priority change in a state of human beings and rational co-

evolution of nature and society will be the distinguishing features of the humanistic and noospheric society. It will require a change of the order, principles and mechanism of globalization and carrying out it for the sake of most humankind and on the basis of a dialogue, cooperation and partnership between civilizations that renew and enhance their genotype in conformity with new conditions and problems in the development of the humankind. To some extent, this process is associated with the order of globalization used by the European Union.

3.4. Selection: Mechanism of Development and Change of Civilization

During the periods of transition and civilizational crises (either at the moment of a change of world civilizations or at the crucial stages of dynamic development of local civilizations) the necessity to meet the challenges of the epoch appears, the effect of *the socio-genetic principle of selection* increases. The chaos, according to Ilya Prigozhin, the Nobel Prize laureate, results in an establishment of a new order — a new world or local civilization or a new stage of their life cycle.

The natural selection prevails in the dynamic development of nature (although nowadays the influence produced by people's activity on the biosphere has increased), while ***the artificial selection is typical of the dynamic development of a society***. It is people and social strata (classes, groups, states) who carry out this selection in accordance with their own goals and interests. It is possible to distinguish two types of this selection: a *purpose-oriented selection* including the previously set goals and well-defined ways of their achievement and a *spontaneous selection* existing under conditions of market competition and conflicts between social and political forces. Its outcome is unknown in advance or even opposite to the expected one.

What social powers carry out a selection in the dynamics of civilizations — local and the world ones?

First of all, these are the *members of intellectual elite* (scientific or art elite) who start seeing the contradictions in a society earlier than the other members of a society and do their best in order to find the ways to solve these problems, offering a broad range of

alternative ways of the future development of a society. Many of these ideals and ways of their achievement turn out to be utopian and unachievable, while the others are reactionary and calling back to the past «Golden Age», generally making people feel dissatisfaction with the present situation and find something new.

Social strata representing the elements of the future but incipient society are the first to respond to these signs. These strata include engineers, businessmen, politicians and public figures, who assimilate new ideas and try to realize them. They actively perceive new ideas and try to implement them, but they are suppressed by the ruling classes whose interests are connected with the prevailing civilizational system, which has already exhausted its potential.

New generations of people are the main motive forces of civilizational selection. The law of generation change plays the leading role. This is a symbolic generation — a group of people born approximately in the same period of time and brought up under the influence of the same social and political changes and historic events — but not a demographic understanding of the generation (a group of people born in the same year) and a genealogical notion of the change of a generation (genealogical tree) [239, p. 4–6]. It is 15–20% of the most talented and bright members of the generation who represent its interests and meet challenges of the epoch but not its arithmetical mean and characteristics, that are the essence of the generation.

The law of change of generations is probably the main mechanism of heredity, variability and selection. As **Arthur Schlesinger Jr.** [232] showed, each following generation spends the first fifteen years of its life cycle to assimilate the heritage of the previous generation and to modify it in conformity with its interests and changed conditions of the development; next fifteen years — to improve and secure its own contribution to hand it over in the fullest form to the next generation.

The gap between generations in the period of selection, handing over and assimilation of the heritage is not too wide at the evolutionary stage of the development of both the world and local civilizations. However, this gap sharply increases at the crisis stage, the gap between generation and the range of choice of alternative variants is getting wider and wider. According to **A.A. Bogdanov**, the system becomes disorganized, and a little effort is required to change significantly its motion path.

Unions of intellectual and social powers and new generation, which are interested in progressive changes, form the basis for the establishment of *institutions of a civil society* to put these changes into practice: public movements, political parties, religious currents etc. They are striving to come to power to make it the instrument of transformation of a society.

The government plays a contradictory role in the mechanism of the civilizational selection. Representing interests of the ruling classes and prevailing orders, it tries to freeze the existing order, opposes the changes and impedes selection. However, after the regime is overthrown in a coup, the government becomes a useful instrument of civilizational selection and establishes some new elements by means of law (for example, as it was with Napoleon's code after the French Revolution). However, it can also become reactionary and implement large anti-innovations (as it was with Russia in the 90s).

Selection in respect of the dynamic development of the world, local and global civilizations is carried out by means of ***the principle of periodic innovative renewal of a society***. Sometimes the innovative waves of different height and duration go through all the components of the civilizational genotypes, transform their structure, wash away everything outdated and replenish them with new elements adapted to the changed external and internal conditions of the development. Innovative waves are preceded by the crisis state of civilization that considerably exhausted its potential. An innovative wave helps the civilization to overcome the crisis, so it reaches an absolutely new stage of the development. If a local civilization fails to develop or chooses a wrong way of its development (for example, it carries out a wave of anti-innovations), it disappears from the historic scene, giving a way to the higher system with the transformed genotype (as it was with the Eurasian civilization at the end of the 20th c).

Cluster of epochal innovations forms the basis for formation of the next world civilization or a new generation of local civilization once per several centuries. **Simon Kuznets** disclosed the role of epochal innovations: «The major breakthroughs in the development of human knowledge that have become main resources for long-term economic knowledge and widely spread across the world can be called epochal innovations. The changeable course of economic history can be divided into economic epochs determined by typical growth characteristics»[146, p. 105].

We are considering the composition and role of epochal innovations in a broader sense, in respect of all components of the civilizational genotype which are radically transformed when transiting to a new historic epoch.

The Neolithic revolution, which happened ten thousand years ago and epochal innovations of which became social division of labor (assimilation of agriculture and cattle breeding, and then handicraft and building), a city revolution, barter, property inequality and a written language, can be considered the first among such upheavals in the history of society. The first world civilization (the Neolithic) with its own specific genotype appeared; all the necessary prerequisites for the first generation of local civilizations were created.

Epochal innovations of the early class civilization (the end of the 4th – the beginning of the 1st millennium B.C.) were assimilation of smelting and the use of metals (copper, bronze, gold), irrigating agriculture, origination of classes, state and law, formation of multi-pattern economy, commodity production, markets, applies sciences and education. It was then that the first large social institutions – local civilizations of the first generation – appeared.

The next cluster of epochal civilizations refers to the time of the ancient world civilization (the beginning of the 1st millennium A.D. – the middle of the 1st millennium A.D.). These epochal innovations include assimilation and distribution of iron tools of labor that considerably extended civilization area; ocean shipping; origination of democracy in city states and world empires; appearance of abstract sciences and world religions in «axial age».

Epochal innovations of the medieval civilization include such innovations as a three-field system, fire-arms, the feudal order and organization of handicraft on the workshop base in cities, book-printing and universities, formation of the third generation of local civilizations.

The early industrial civilization is characterized as an epoch of manufactories, Great Geographic Discoveries, discovery and development of America (with epochal anti-innovation – destruction of local civilizations). Besides, it included formation of capitalism, parliamentary democracy, first bourgeois revolutions, an upheaval in science and the Renaissance in art, formation of the fourth generation of local civilizations.

The highest wave of epochal innovations was in the period of the industrial civilization. The following innovations formed the basis for it: industrial revolution, «breakthrough in the evolution-

ary development of science, which provided a greater potential for the technological development than the previously existing one» [ibid, p. 108]. Formation of engineering industry significantly changed all branches of production. An upheaval in the power engineering — the use of steam-power, electric power and then atomic energy; revolution in computer engineering; world market and monopoly domination; world wars and weapons of annihilation; the advance of science and universal schooling were of great importance. The fourth generation of local civilizations prevailed with the dominance of the Western civilization. All these innovations drastically changed the civilizational genotypes.

Cluster of epochal innovations of the post-industrial civilization have started developing since the end of the 20th c. and will admittedly exist for two centuries. The expected epochal innovations of this period are the following: humanization and environmentalization (noospherization) of the economy and society as a whole; globalization and strengthening of the multi-polar world order without wars on the basis of a dialogue and partnership between civilizations (which enables us to avoid the greatest global anti-innovation — a conflict between civilizations); supra-government (civilizational and global) unions; formation of an integral socio-economic and socio-cultural order; differentiation of local civilizations and development of their fifth generation with their own specific genotype.

Regular renewal and enhancement of the genotype of the global civilization, its motion path from one epoch to another, realization of its potential is the result of clusters of epochal civilizations. However, it is necessary to note that there is a growing hazard of the fact that the humankind can create such epochal anti-innovations which will interrupt its life cycle.

Along with clusters of epochal innovations within civilizational cycles there are less high but more numerous widespread *waves of basic innovations* that do not result in such drastic transformations of the genotype but extend an area of transformation of epochal innovations and form the basis for formation of new economic and technological orders, new generations of equipment and technologies, more effective methods of organization of production and political order, new art styles etc. Such waves are initiated by crisis phases of long-term Kondratieff's and medium-term cycles and result in the partial renewal and enhancement of the civilizational genotype.

Social powers — scientists and engineers, businessmen and politicians, teachers and doctors and social institutions driven by them are the initiators and motive forces of innovative transformations. However, these transformations are fiercely opposed by conservationists and some institutions interested in preserving the existing order and formed genotype. This opposition can be very helpful, as it enables us to test all suggested innovations and to select the most effective and viable ones. In addition to this, such opposition makes it possible to correct excessive «speeding-up» during revolutions and epochal innovations.

Carrying out epochal and basic innovations, the basis that they form to renew and enhance the civilizational genotype, selection of their most vital and effective transformations — is the result of the following processes: competition in economy, political and ideological opposition, contradiction between innovations and conservatism. The result of this struggle can not be predicted in advance; a great number of innovations end in failure, and others call us to the past. The role of science is to foresee imminent innovations in the civilizational genotype in proper time, to determine their orientation, nature, motive forces, resources and efficiency. This will allow the society to overcome crisis stages in the dynamic development of the world and local civilizations in the shorter period of time and with smaller losses and pain and avoid anti-innovations, for which it will pay too high a price. Thus, the development of sociogenetics, including its civilizational aspect, study of the cyclical and genetic principles of the civilization dynamic development and elaboration of effective mechanisms of the use of these principles is our urgent task.

Chapter 4

DIALOGUE AMONG CIVILIZATIONS: THEORY, SPHERES AND INSTITUTIONS



A global movement for dialogue among civilizations headed by the UN has become an epochal innovation of the beginning of the 21st century. It sets new objectives before the theory of civilizations: to reveal the essence of such dialogues from the scientific point of view and to find out its place in the interaction that has been formed for millennia among local civilizations. What are the spheres and institutions of the dialogue among civilizations, its major participants? How should we come from the dialogue to the partnership and alliance of the civilizations in the course of solution of global problems of the 21st century, how should we overcome centuries-old mutual misunderstanding and hostility? The answers to these not simple questions are suggested in this chapter.

4.1. The Content of the Dialogue among Civilizations and Its Place in the System of their Interaction



The world of local civilizations is not only various and changeable. It is notable for an extremely wide scope and diversity of interrelation and interaction among them – from confrontation and conflicts to cooperation and partnership. One of the central places in the system of interactions is occupied by the *dialogue among civilizations* – a comparatively new geopolitical category which has won recognition and become widely spread since the end of the 20th century. It was then on November 1, 1998 that the Resolution of the UN General Assembly proclaiming 2001 the Year of Dialogue among Civilizations under the aegis of the UNO was adopted on the initiative of **M. Khatami**, President of the Islamic Republic of Iran, and supported by other countries, including Russia [57, p. 3]. **Kofi Annan**, UN Secretary-General entrusted a group of scientists and statesmen from 17 countries (prof. **S.P. Kapitza** from Russia) to make a report on this issue which was discussed on November 7–8, 2001 at the plenary meeting of the UN General Assembly; there was adopted the Resolution «Global Agenda for the Dialogue among Civilizations». It determined the main purposes, princi-

ples and programme of action on these problems for decades ahead. This resolution pointed out that «all civilizations celebrate the unity and diversity of humankind and are enriched and have evolved through dialogue with other civilizations» and that «globalization is not only an economic, financial and technological process which could offer great benefit, but it also presents the challenge of preserving and celebrating the rich intellectual and cultural diversity of humankind and of civilizations». The document emphasizes «the need to acknowledge and respect the richness of all civilizations and to seek common ground among civilizations in order to address comprehensively common challenges facing humanity». The representatives of the countries, that signed the resolution, were united in the idea that «dialogue among civilizations is a process between and within civilizations, founded on inclusion and a collective desire to learn, uncover and examine assumptions, unfold shared meaning and core values and integrate multiple perspectives through dialogue» [ibid, p. 14–15]. This is a quite broad definition of the dialogue among civilizations, which opens for a civilized society a field for working out a scientific concept of the dialogue among civilizations as a foundation for the system of practical actions. The Programme of Action outlines a number of specific measures in this direction: «advancement of research and scholarship to achieve an objective understanding of the characteristics of each civilization and the differences, as well as ways and means to enhance constructive interaction and understanding among them»; «reinvigorating and encouraging of translation and dissemination of basic manuscripts and books and studies representing different cultures and civilizations»; «sponsorship of conferences, symposiums and workshops to enhance mutual understanding, tolerance and dialogue among civilizations» [ibid, p. 16–17]. The preparation and publication of this monograph in several languages which will be then presented and discussed at the conferences in various countries, are meant for the attainment of specific tasks set by the programme of action.

What is understood under the dialogue among civilizations?

The concept of *dialogue* itself (from the Greek *dialogos* — talk, conversation) is not new. Its origin dates back to ancient Greece, it was used in the philosophical papers of Plato, became widespread in dramaturgy, scientific and political literature. The dialogue means communication between two and more people to achieve understanding. In practice the dialogue requires the development of openness of words and thoughts and also respect to various prospects. The dialogue is not simply a talk, verbal communications between people;

a talk may be directed at exchanging hostile views or insults. The dialogue is an exchange of thoughts and sharing of experience aimed at mutual understanding, a sincere clearing up of differences in views, traditions, ways of life and finding new approaches. The dialogue implies the equality and mutual respect of its participants. Its aim is not merely to enrich knowledge or impose own approaches on an interlocutor, but a search for common approaches to the solution of existing and newly arisen problems and contradictions; the dialogue has a constructive, not destructive character.

The foregoing features and characteristics of the dialogue refer to the dialogue among people, two or more individuals, including scholars expressing various theoretical views, concepts and positions. However, this also refer to relations between large social groups – social strata, public organizations, political parties, states, cultures and civilizations. It is clear that they have to communicate through real people who express most completely specific interests of each of these social institutions.

Speaking about *dialogue of civilizations*, we mean first of all an exchange of ideas and notions between representatives of local civilizations – both one and several co-existing generations; in a broad sense it is also a dialogue between exponents of interests of world civilizations replacing each other. Such exponents may include scholars, political figures, people of culture, public (non-governmental) organizations as well as tourists and people representing various civilizations. The referred to UN Resolution outlines a wide circle of participants in such dialogue:

➡ «Participation in dialogue among civilizations shall be global in scope and shall be open to all, including:

- ➡ people from all civilizations;
- ➡ scholars, thinkers, intellectuals, writers, scientists, people of arts, culture and media and the youth, who play an instrumental role in initiation and maintenance of dialogue among civilizations;
- ➡ individuals from civil society and representatives of non-governmental organizations, as instrumental partners in promoting dialogue among civilizations» [ibid, p. 16].

Consequently, the matter in question does not refer to a narrow circle of officials representing international organizations and the state machinery of countries included in this or that civilization, but it refers to the widest, mass movement changing the consciousness of millions, eliminating hostility and a lack of understanding among nations and civilizations. This movement expressing the results of

development of world culture and tolerance is the prime tool undermining the roots of enmity and clash among civilizations, origins of international terrorism.

In this regard, it is important to understand the *place of the dialogue in the system of interaction among civilizations*.

We speak about the following forms of such interaction (fig. 4.1):

➔ *clash* among civilizations, which is a military conflict at various levels – from a world up to regional war. It may end with either the establishment of a new balance between belligerent powers or with the conquest or even destruction of a defeated civilization, its disappearance from the historical scene, inclusion of its remains into the structure of a victorious civilization (as it was a case, for instance, with the inclusion of the Persian civilization into the Moslem one or the downfall of ancient American civilizations;

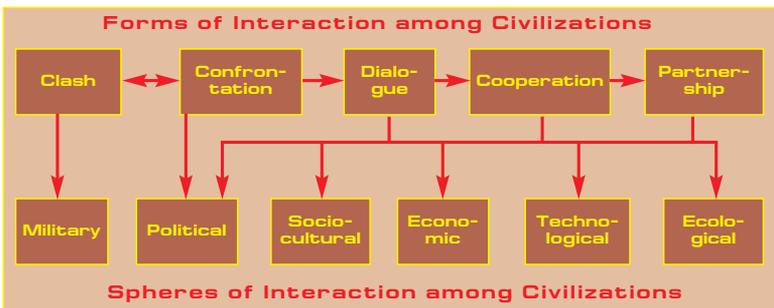
➔ *confrontation* among civilizations, which is their antagonism in the geocivilizational space which may last for centuries, sometimes developing into conflicts. As an example one could take the confrontation of the Eurasian and Western civilizations in the «Cold War» period accompanied by their indirect collisions in Korea and Viet Nam;

➔ *dialogue* between civilizations in various aspects, which gradually extends mutual understanding among them, promotes the slackening of hostility, increasing tolerance and readiness for cooperation. Relations between the Eurasian and Japanese civilizations after World War II may be adduced as an example.

➔ *cooperation* of civilizations, which helps to settle common problems on a mutually beneficial base: in military conflicts (for instance,

Figure 4.1

Forms and Spheres of Interaction among Local Civilizations



between the Eurasian, North American and a part of Western European civilizations during World War II), in solving common strategic objectives (for example, non-proliferation of nuclear weapons), in environmental catastrophes etc. The UN and other international organizations serve as a field for such cooperation;

➔ *partnership* of civilizations, which is the supreme form of cooperation on a long-term, stable, mutually beneficial base given a wide field of common interests that does not eliminate their differences in certain fields. The interaction among the Western European and North American civilizations in the post-war period may serve as an example of such partnership.

What ***is the role of the dialogue*** among civilizations in relation to other forms of their interaction?

1. *Dialogue undermines socio-cultural bases for the clash of civilizations* in any form of manifestation — from wars to international terrorism. It helps better understanding of the essence of another civilization, communion of interests and the main values of all local civilizations within the global one; it promotes the development of culture of peace as opposed to the cult of war. The development of the dialogue among civilizations since the 80s has contributed a lot to ceasing the «Cold War», moving away the threat, according to **Pitirim Sorokin**, of self-cremation of mankind in the flames of the world thermonuclear war. At present the dialogue among civilizations is a prime tool to prevent clash among them and spreading of epidemic of terrorism. This was emphasized by the UN Secretary-General **Kofi Annan** in his address at the UN General Assembly of November 9, 2001: «The dialogue among civilizations is a central pillar of the global response to conflict and violence of every kind, particularly when it is based on bigotry and intolerance. With this dialogue taking place in every part of the world, appeals to war will be met with appeals to compromise. Hatred will be met with tolerance. Violence will be met with resolve. A dialogue among civilizations is humanity's best answer to humanity's worst enemies... Such dialogue has, throughout history, fostered understanding and compromise and can do so even more in a world that is ever smaller and more closely linked. It can support and sustain every effort at peace and every attempt to resolve conflicts between and within nations» [ibid, p. 11, 12].

2. *Dialogue helps overcome the confrontation of civilizations* arising on the basis of differences between the systems of values, inability to understand the importance of any culture and civilization, their diversity forming a many-colored palette of global civilization and increas-

ing its vital force, its ability to adapt to radical changes both in the environment and internal structure of each civilization combining the heredity and changeability. The dialogue opposes the ideas of universality of this or that civilization, the aspirations of some political and public figures to thrust its values to the whole world ignoring and suppressing specific features of other civilizations (which was characteristic of the Western European civilization in the period of its dominance and at present is typical of the North American civilization). In the address of Kofi Annan mentioned above it was emphasized: «The dialogue among civilizations is based not on the premise that we as humanity are all the same, or always in agreement, but rather on appreciation of the fact that we represent a diversity of cultures, and that our beliefs reflect this diversity. The idea, that there is only one people which possesses the truth, or only one answer to the world's ills, or only one solution to humanity's needs, has done immense harm throughout history... Diversity is the basis for the dialogue among civilizations, and the reality that makes dialogue necessary» [ibid].

3. *Dialogue among civilizations is a necessary precondition for cooperation among them*, for the solution of the rising amount of global problems with which no local civilization powerful as it is could cope alone and which requires the combining of efforts of the whole humankind. Its necessity is proved in the Concept of the formation of the multipolar world based on dialogue and partnership of civilizations which was worked out by the Pitirim Sorokin – Nikolai Kondratieff International Institute for the 4th International Kondratieff Conference «Dialogue and Interaction among Civilizations of the East and West: Alternatives for the 21st Century» (Moscow, May 2001). The concept emphasizes: «With the development of globalization interdependence of countries in the solution of the key problems of a transnational nature will increase; the combining of efforts on the basis of cooperation and partnership of countries and civilizations will be required for solution of the key global problems, which the future of mankind depends on. These problems include six spheres: demographic, ecological, technological, geoeconomical, geopolitical and sociocultural. The presentation and solution of these problems will make it possible to fill the dialogue and partnership of civilizations with concrete content» [59, p. 43].

4. *The supreme form of interaction among civilizations – their partnership in solving global problems – is based on the dialogue.* Partnership implies a deeper extent of mutual understanding and confidence between civilizations, stability of a wide sphere of

interconnections, uniting of potentials, establishment of common institutions necessary for solving a global problem, which, however, does not mean the absorption of one civilization by another, obliteration of distinctions between them. Thus, at the «round table» «Rent Sources of Global Sustainable Development» sponsored by the Pitirim Sorokin – Nikolai Kondratieff International Institute during the summit on sustainable development problems in Johannesburg (2002) it was emphasized that the sustainable development of a global civilization as «a united system where the level of misbalance and polarization of local civilizations has reached its critical value», may be attained only on the basis of dialogue and partnership of civilizations, on the establishment of common economic and international-law mechanism. The latter should provide for, among other things, functioning of three global funds – ecological, technological and socio-cultural established by means of deductions from super profits generated by transnational companies and states, of world natural rent, ecological anti-rent, technological and financial quasi-rent [ibid, p. 203–207]. This suggestion supported by the participants of the «round table» (where, in fact, representatives of developing countries prevailed) was forwarded to the UN. It is unlikely to be implemented in the near future due to resistance of the TNC and states, which appropriate super profits, but in any case the development of partnership among civilizations, on a global or regional scale, requires the formation of common institutions. It is clearly seen through the experience of such civilizational union as the European Union. It includes the countries of the West-European and East-European civilizations; some countries belonging to other civilizations (such as Turkey, Ukraine) gravitate to it. Although the establishment process of such partnership has slowed down due to negative results of referenda on the EU Constitution in France and the Netherlands, it is unlikely to reverse it. This lesson just confirms the fact that making hasty and too radical steps should be avoided in formation of the partnership institutions among states and civilizations. The majority of people, who live in the countries which have defended their sovereignty and independence for centuries against a threat of losing their socio-cultural identity, economic and state independence, do not take such steps positively.

If one looks into the general tendency of interactions between civilizations at present, one can come to a conclusion that ***a general tendency of interaction among civilizations will be a transition from***

confrontation and a threat of clash among civilizations to dialogue, cooperation and partnership. However, this process does not develop gradually and straightforwardly. In the transitional periods characterized by the change of historical epochs, world civilizations, balance of powers and organization of the world, the aggravation of antagonism and escalating the threat of the clash among civilizations are inevitable. Exactly the same process is observed in the first decades of the 21st century when historical super-cycles and world civilizations are changing. However, in the second half of the present century one could expect a more distinct manifestation of the major movement tendency – through dialogue to cooperation and partnership of civilizations. This is the ***historical imperative*** as not only global sustainable development is impossible without it, but the survival of humankind itself, maintenance of global civilization under conditions of an increasing flow of new challenges and contradictions. The November 2005 events in France showed that the problems of mutual understanding and dialogue can also arise inside a civilization between the bearers of different systems of civilizational values.

4.2. The Spheres of Dialogue and Interaction Among Local Civilizations

The relations of the dialogue and other forms of interaction between local civilizations cover nearly all spheres of their life activity – socio-cultural, technological, economic, ecological and state-political. These relations have various levels of intensity for various civilizations (neighboring and remote) and they strengthen or weaken in various phases of historical cycles.

1. Dialogue among civilizations in the socio-cultural sphere. The dialogue among civilizations has the most obvious and intensive character in the sphere of spiritual reproduction featuring science, culture, education, ethics, religion and ideology.

Science (as well as innovations implementing its attainments) doesn't have clearly defined civilizational features. Scientific discoveries, inventions, concepts, theories, paradigms may emerge in these or those periods in various civilizations and spread in the space of global civilization promoting its progress based on epochal, basic and improving innovations. Scientific schools implementing each scientific breakthrough have their epicenter – country and civilization, which in the

given period is on the crest of the wave of scientific creation and then it is picked up and developed by scholars of other countries and civilizations.

Usually, the history of science dates from the scientific revolution in ancient Greece in the 6–4th centuries B.C. It was the period of the explosion of the scientific thought in Athens and other Greek cities-poleis, when began the formation of abstract sciences which make up the foundation of modern scientific outlook. However, in fact the history of science begins from the first local civilizations in Egypt, Mesopotamia, India and China. In addresson the first public meeting of the Commission for the History of Knowledge of the USSR Academy of Sciences in November 1926 **V. I. Vernadsky** noted the historical character of science: «First it comes into the conscious of man that *human culture is extremely old*, and especially that a scientific thought emerged very far back in the past...The emergence in packs and concentration in certain generations of minds capable of creating a breakthrough in scientific inquiries of mankind and consequently in the energy of biosphere is not by chance and is likely to be connected with deep-rooted biological characteristics of Homo sapiens» [29, p. 221, 222].

Certain preconditions are necessary for a new paradigm to appear in this or that civilization: scientific potential, sufficient number of scholars armed with an accumulated amount of scientific knowledge; critical situation in the society impelling creative minds to seek new solutions of problems, raising them to a higher step of cognition.

The same preconditions are necessary for the spreading of acquired knowledge, scientific discoveries and paradigm among other civilizations. Countries and civilizations lacking such preconditions continue to exist on the out-of date steps of cognition. However, in the vanguard country or civilization many scholars also persist in their adherence to outdated views and paradigms rejecting scientific innovations. Therefore, a diversity of scientific schools and paradigms — if one could put so, «multistructural character» of science, — is observed both in intracivilizational and global space.

The dialogue of civilizations in the field of science, the exchange of scientific achievements and discoveries takes place in various forms: through studies of published works; through personal contacts during conferences, symposiums, discussions where representatives of various civilizations participate; through reports of the Club of Rome; during scientific expeditions and trips of scholars to other countries; during training of students and teachers, training of scholars in other coun-

tries; through modern information technologies – television, radio, Internet, etc. The diffusion speed of new knowledge over the planet increases with time as well as the scope of scientific knowledge that may be received as a result of the dialogue among civilizations in the scientific sphere. International associations of scholars and scientific organizations (the activities of the International N.D. Kondratieff Foundation, Pitirim Sorokin – Nikolai Kondratieff International Institute may be adduced as an example) contribute to this.

The dialogue among civilizations is especially topical and fruitful in the sphere of cognition during the periods of scientific revolutions, formation and diffusion of new general scientific paradigms. Such revolution is taking place at present being an indispensable component in the replacement of the industrial world civilization with the post-industrial one, of sensual socio-cultural system with that of integral. North American, Western European and Japanese civilizations are the leaders in scientific breakthrough in the field of natural and engineering sciences; the Russian civilization has all chances to become the leader in social sciences. But it is necessary to intensify the dialogue and partnership of civilizations in the scientific sphere for diffusion of a new, radically changing picture of the world. The creation of an Internet portal «The World Scientific Heritage» under the aegis of UNESCO can become one of the efficient forms of the process. Pitirim Sorokin – Nikolai Kondratieff International Institute and St. Petersburg State University have come up with such initiative.

In the field of culture the dialogue among civilizations evolves throughout their existence, but it has other forms than in the sphere of science as a culture of each civilization is peculiar and unique and is included in the original civilizational genotype. Although a civilizational exchange of cultural values expands, artistic and architectural styles diffuse, technical means for spreading of culture become more and more unified (printing machine, radio, television and Internet), in doing so, it is still important to keep cultural diversity and avoid standardization of cultures. In the history the cases of the downfall of cultures were observed not once as a result of the clash among civilizations (example – Minoan culture). Wars, especially world wars, damage cultural heritage enormously.

The general trend is intensification of mutual influence of national and civilizational cultures, exchange of cultural values and formation of global information-cultural space, which contributes to the mutual understanding among nations compiling a part of various civilizational communities. The authors of the UN report on the dialogue among

civilizations believe that «in the 21st century the most serious threats to international security will be cultural, and not economic and political problems» [165, p. 51].

However, one should note a dangerous tendency of the decay period of the industrial society — emergence and diffusion of mass culture through modern information technologies. It lacks any national-civilizational characteristics and ousts high and folk culture. As a counterpoise to this tendency signs of the coming Renaissance of high culture are observed at the end of the 20th century [7, p. 338—345].

The UNESCO Universal Declaration on Cultural Diversity adopted in November 2001 points out that «the process of globalization, facilitated by the rapid development of new information and communication technologies, though representing a challenge for cultural diversity, creates the conditions for renewed dialogue among cultures and civilizations» [44, p. 14]. The declaration emphasizes that «as a source of exchange, innovation and creativity, cultural diversity is as necessary for humankind as biodiversity is for nature. In this sense, it is the common heritage of humanity and should be recognized and affirmed for the benefit of present and future generations» [ibid, p. 15]. UNESCO calls for a transition from cultural diversity to cultural pluralism: «In our increasingly diverse societies, it is essential to ensure harmonious interaction among people and groups with plural, varied and dynamic cultural identities... Political pluralism gives policy expression to the reality of cultural diversity. Inseparable from a democratic framework, cultural pluralism is conducive to cultural exchange and to the flourishing of creative capacities that sustain public life» [ibid, p. 15].

At the beginning of the 21st century two tendencies threatening cultural diversity and preventing the dialogue among cultures gained momentum. On the one hand, modern information and communication technologies, first of all the Internet, are a powerful channel of imposing cultural and civilizational values of the West on other civilizations and cultures, especially a younger generation, in the formation of whose world outlook these technologies play more and more important role. This is a real and fast-growing threat of destruction of cultural and civilizational diversity, degradation of mankind's spiritual sphere. On the other hand, increasing national and civilizational identification, emphasizing the originality of culture, attempts to isolate them from global cultural progress impoverish spiritual world of a nation and mankind as a whole. Such negative directions clearly manifested themselves in the post-Soviet space in the 90s when the

Russian language as a language of international and cross-civilizational communication, representing richness of the Russian culture, began to be restricted and ousted in a number the CIS countries and ex Comecon countries. Moreover, in some countries the Russian-speaking population is discriminated; teaching the Russian language and literature is being restricted. Thus small nations are deprived of an opportunity to participate in the interstate and international dialogue among cultures.

One should believe that these restrictions and real threats will be overcome in prospect, an optimal balance between the originality of cultures and civilizations and their openness for their dialogue and mutual enrichment will be found.

Education is a key field for the dialogue and cooperation among civilizations. It promotes formation of knowledge and skills of the rising generation; the youth takes in a civilizational genotype and heritage in the spiritual sphere created by the previous generations. Each civilization has the system of education shaped through centuries, which meets the specific conditions of the formation and development of this civilization with its cultural values.

Secular education prevails in some civilizations, and religious one — in others; there are differences in the general level of literacy of population, in the number and structure of the educational stages. At the same time, a general trend is to bridge the gap between national systems of education, their requirements for contents and institutional forms. An active dialogue among countries and civilizations is maintained both through the UNESCO activities proclaiming the Worldwide decade of education development and through mutual exchange of students and teachers, educational materials and technologies, diffusion of the systems of continuous education and distance learning as well as using the Internet for educational purposes.

However, this process has its negative sides. They are associated with its tendency to make educational systems stereotypical, standardized and pragmatic, to achieve their unification according to the western pattern leading them to a loss of their originality and diversity, to weakening of creativity, to lagging in transferring of the post-industrial scientific paradigm to the next generation. These alarming signs manifest themselves more and more in the educational reform pursued in Russia and governed by the western models and standards. As the result, schools and trends of creative pedagogics formed in Russia and allowing the specialists to find surprisingly efficient decisions of nonstandard situations disappear.

The dialogue and interaction among civilizations in the *religious sphere* play a double role. On the one hand, a spiritual communion of various peoples, ethnoses and nations making up one civilization is shaped and bonded with the help of the greatest world religions (Christianity, Islam, Buddhism, etc.) On the other hand, contradictions between confessions have often become the cause for clashes between civilizations, religious wars for «extermination of Kafirs». The trend of the 19th century and the most part of the 20th century was the weakening of religious influence. However, at the end of the last century the influence of world religions increased and a lot of religious sects and beliefs emerged, which was caused by the general crisis in the spiritual life in the period of decline of the industrial society.

The Renaissance of religions and dialogue among them has its positive sides promoting the strengthening of moral principles of civilizations and family ties, counteracting the tendencies to the loss of spirituality and ethical rules established by centuries. All world religions have common moral principles, and the dialogue among confessions helps identify such principles, overcome hostility to dissents or non-believers and undermine religious fanaticism.

At the same time there is a dangerous tendency of expansion of religious fundamentalism and misanthropic sects, as well as ambitions of clerical institutions to occupy the dominant position in the society and state, to subordinate other forms of spiritual life and political sphere, to return to the ruling position of the church of the medieval world civilization, to restore the dominance of ideational (super-sensual) socio-cultural system with the institutions inherent to it. The formation of the integral socio-cultural system forecasted by Pitirim Sorokin will assist to establish optimal proportions and relations between various components of spiritual life, and the dialogue among confessions and civilizations will promote this process.

The UN report authors consider the working out of *global ethics*, which should synthesize the values of all civilizations, one of the fundamental bases of the development of the dialogue among civilizations. The idea of such global ethics was set forth by the Parliament of the World's Religions in 1993: «A global ethic for institutions and civil society, for leaders and for followers, requires longing and striving for peace, longing and striving for justice, longing and striving for partnerships, longing and striving for truth. These might be the four pillars of a system of a global ethic that reconciliation, as the new answer to the vicious circle of endless hatred, is going to provide us» [165, p. 158].

A global ethic will help to overcome «seven social sins of humankind» designated by **Mahatma Gandhi**:

«Politics without principles,
Wealth without work,
Enjoyment without conscience,
Knowledge without character,
Business without morality,
Science without humanity,
Religion without sacrifice» [ibid, p. 160].

The need for working out the code of rules and morals changing the nature of globalization and making it serve the mankind was emphasized by Pope John Pavel II in his address to the Pontifical Academy of Social Sciences in 2001: «Globalization, a priori, is neither good nor bad. It will be what people make of it. No system is an end in itself, and it is necessary to insist that globalization, like any other system, must be at the service of the human person; it must serve solidarity and the common good... As humanity embarks upon the process of globalization, it can no longer do without a common code of ethics and morals. This does not mean a single dominant socio-economic system or culture, which would impose its values and its criteria on ethical reasoning... In all the variety of cultural forms universal human values exist and they must be brought out and emphasized as the guiding force of all development and progress» [ibid, p. 159].

The dialogue among religions, being a significant component of the dialogue among civilizations in the socio-cultural sphere, should foster the working-out and diffusion of the fundamentals of global ethics. It should not be done by replacing ethic values of each religion and civilization existing now and fixed by centuries, but through identifying their common denominator — a system of values common to all mankind as an indispensable component of the genotype of the global civilization, through active participation in the elimination and settlement of cross-civilizational conflicts, through overcoming religious fundamentalism in whatever form and in whatever confession or sect it appears. That is the crucial function of all religions and religious institutions, their responsibility before the past, present and future generations. This is one of the niches that religion may occupy in the future integral society.

One should not think that the shaping of the dialogue among civilizations in all its diversity of forms and domain is

a fast and short-term process. It will take decades if not centuries, it will require overcoming stereotypes of mutual mistrust and hostility being formed for centuries, it will need *training in the dialogue* of succeeding generations of people. Only on this base can an optimistic hope, expressed by the authors of the report to the UN about dialogue among civilizations, be implemented: «We believe that positive forces of globalization and a healthy search for national-cultural identity may establish a good tendency which will bring into the new level the spirituality of people in the nearest decades. Unity, mutual education and diversity of human heritage determine favorable consequences of globalization which is welcomed and promotes the development of society. This will strengthen mutual ties between civilizations and will make dialogue in the course of which a voice of each civilization will echo, encourage and inspire the others. A harmonious chord is a real multi-national harmony expressing cultures of various people and various times. In this connection I'd like to note that humanism becomes the most fundamental and widely spread value underlying all common values» [ibid, p. 64].

However, holding the position of sound realism one should note that we are still far from such harmony and triumph of humanism (although we believe that humanism together with noospheric thinking and course of actions is the core of the post-industrial world civilization, its specific feature). Meanwhile voices and instruments of the «world orchestra» sound in the spirit of hostility, confrontation of states and civilizations. Mobilization of all healthy forces of mankind and decades of work will be required to make cross-civilizational harmony, dialogue and partnership prevailing.

2. Dialogue and interaction among civilizations in the sphere of economy are critical conditions for the progress of local civilizations from the very moment of their emergence. International division of labor, increasing exchange in commodities and services, stage by stage formation of continental and world markets make up the essence of such dialogue. The market is a peacemaker, it gives rise to mutual economic interest in strengthening cross-civilizational and interstate cooperation.

Each historical period, each subsequent world civilization makes its contribution into firming and strengthening of economic links and development of their forms. At the end of the 20th century economic interaction involves goods and services exchanges, currency and finance relations, creation of international financial institutions (the

World Bank and the International Monetary Fund), integration unions (European Unions, Asian-Pacific Economic Cooperation, NAFTA in North America), transnational corporations, training of managers, intensive exchange of experience in economic management and conduct of business operations etc.

The world trade between countries and civilizations is growing at priority rates to the GDP. Generally in the world export quota (relation between export and GDP) has grown from 10.8% in 1960 to 20.2% in 2000, including the developed countries – from 9.1 to 16.7%, developing countries from 12.0 to 31.4%, countries with transitional economy from 7.4% (1970) to 37.7% [202, p. 45].

Properly speaking, the whole system of economic relations both inside the country and in the world economy is penetrated with dialogue – between sellers and buyers, manufacturers and consumers of goods and services, creditors and debtors, tax payers and fiscal bodies, investors and recipients, states and international economic organizations. Historical experience proves that. It is not by chance that the merchants were feelers and ground breakers in the dialogue among civilizations, risking their goods and life in their far-away travels. In order to sell their goods in other countries the merchants should not only have found a common language with the buyers of their goods but to get plunged in another civilization, understand its essence and specific features determining the demand for these or those goods. The Great Trade Routes – Great Silk Route, route from the Varangians to the Greeks and from the Varangians to the Persians, Great Volga Route, sea and oceanic routes to India and America – were at the same time the mains of dialogue among civilizations. Not only did they promote a fuller saturation of the markets with various commodities, development of international trade and cooperation, but fostered economic progress, contribute the assimilation of more efficient forms of economic relations, promote the diffusion and convergence of goods and monetary institutions and tools.

However, one should immediately note that cross-civilizational economic relations may be of two types. One type implies the unequal relations between economic partners, including elements of the dominance of stronger civilizations, economic enforcement, non-equivalent exchange. It was so in ancient times when the world empires including economies of various civilizations (Empire of Achaemenids, Alexander the Great, Roman Empire) organized the exchange between the center and the periphery pumping out

a considerable part of surplus product and even necessary product. It was so when the Western European civilization was conquering America, Africa, Oceania, when the flows of gold and silver, exotic goods and slaves flooded to the metropolis of colonial empires. Unequal relations of the same kind are also observed now when the TNC pumps out from the peripheral or dependent countries and civilizations (not only African, Latin American, but Eurasian disintegrated in the 90s) resources, capitals and manpower. This gave the ground for **N.N. Moissejev** to characterize the modern «TNC world» as a devil's pump draining capitals, resources, talents from the backward countries [136, p. 151].

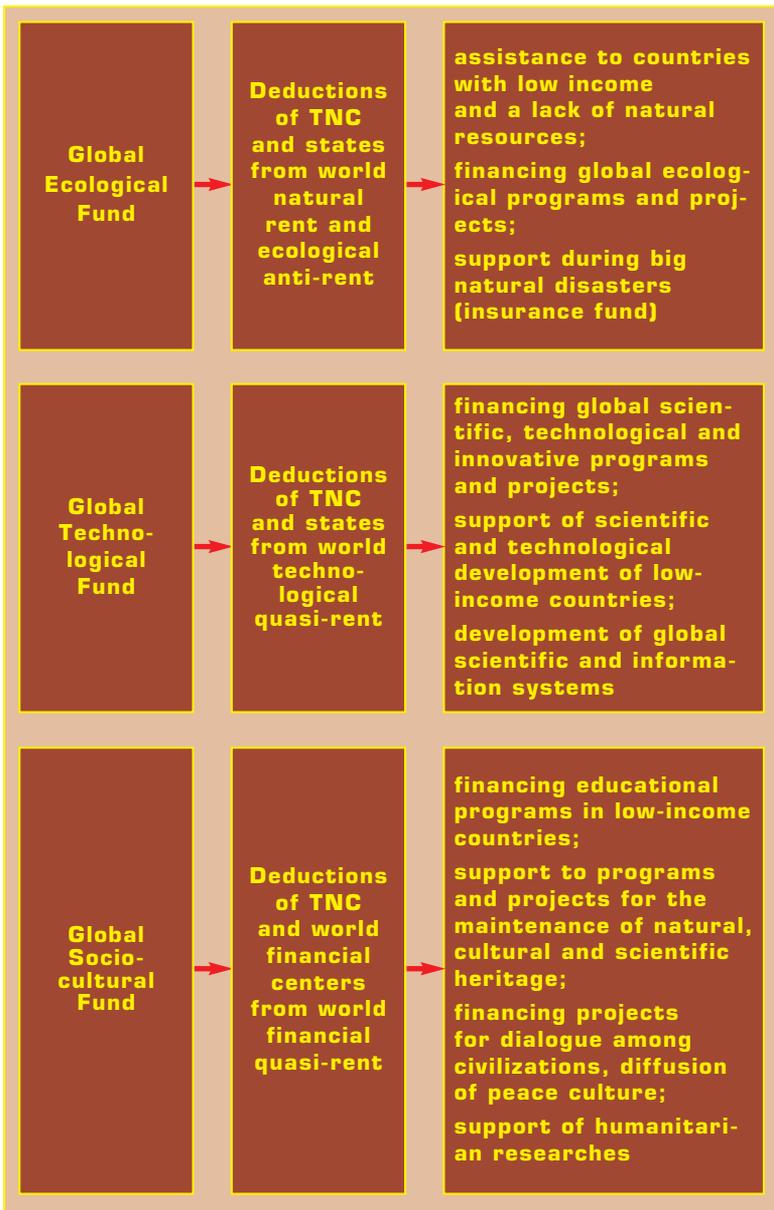
Certainly, one could also speak about the economic dialogue among civilizations; but this is more likely a form because the content is the dominance of strong civilizations over weak, polarization of income of various countries and civilizations using economic tools. Thus, from 1950 to 2000 a gap between the GDP per capita in the purchasing power parity between the North American and African civilizations grew from 8.9. to 37.8 [133, p. 511–512].

In the economic sphere the dialogue among civilizations supposes a break in the previously developed forms of unequal exchange, formation of such a type of relations which will foster the convergence of the levels of economic development, priority growth rates of the GDP and level of life in backward, poorest countries. In 2003, according to the World Bank, an average income per capita in the countries with high income (972 mln. people – 15.5% of the world population) exceeded the countries with a low income of level (3 312 mln. people – 36.9% of the world population) 65 times according to the current currency rate and 14 times by a purchasing power parity [271, p. 24]. Globalization based on the dominance of a neo-liberal model widens the gulf between rich and poor nations and civilizations.

The authors of the UN Report on dialogue among civilizations express their hope that it will contribute to overcoming this gulf: «We hope that positive forces of globalization may be supported through dialogue among civilizations to strengthen material, moral, aesthetic and spiritual well-being, and also take care of those voiceless and aggrieved who found themselves in the underprivileged position due to current trends in the development of economy» [165, p. 57].

But this hope should be filled in with a specific content that is a new global economic order and a system of cross-civilizational economic relations aimed at reducing the gap between rich

Figure 4.2
System of Global Funds



and poor countries and civilizations should be developed. The mechanism for establishing global funds by means of deductions from super-profits generated as a result of advantages of the world trade and globalization elaborated by the Pitirim Sorokin – Nikolai Kondratieff International Institute and proposed at the «round table» of the Global Civil Forum within the World Summit on Sustainable Development in Johannesburg (2002) could promote it (*fig. 4.2*):

These funds would be filled up in the following way:

➔ *global ecological fund* – by means of deductions from the world natural rent in export of natural raw materials and removal of world ecological anti-rent generated as a result of predatory use of natural resources and damage to the environment (the Kyoto protocol modified mechanism may be used here);

➔ *global technological fund* – by means of deductions from the world technological quasi-rent that is the super-profits in export of products of machine building, high-tech products, weapons;

➔ *global socio-cultural fund* – by means of deductions from the world financial quasi-rent as a result of operations at the world stock exchanges.

The establishment of such funds would become a concrete form of dialogue and partnership among civilizations in the economic sphere, would permit to change the nature of globalization using its advantages for the convergence of the life of population in various countries and civilizations, would permit to reduce glaring inequality between them serving as a nutritive medium for international conflicts and terrorism.

3. Dialogue among civilizations in the technological sphere is obvious. Power sources, technologies, new tools and labor items, forms of labor organization, which have proven their efficiency and are promoting the growth of labor capacity through sharing technological experience immediately become the property of other civilizations, find their expression in the change of generations of machinery and technologies, technological orders, technological modes of production and contribute to the transition of the world and global civilization to a new technological level. It is manifested in the waves of epochal and basic innovations rolling over the planet and implemented in the flows of improving innovations.

However, this course of dialogue and progress of civilizations is not so simple, consistent and cloudless as it may seem at first sight.

First, any technological breakthrough is performed by vanguard civilizations and countries which have necessary preconditions and conditions for it. Other countries and civilizations are either in the second echelon picking up technological achievements already assimilated in the vanguard countries or in the third echelon where technological orders or even technological modes of production which are already past prevail, and there are neither human resources, nor production or financial resources to implement a breakthrough.

Second, the vanguard countries and civilizations use their own competitive advantages to generate as long as possible the maximum super-profit – world technological (innovative) quasi-rent – exploiting technological backwardness of their partners on the world market.

Third, the vanguard countries actively use the mechanisms of the patent law implementation to appropriate technological quasi-rent (including its intellectual component) and to monopolize technological achievements. According to the World Bank, in 2002 the countries with high-income got 97.9% of royalty and license fees (USD 90.5 bln.) while the countries with poor income – only 0.05%, Russia – 0.19% [271, p. 316].

While determining the competitiveness of products on the world markets, differentiation of technological levels of civilizations underlies their economic stratification. Therefore, cooperation in assimilation and diffusion of the post-industrial technological mode, of modern fifth and of perspective sixth technological orders should become the key direction of the dialogue and partnership among civilizations. It will allow to eliminate a technological gap between the countries of the world, which increased many times during more than two centuries of the world industrial civilization predominance.

4. Ecological sphere of dialogue among civilizations is brought about by a considerable gap both in the level of the provision of countries and civilizations with a wide range of natural resources necessary to ensure reproduction and life of the people and in the level of environmental pollution (including radiation pollution) and the volume of hazardous emissions into atmosphere. Thus, in 2002 37.3% of power produced worldwide fell to the countries with a high level of income (mainly North American, Western European and Japanese civilizations) as well as 51% of its consumption and in 2000 – 51.4% of carbon dioxide emission. Countries with a low level of income (mainly Indian, African and Moslem civilizations) – produced 11.2, 10.6 and 7.7% of world carbon dioxide emission, respectively.

The communion of interests of local civilizations manifests itself most brightly in relations of human societies with natural environment, in the fight with natural disasters and catastrophes, in growing pollution of the environment. This communion of interests is getting more and more obvious with the intensification of man's active influence on the biosphere, with formation of the noosphere, with the increasing threat of local and global ecological catastrophes. However, driven by the immediate purposes, in pursuit of profits and economic growth, the countries-leaders consume immeasurably more natural resources, pollute atmosphere, seas and oceans with hazardous emission on a global scale; the same refers to the countries with a high concentration of population.

Ecological interaction among local civilizations takes place in various forms:

➡ a joint use of natural resources of a global nature, first of all, power resources, based on the international trade and direct foreign investments;

➡ consolidation of efforts in reducing hazardous emissions in the environment and in liquidation of natural catastrophes and disasters of an cross-civilizational and planetary dimension;

➡ framing the general concept of sustainable development, long-range environmental policy, international environmental standards, measures for the prevention of ozone destruction.

In the sphere of ecology dialogue and cooperation among civilizations are most fully expressed in the following documents and activities:

➡ holding the Stockholm Conference on the Human Environment, working out the UN Environment Programme (1972);

➡ framing the World Conservation Strategy (1980);

➡ establishment of the Global Climate Monitoring (1990);

➡ establishment of the Global Ecological Fund (1991);

➡ preparation and publication of the report «Our Common Future» made by the World Commission on Environment and Development with a substantiated concept of sustainable development. Its essence is expressed in a short formula: «Sustainable development is a process of changes where exploitation of resources, channeling of capital investments, orientation of technological development and institutional changes are in harmony, enhance the value of current and future potential in order to satisfy human

needs and aspirations» [142, p. 53], which optimally combines the interests of present and future generations. The report was published in 1987, Russian translation – in 1989;

➡ the UN conference on environment and development in Rio de Janeiro (1992), which adopted the concept of sustainable development;

➡ approval of the Kyoto protocol (1997), which outlined the formation of a global economic mechanism encouraging the reduction of hazardous emissions into the environment;

➡ preparation and publication of the UNEP report «Global Environment Outlook – 3. Past, Present and Future Perspectives» (2002). It presented four scenarios of global economic development up to 2032 and outlined the programme of joint actions [46, sec. 3,4];

➡ the World Summit on Sustainable Development and the Global Civil Forum in Johannesburg (2002), where the global concept of sustainable development was confirmed and further, special attention was paid to the issues of alternative power and water resources.

It seems that in the field of ecology the most impressive progress in dialogue and cooperation among civilizations was achieved, although many problems have not been solved yet.

5. Dialogue of civilizations in the geopolitical sphere is of the most complicated, controversial and unsteady nature. While the first half of the 20th century was characterized by two most bloody conflicts between and within civilizations in the history of humankind – the First and Second World Wars, in the second half the dialogue among civilizations prevailed, although on the «Cold War» background accompanied by military conflicts of an cross-civilizational nature (wars in Korea and Viet Nam). The end of the bipolar world, decay of the USSR, Comecon, Warsaw Treaty was accompanied by aggravation of local conflicts between civilizations (Yugoslavia, Tajikistan, Transcaucasia, Moldova, occupation of Afghanistan and Iraq), by an outburst of international terrorism as the newest form of conflicts among civilizations. It makes the issue of the dialogue among civilizations even more topical and urgent.

Not less important is shaping of a new geopolitical organization of the world guaranteeing equality, cooperation, mutual understanding of interests of all civilizations regardless of their scale, economic and war power. This idea was stressed by President of the Islamic Republic of Iran Seyed Mohammed Khatami in his speech at the session of the UN General Assembly on September 21, 1998: «Among the worthiest achievements of this century are the acceptance of necessity and sig-

nificance the of dialogue and rejection of force, assist to understanding in cultural, economic and political fields and strengthening of the foundations of liberty, justice and rights. Establishment of mutual estimation and of civility, whether at national or international level, is upon dialogue among society and civilizations representing various views, and approaches. If at the threshold of the new century and millennium devotes all forces to institutionalize dialogue, replacing hostility and confrontation with discourse and understanding, it will leave an invaluable legacy for benefit of the future generations» [165, p. 26].

The aspiration of the most powerful civilization — North American— to establish the global dominance of the only one super power left — the USA, to impose the western system of values on other civilizations becomes an obstacle on the way to the dialogue. However, these aspirations meet growing resistance of other civilizations and become a dangerous impetus for conflicts between civilizations. These threats may be overcome only by means of dialogue and cooperation of all civilizations within the multi-polar world, recognizing their diversity and equality, considering the originality of interests and historical experience. Globalization and expansion of personal contacts among representatives of various civilizations establish favorable conditions for that as was noted by UN Secretary-General Kofi Annan: «Today globalization, migration, integration, communication and travel are bringing different races, cultures and ethnicities into ever-closer contact with each other. More than ever before, people understand that they are being shaped by many cultures and influences, and that combining the familiar with the foreign can be a source of powerful knowledge and insight» [ibid, p. 15].

Any local civilization and the states comprising it are in a constant touch with adjacent civilizations (states). Interaction among civilization finds its expression in two extreme forms (wars or military-political unions) and many intermediate states. The matter in question does not necessarily concern commonly civilizational partnership or clash — it rarely occurs (for instance, the Mongolian invasion on Eastern Europe, crusades, invasion of Napoleon on Russia). Wars and unions emerge more often between neighboring states making up a part of different civilizations. Under any forms of competition and cooperation an active exchange of technical means and methods to conduct war, rapid diffusion of base innovations in this field (fire arms, tanks and aircraft, nuclear weapon, etc.) take place. However, a clash does not eliminate the dialogue. Efficient forms of political power organization are borrowed: in the 19th cen-

ture there was an expansion of parliamentarism and in the second quarter of the 20th century armed forces organization and military-political unions appeared. As the survival of states as well as fates of nations and civilizations rest on the military-political success, concentration of intellectual, material, financial resources and the strong competition are observed in this sphere. A general trend is the enhancement (unequal, with its peak during war periods and preparations for war) of the role of militarism in economy and society in general. The achievements of military-technological progress are being assimilated in civil industries with time. However, in fact the civilizational progress is suppressed by wars and militarism as the most active and qualified part of population is involved in spiritual and civilian production, while millions of people die in wars, material values of nations are destroyed and historical and cultural monuments are ruined.

5. Dialogue among civilizations is observed even under conditions of military conflicts between them.

The creation of mass destruction weapons makes the clash among civilizations senseless on a global scale: there will be no winners in such a clash. It makes the dialogue among civilizations in the field of disarmament an imperative need, which found its expression in the Russian–US agreements and practical steps towards limiting of certain kinds of mass destruction weapons, annihilation of a part of such weapons and in counteracting the proliferation of nuclear weapons.

4.3. Institutions for the Dialogue Among Civilizations

In the second half of the 20th century a number of international institutions was established through which the dialogue among civilizations is maintained; the role of these institutions will also increase in the present century with further development and intensification of the dialogue and cooperation among civilizations.

1. Universal institutions – UN and its organizations. The United Nations Organizations featuring the UN General Assembly, Security Council, UN General Secretary, specialized agencies – Economic and Social Council, UNESCO, UNEP, UNDP, World Health Organization, World Food Organization etc. is the most universal institution of the dialogue comprising all civilizations. Although the states are the main characters in these organizations, the tendency

to the dialogue among civilizations manifests itself clearer and clearer in actual work (moreover, individual UN members represent independent civilizations – Chinese, Indian, Japanese and Russian) and to interactions with non-governmental organizations representing interests of a global civil society. This tendency clearly manifested itself at the summit on global development in Johannesburg (2002) when along with the meetings of governmental delegations the Global Civil Forum was held. About 50 thous. scholars, political leaders, ecologists, representatives of youth organizations participated in it. The authors of the UN report on dialogue among civilizations anticipate a further intensification of this tendency: «In a way the UN system offers the framework within which a great coalition between civil society and institutions will be formed someday... After the formation of such coalition the institutions could survive only if they answer the issues put by civil society in a satisfactory manner, and civil society may keep the leading positions if it meets our convictions, values and hopes for the efflorescence of diversity wanting fear» [165, p. 134–135].

The outlines of the future power mechanism of a global civilization self-government based on the principle of division and cooperation of powers are gradually beginning to be traced clearly:

➡ *a global representative body* – UN General Assembly which will gradually be vested with more legislative function, will determine the steps of global sustainable development;

➡ *executive authorities* – UN Security Council, UN Secretary-General and its office – a kind of the World Government;

➡ *international tribunals and courts* exercising the functions of global judicial power based on the global law.

International non-governmental organizations, communities of scholars, churchmen etc. will take more active part in the UN activities. This tendency is noted in the same report: «It is likely that a number of already existing communities should be involved this or that way in the UN activities. Isn't it logical to assume that during the times of rich technological evolution, during the times of biotechnology and gene engineering scholars could take the first rows of seats in the activities of this world organization and make their contribution to political debates? Such activity suits them as nothing else as the scientific community has been globalized by necessity earlier than others, as far back as before the beginning of the last decade. It may be so that in the near future the consultative role of the Security Council of scholars will be possible by the Secretary-General» [ibid, p. 130]. It is probably more appropriate to speak about

the Council of Wisemen than about the Security Council. But in any case it is obviously necessary to attract the best intellectual forces of the planet to solve sophisticated issues related to the functioning and development of global civilization, dialogue and conflicts among local civilizations.

The proposals on transforming the UN in this direction were voiced by us at the Round table of the World Summit on sustainable development in Johannesburg and were published. These proposals include the following elements:

➡ assignment of some functions of a global legislative body to the UN General Assembly; enlargement of the composition of the Security Council so that it represents all local civilizations;

➡ vesting the specialized UN organizations with the functions covering individual directions for the implementation of a global strategy of sustainable development;

➡ establishment of a global scientific council on sustainable development comprising eminent scholars of all civilizations under the aegis of the UN and the UNESCO.

Expansion of the functions of global bodies does not at all mean the rejection of sovereignty of national states; however they have to delegate a certain part of their functions to the global level so that to ensure the survival and development of all humankind and to prevent a self-destructive clash among civilizations.

We consider that transformation of UN and other international institutions into the *World Confederation of states and civilizations* will become a historical tendency in the nearest decades (*See Supplement 1*).

Global institutions should be built on the basis of equal dialogue and cooperation among all civilizations to avoid the danger of hegemony of any super-power, which is described by **Zbigniew Brzezinski**: «The US might manifests itself through the global system of a clearly US-cut reflecting the internal US experience... The US is in the center of the mutually dependent universe, such universe, where the power is exercised through constant maneuvering, dialogue, diffusion and desire for a formal consensus, although this power finally originates from a single source, and namely: Washington, District of Columbia... Thus, the US supremacy has given rise to a new international order which does not only copy, but reproduces many features of the US system abroad» [17, p. 36, 40–41].

This is a forthright appeal for the formation of a global empire where the US has the dominating role and the other civilizations copy

and reproduce its models and values. Fortunately, such unified unipolar world has no chances to become a depressing reality. Another way is more real — formation of the multi-polar world based on the dialogue and cooperation among all civilizations preserving their originality and identity.

2. Regional cross-civilizational unions like the European Union, African Union, NAFTA, Asian-Pacific Economic Cooperation, Shanghai Cooperation Organization, NATO etc. Such organizations unite the states belonging to various civilizations, express the communion of their interests and provide a wide field for dialogue and cooperation among civilizations. Some of these organizations have reached a high degree of interaction and close ties (for instance, the European Union uniting now Western European and Eastern European civilizations). Others are characterized by less intensive ties, but a wide space for dialogue among civilizations (OPEC). One could anticipate that similar cross-civilizational institutions will enhance the fruitfulness of dialogue and cooperation among civilizations. However, a danger of confrontation of interests between some of these organizations should be taken into account.

3. International economic organizations — World Trade Organization, World Bank, International Monetary Fund, World Tourist Organization etc. — realize the dialogue among civilizations in a certain sphere of economic interests. However, there is also a danger of the dominance of the developed civilizations as it is manifested in WTO and IMF.

4. Global law is a gradually forming institution of dialogue and cooperation among states and civilizations. This is a new stage in the development of long-lived international public and private law. There are already individual elements of such global law — generally recognized rules meant for banning the proliferation of nuclear weapons and its tests, for peaceful use of nuclear power, for counteracting the drugs and improving ecology. Some standards carried within the WTO, the UN and some other organizations work in the same direction. However, they embrace only some spheres of legal control over global civilization functions. In interaction between the states and TNC function rules of international and private law expressing the compromise between them. The formation of the global law system will possibly continue during the whole 21st century. This will create a certain legal framework for dialogue and cooperation between civilizations and settlement of conflicts arising from time to time among them in various spheres — economic,

ecological as well as in counteracting international terrorism and drug industry etc.

And regulatory experience of relations between and within civilizations in the frame of existing regional international organizations, for instance, the European Union, may be useful.

The formation of global law, its application in dialogue and cooperation between civilizations implies a solution of a number of rather complicated problems. First, it is necessary to vest the international representative bodies expressing the interests of all states and civilizations (for instance, UN General Assembly) with legislative functions so that the acts adopted by them should be recognized as mandatory for all participants of global relations – states, civilizational unions, TNC, non-governmental organizations etc. Second, a system of global bodies exercising monitoring over the compliance with the global law rules and resorting to enforcement such rules, if necessary should be formed. Third, the notion of legal personality should be extended on civilizations. It is easier in those cases when the boundaries of a civilization and a state practically coincide (Japan, India, Russia). In other cases a civilizational union (European Union) may act as such subject or organizations representing interests of all states making up a civilization. These issues require further inquires and solution with the involvement of jurists. The problem of institutionalization of civilizations is still pending its solution.

5. *Transnational corporation, world and financial centers,* enterprises acting in the sphere of economic relations between civilizations. This sphere of interaction among civilizations is most intensive and meaningful for magnifying interest in dialogue and cooperation among civilizations. According to the World Bank, in 2003 the volume of world export of goods made USD 7 573.7 bln., export of services – USD 1 729.1 bln. – totally 9 307.8 bln., or 25.5% of the world GDP, where such share grows (*table 4.1*).

An economic exchange between the countries grows at priority rates: a share of goods and services export has increased from 19.6 to 25.5% in the GDP for 13 years, and total volume – 2.2 times, where a major share is occupied by countries with high income (77% in 2003). Certainly, all this volume is far from falling to cross-civilizational exchange; its considerable share falls to exchange of goods inside the Western European civilization.

However, if one looks at the structure of goods and services export in the civilizational context, then a global tendency can be

Table 4.1

Dynamics and Structure of Goods and Services Export *

Figures	Volume of the GDP, USD bln.		Volume of the export, USD bln.			Share of export in the GDP, %		Export in 2003, % to 1990
	1990	2003	1990	2003	% to the world	1990	2003	
Whole world	21 688	36 461	4255	9305	100	19.6	25.5	219
Countries with high income	17 691	29 341	3493	7208	77.4	19.7	24.6	206
USA	5757	10 949	527	1012	10.9	9.2	9.2	192
Countries with middle and low income	3948	7 125	761	2298	24.7	19.0	32.2	302
China	355	1417	68	484	5.2	21.8	34.2	712
India	317	601	25	81	0.9	7.9	13.5	324
Latin America	1103	1741	169	426	4.6	15.3	24.5	252
Middle East and North Africa	421	745	141	254	2.7	33.5	34.1	180
Africa south to the Sahara	278	439	78	123	1.3	26.2	28.0	158
Russia	516	433	...	150	1.6	...	34.6	...

* [271, p. 204, 216, 224]

clearly seen. Export from China grew at priority rates (7.1 times), India (3.2 times) and Latin America (2.5 times). The highest dependence on export is in China (34.1%), Middle East and North Africa (34.1%), Africa south to the Sahara (28%). The least dependent on export are the US (9.2%) and India (13.5%). As far as Russia is concerned, its share makes only 1.6% in the world export of 2003,

while the dependence of economy on export is the highest (34.6%). Consequently, the influence of globalization and mutual exchange in goods and services is highest for civilizations with middle and low level of development (India makes an exception) and it concerns the USA least of all.

An intensive exchange between civilizations takes place also in the form of direct foreign investments. In 2002 they made 31.4% to the GDP in Western Europe, North America – 14.2%, Japan – 1.2%, Africa – 27.5%, Latin America – 44.7%, China – 31.2%, India – 5.1%, Central Asia – 45.8%, Russia – 6.5% [ibid, p. 284–291]. The participants of economic forms of dialogue and cooperation are interested in a stable and favorable climate of relations among civilizations. This tendency will intensify in prospect making the base of a multi-colored texture of the dialogue among civilizations.

6. *Civilizational tourism.* International tourism is the most mass and efficient form of personal participation of dozens of millions of nationals in the dialogue among civilizations. Tourism developed at priority rates before 2001, however after the tragedy in New York on September 11, 2001, the flow of tourists has reduced, the industry has found itself in the state of crisis (*table 4.2*). Natural cataclysms also have contributed to it.

In the last decade of the 20th century the number of incoming tourists increased in 1.5 times, income from international tourism – in 1.8 times; the highest growth rates have been observed in China; however the major income receivers, including the world tourist rent, were the countries with high level of income – 71% of income fell to their share in 2000.

In the first years of the 21st century the situation changed. In 3 years the total number of tourists has decreased 3% under income growth of 27% that indicates an essential price growth for tours. The number of tourists coming to the US dropped 21% (under income growth of 17%). The same processes are typical in other countries as well.

The programme of actions under the UN General Assembly Resolution «Global Agenda for the Dialogue among Civilizations» includes the recommendation for promoting historical and cultural tourism. Apparently, one should go further and develop a new type of specialized tourism – *civilizational tourism* enabling the incoming tourists to this or that country to get acquainted with local civilization more thoroughly and systematically – its culture, values, historical experience, everyday life and rights of peoples, natural-geographical

Table 4.2.

Dynamics of International Tourism *

Data	Number of incoming tourists					Income from tourism				
	mln. people			%		USD bln.			%	
	1990	2000	2003	2000 to 1990	2003 к 2000	1990	2000	2003	2000 to 1990	2003 to 2000
Whole world	463.6	701.9	681.7	151	97	265.1	475.8	605.7	180	127
Countries with high income	311.0	435.4	432.5	140	99	211.0	337.0	452.7	160	134
USA	39.4	50.9	40.4	129	79	43.0	85.2	99.8	198	117
Western Europe	184.1	255.0	257.5	140	101	10.9	152.2	227.4	151	149
Countries with middle and low income	149.3	263.6	242.6	257.5	140	53.4	139.5	153.9	261	110
Russia	3.0	10.3 ¹	7.9	–	77 ²	0.8	7.5	5.9	93.8	7.9
China	10.5	31.2	33.0	297	106	2.2	16.2	18.7	73.6	11.5
India	1.7	2.6	2.4	153	92	1.5	3.3	3.5	22.0	10.6
Latin America	33.0	51.1	45.3	155	89	15.2	33.1	29.3	21.8	8.9
Middle East and North Africa	17.1	28.1	32.3	164	115	7.1	13.1	–	18.5	–
Africa south to the Sahara	7.1	17.5	19.4	246	111	3.1	6.6	11.8	21.2	13.4

* [264, p. 366–368]

¹ 1995² 2003 in percents to 1995

conditions. This may become a specific-personal form of dialogue among civilizations.

In 2000 the Pitirim Sorokin – Nikolai Kondratieff International Institute launched an initiative to develop civilizational tourism. This initiative was supported by the St. Petersburg Economic Forum. Together with the travel company «Mir» there have been

worked out the programmes of civilizational tours «City of St. Petersburg – Dialogue among Civilizations», «Northwestern Russia: Origins and Highlights of the Russian civilization». This region can be considered the foundation for the pilot-project for development of civilizational tourism in the framework of the Black Sea organization of economical cooperation, revealing the widest experience of dialogue among civilizations in the period of more than two and a half thousand years.

The end of the 21st century and the beginning of the 21st century is characterized by the crucial changes in the development of global, world and local civilizations. The fifth generation of local civilizations is being in birth-pangs. The industrial society is being painfully transformed into the postindustrial one. A long-term transition from the second to the third super-cycle is taking place. The sensual socio-cultural system, which has dominated for five centuries, is being transformed to an integral one. It is important to make out the outlines of the forming system of civilizational relations of the present century through the dense intricate net of chaotic changes. It is difficult, hardly possible, but crucial for working out a long-term strategy and correct understanding of your place in the rapidly changing world.

Part II

TRANSFORMATIONS OF THE CIVILIZATIONAL STRUCTURE

- 5. Natural-Ecological Cycles
and Crises in the Evolution of
Civilizations**
- 6. Demographic Basis for
Transformation of Civilizations**
- 7. Innovative-Technological Cycles
and Crises: a Civilizational Aspect**
- 8. Cyclicity of Economic Dynamics
of Civilizations**
- 9. Cyclical Dynamics of the Socio-
Political System, Revolutions
and Warfare**
- 10. Cyclical Dynamics of the Spiritual
Sphere of Civilizations**

All three types of civilizations discussed above — global, world, local — are constantly changing not only in space and time. *The structure of civilizations* is transformed regularly by the major elements of its hereditary nucleus, genotype: natural-ecological, demographic, technological, economic, social-politic and spiritual spheres. Let's examine the manifestations of cyclical fluctuations of different duration and crises accompanying them in these elements. Each structure element has its own rhythm of development; at the same time these elements interact among themselves, creating a complicated harmony of civilizational progress in three dimensions — in the change of phases of the life cycle of each local civilization; in regular, once in a hundred years, transition to a new world civilization; in the most prolonged in history super cycles of the global civilization development.

Chapter 5

NATURAL-ECOLOGICAL CYCLES AND CRISES IN THE EVOLUTION OF CIVILIZATIONS



Man is striving to understand the regularities of natural evolution and use it in own lucrative interests. In that microscopically small part of the Universe where man has occupied a certain niche for the time being certain regularities are observed. First, it is an increasing impact of mind, labor and life activity of man on the environment, biosphere. Second, interpenetrating of natural and social cycles and crisis operating on all types of cyclical fluctuations in the genesis of man and society is present. Therefore it is logical to start our research of various kinds of cycles and crises from the regularities of a cyclical evolution of nature and its interaction with man and society (ecological cycles), from the background and formation ways of a fundamentally new – noospheric – civilization.

5.1. Natural Cycles and Catastrophes in the History of Emergence and Evolution of Civilizations



Any natural systems — from the micro-world to the Universe — develop according to the laws of cyclical dynamics, passing through the phases of their evolution changing each other, suffering catastrophes and bifurcation. Therefore it is valid to speak about *natural cycles as a universal form of the movement of material*; about catastrophes occurring from time to time or bifurcation causing the sophistication of the world of nature (this is one of the regularities of natural evolution).

A detailed inquiry into natural cycles and crises is not the subject matter of this book; many treatises in many languages are devoted to this topic. Let's try to suggest *a general classification* of these cycles before passing to the main issue of our interest — the role of natural-ecological cycles in the emergence and evolution of civilizations, in their future.

1. Cycles in the dynamics of the Universe, according to the present ideas, though not shared by all scholars, began from the Big Bang giving rise to hundreds of expanding galaxies. According to the con-

jecture of **A.A. Friedman** and some other specialists at a certain stage the compression will begin, a centripetal movement of galaxies or other bunches of matter. When they become an infinitely small point, a new Big Bang will take place. However, it is quite a free wording of the speculation hard to prove.

Each galaxy has its life cycle measurable by many billions of years and includes a body of stars (star systems). New stars may be observed from time to time, as well as the absorption of existing by black holes, the nature of which is not quite clear. This absorption completes the life cycle of a star.

Cycles and catastrophes in the evolution of the Universe render an insignificant influence on the fate of a man or whole civilizations, although the astrologers assert the opposite and try to make guesses on the fate and behavior of man based on the distribution of the stars and planets at the moment of his birth.

2. Solar cycles are more definite and better studied object, **A.L. Chizhevsky** and his followers have made a weighty contribution to the study of their influence on the life of mankind. The inquiries are conducted in three aspects:

➡ *a life cycle of the Sun and Solar system*; its genesis, sources of activity, phases of development, factors and periods of fading;

➡ *solar cycles of various duration*, their phases, periodic explosions of a solar activity — the consequence of catastrophes and cataclysms occurring on the Sun. They speak about medium-term (on the average 11-year, but with fluctuations from 7.5 to 16 years) solar cycles, and long-term (on the average 22 year and 80–90 years) solar cycles;

➡ *the impact of solar cycles on earthen* — climatic, biospheric, annual, seasonal, day cycles, on cycles and crises in the dynamics of social systems (including civilizations) in life and activity of man.

A.L. Chizhevsky spoke about it in images: «For an enormous period of time when space forces impacted on the Earth, certain cycles of phenomena have established themselves, regularly periodically repeating both in space and time. We find cyclical processes everywhere: beginning from the circulation of atmosphere, carbon dioxide, oceans, day, year and multi-year periodicity in the physico-chemical life of the Earth and to the changes in the organic world accompanying such processes, being the results of the impact of space forces. If we tried to visualize in charts the picture of diversity of such cyclicity, we'd get a number of sinusoids overlapping each other or crossing one another. All these

sinusoids, in their turn, would be pitted with small waves, which would present a zigzag line etc. In this endless number of falls and rises of a various size, the universal pulse tells, the great dynamics of nature, various parts of which harmoniously resonate with each other» [229, p. 18].

A scholar connected the activity of historic processes (historiometric cycles) directly with fluctuations of the Solar cycles: «The number of historic events running simultaneously in various parts of the Earth gradually increases with the approaching to the maximum of a solar activity and reaching the largest number in the period of maximum, and decreases with the approaching to minimum.... Each cycle of a general historical, military or public activity is equal to 11 years on the arithmetical average. The epochs of concentration of historic events coincide with the epochs of maximums in the solar activity, epochs of discharges coincide with the epochs of minimums» [229, p. 27–28]. The researcher even tried to measure the intensity and length of phases in the historiometric cycle: 3 years of minimum excitability (5% of historic events); 2 years when the excitability builds up (20% of events), 2 years of maximum excitability (60% of events); 3 years when the excitability falls (15% of events) [ibid, p. 28, 29, 33]. The influence of solar cycles on the processes on the Earth and historic activity is indisputable, but it is unlikely to be so univocal and mathematically strict. Many factors affect the activity of people of historic events, they are often reverse and rendering a resonating, damping (softening) or deforming impact on social cycles.

3. In the geologic history of the Earth we also observe, for the whole period of its existence as one of the planets of the Solar system, the alteration of periods of a relatively smooth evolution with the periods of catastrophes, a change of magnetic poles, advance and retreat of glaciers etc. This regularity was noted by **V.I. Vernadsky**: «Critical periods emerge in the history of the earth crust where a geological activity intensifies in its rate in the variety of manifestations. These periods may be viewed as *critical* in the history of the planet. Concurrently, we observe the intensification of volcanic, orogenic, glacial phenomena... transgressions of the sea and other ecological processes covering the major part of biosphere concurrently in its entire expanse. The evolutionary process coincides with these periods in its intensification, in its largest changes» [30, p. 29]. The present-day geological sciences determine the transition from one geological age to another by such crisis periods. The very emergence

of man and his distribution on the planet is connected with the critical periods in the history of the Earth.

4. **Climatic cycles** are closely connected with solar and geological and express the irregularity of processes taking place in the atmosphere and hydrosphere of the Earth: fluctuations periodically occurring in the levels of the ocean and seas (for instance, the Caspian Sea), changes in the directions of oceanic streams affecting the climate of coastal areas of the mainland, intensification and weakening of the activity of typhoons and tornadoes, formation of arid zones, deserts and semi-deserts, change in the expansion of glaciers, fluctuations of an average annual temperature and amount of precipitation etc. Despite the abundance of observations, the scholars are still arguing in which climatic age we live – in the period of continuing climate warming or at the outset of becoming cold, a new ice age.

5. **The cycles in the dynamics of organic life**, plants and animals, flora and fauna manifest themselves in the emergence and disappearance of their species, genus, classes, in the alternation of generations of plants and animals; in the life cycle of each plant or animal. This regularity was observed by **V.I. Vernadsky**: «Processes manifesting themselves in the symmetry space – time in our surrounding are characterized by: (a) *geologically eternal change of generations* for all organisms; (b) *for pluricellular organisms – aging*; (c) the death is a destruction of space... time of a body of organisms; (d) in the course of the geological time, this phenomenon is expressed by an evolutionary process, changing by leaps a morphological form of an organism and a generation change rate» [ibid, p. 285]. The change of generations has a cyclical nature: «Generations genetically changed, regularly changing in their morphological features, where such change was either by leaps in long periods of time or vice versa accumulating from generation to generation insensibly, becoming visible only in a large number of generations» [ibid, p. 226–227].

In the periods of geological or space (related with the fall of large meteorites on the Earth) catastrophes the change of composition of flora and fauna and of rates in the alteration of generations of plants and animals occurred. The theory of catastrophes in the evolution of fauna was much advanced by **George Cuvier**. And although **Charles Darwin** and the scientific school of Darwinism negated the role of catastrophes and insisted on the evolutionary theory of the species formation, however, they failed to explain the saltatory emergence of new species, genus, classes of animals in certain historic ages as

well as the disappearance of many species (for instance, disappearance of dinosaurs about 65 mln. years ago).

The evolution of organic world, combination of a relatively smooth evolution and a wave of catastrophes was explored in detail by **N.N. Moiseyev** [135].

6. Biospheric cycles express periodic fluctuations in the sphere of the interaction between animate and inanimate nature (the upper part of lithosphere, lower part of atmosphere, hydrosphere and sphere of life activity of living organisms of plants, animals and man). The term «biosphere» was coined by **E. Suess** in 1875, but the doctrine of biosphere, its cyclical dynamics and tendency of transformation into the noosphere was created by **V.I. Vernadsky**. He observed that the biosphere is subjected to the laws of evolution, periodic crises and revolutions; that one of such revolutions became the emergence of man — a conscious being. That meant the beginning of the formation of a new era in the history of the Earth — anthropogenic. With the emergence of man «*a powerful geological factor came to light in the history of the planet surpassing those tectonic leaps in its effect which were laid ...as a foundation of geologic divisions of earth space — time*» [30, p. 58].

It is possibly worth specifying that by itself the emergence of primogenitors of man as well as a present-day type of *Homo sapiens* — Cro-Magnon man — about 40 thous. years ago did not mean yet that a new geological force emerged. This could be spoken about only with the emergence of powerful irrigation systems in the valleys of great historic rivers about five thousand years ago, which transformed the natural environments. In actual fact, a human society became the geological force changing the biosphere only in the industrial epoch, especially in the 20th c. It was then that the activity of rapidly increasing mankind in terms of number and more and more equipped with tools of labor led to the biospheric (environmental) universal planetary crisis.

How are natural cycles connected with the emergence and development of civilizations? One could voice several postulates about the role of natural cycles in the history of civilizations — both local and world ones and the global one.

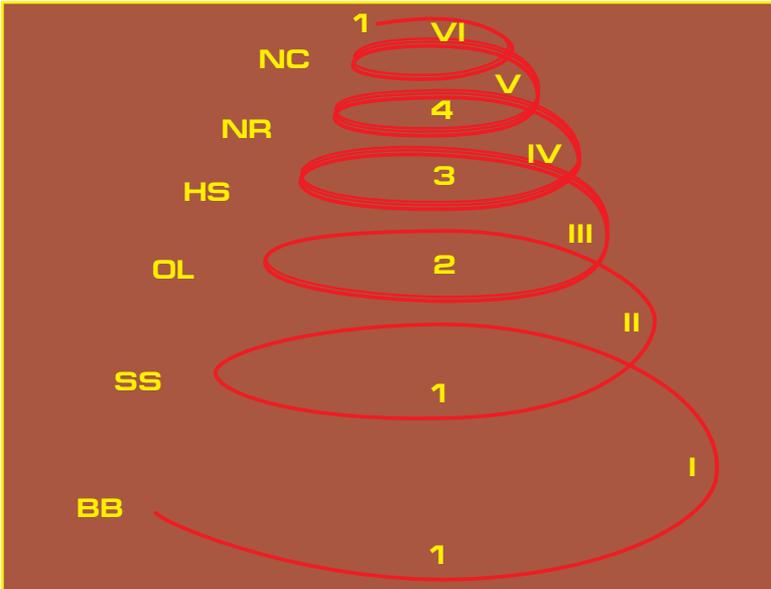
In the natural history, natural-ecological dynamics along with cycles and catastrophes *bifurcations* are periodically observed, which lead to the arrangement of natural and social systems and relations between them. This entitles us to speak about a ***spiral of co-evolution of natural and social systems*** and scenarios of its development

in future (*fig. 5.1*). The first whorls of this spiral took place billions of years before the emergence of man and social systems. The first whorl refers to the period from the Big Bang, the beginning of the evolution of the Universe, to the formation of the solar system and the Earth as a planet making a part of it. The second embraces a geological history of the Earth before the formation of the biosphere and the emergence of life, animalcules on the planet. The third whorl describes evolution of life on the Earth from animalcules to the emergence of man 3–4 mln. years ago. This was the greatest bifurcation in the natural history, possibly unique if it turns out that we are alone in the Universe. Then the whorls of *co-evolution* of natural and social systems, biosphere and homosphere begin. The Neolithic revolution became the next bifurcation, beginning of the next whorl of a co-evolutionary spiral, and on its basis – the formation of the world, and then local civilizations. The rate of co-evolution increased, the whorls of a spiral narrowed in time. World civilizations changing each other and generations of local civilizations made their contribution, their bifurcations to the sophisticating pattern of relations between nature and society. The man, his reason and labor involved more and more new natural forces into the process of reproduction and exerted greater and greater influence on the biosphere.

Since the end of the 20th c. the period of an ecological crisis of the industrial civilization, a new whorl of the co-evolution of nature and society begins. The humankind has appeared face to face with a major challenge in its history, before the next bifurcation that will lead to a qualitative change in the nature of the evolution. This change may go into opposite directions: either a transition to the positive alternative of the noosphere, rational co-evolution of natural and social systems, harmonious relations between man and the nature that will become the epochal innovation of the 21st century; or an increasing threat of an ecological catastrophe accompanied by a degradation of humankind as a mega-social system that finally might end with the disappearance of man and society from the face of the Earth, and along with that a considerable part or the entire biosphere, transformation of the planet into a lifeless cosmic body, billions of which can be found in the Universe. This will be the final whorl in the co-evolution of the nature and the society, after which longer whorls of the evolution of the Solar system will continue many times until its core – the Sun – fades, and then the Universe disintegrates.

Figure 5.1

The Evolutionary Spiral of Natural and Social Systems



I – inorganic world; *2* – organic world (biosphere); *3* – man, spiritual world; *J* – society; *I–VI* – whorls of an evolutionary spiral; *BB* – Big Bang, beginning of the evolution of the Universe (1st cycle); *SS* – formation of the Solar system; beginning of the evolution of the Earth (2nd cycle); *OL* – Emergence of organic life on the Earth; the starting point of evolution of biosphere (3rd cycle); *HS* – emergence of Homo sapiens; beginning of evolution of man, homosphere (4th cycle); *NR* – Neolithic revolution, formation of the society and beginning of a social revolution (5th cycle); *NC* – noospheric challenge – a choice between a constructive alternative of the noosphere (harmonization of evolution of social and natural systems) and a catastrophe (the end of evolution of the society and possibly the biosphere)

Consequently, the spirals of the co-evolution of nature and man (society) are only a short moment in the history of the evolution of the Universe. The fate of humankind, fate of world, local and global civilizations depend on the ability of man and society to understand the substance of a new bifurcation, a noospheric challenge, and respond to it adequately. It is clear that it will be decided within the 21st c. This will require a reconstruction of all «floors» of the civilizational «pyramid», which was emphasized by **N.N. Moiseyev**: «The

dialectics of our life is the following: due to the development of technical novelties we've found ourselves on the brink of a precipice, but we can't make the bridge to the future without them and move away from the brink — the inconsistency of anthropogenesis is in this... A technological development is an absolute must, but it is not enough: civilization should become different as well as a spiritual world of man, his need and his mentality» [136, p.70].

The beginning of the history of civilizations about 10 millennia ago is also connected with a certain stage of the nature evolution, natural cycles. It included violation of population cycles of gross animals, whose natural reproduction did not keep up with their destruction by armed with throwing tools man, who propagated quickly in the Mesolithic Age. A fall of temperature as a result of a regular ice age added to it. The response to that deathful challenge that could have ended with the extinction of Cro-Magnon men as it was the case with the Neanderthals became the Neolithic revolution, a transition to a reproduction economy, the formation of the world, and thereafter local civilizations.

The emergence of local civilizations, their differentiation and distribution within the territory of the Earth was also connected with natural factors and cycles. The first generation of civilizations formed in the belt with a favorable climate, relatively minor changes in temperature and precipitation by seasons of the year, in the valleys of the great historic rivers with their annual cycles of overflows bringing fertile silt to the river valleys. The main concern of such civilizations was to create and maintain efficient powerful irrigation systems — the main source of wealth and well-being. The civilizations of the second, third and fourth generations expanded their range to nearly all the territory of the firm-land fit live-in for man. However, the influence of the specifics of natural-climatic conditions of various territories didn't weaken: natural disasters and catastrophes in many respects led to the downfall of civilizations (Atlantis, Cretan-Mycenaean culture, civilizations in the Urals and in the Central Asia).

The fate of the global civilization, stages of its life cycle also depend on the natural factors and their cyclical dynamics. And the final stage of this civilization, completion of its life cycle (if it does not ruin itself in the evolutionary process) is determined by the fading of the energy of the Sun in billions years and consequently — the destruction of the biosphere and life on the Earth.

5.2. A Spiral of Ecological Cycles and Crises

Ecological cycles as an expression of periodic, regular fluctuations in the sphere of interaction between nature and society have a diversified nature.

The following *levels* of such interaction can be defined:

➔ *individual* — in life and activity of any man involved in the consumption process of natural resources and discharging the waste into the environment;

➔ *micro level* — for an individual enterprise, especially in the primary sector (agricultural, mining, forest, fishery enterprises, hydroelectric plants etc.);

➔ *local and regional levels;*

➔ *in the scale of an individual state;*

➔ *within one civilization;*

➔ *on a global scale* embracing the entire planet.

As a matter of fact, ecological cycles are one of the kinds of biospheric cycles and express the interaction between two major super-systems — society and nature.

Ecological cycles has *two major forms*:

➔ *the unevenness in supporting* the life of man and production with *natural resources* — as a result of involving new resources, depleting the ones being utilized. It influences the productivity (efficiency) of reproduction, nature of consumption etc.;

➔ *the change in the nature and level of environmental pollution* with waste products and human wastes as a result of the emergence of new productions, weapon systems, establishment of new megapoleis, technogenic (like the Chornobyl) and environmental (like the death of the Aral Sea) catastrophes.

The introduction of new categories appears valid in terms of cyclical dynamics of interaction between the society and nature: ecological mode of production and ecological order, ecological crises and revolutions.

Ecological mode of production is a system of natural production forces involved in production and being used by the society at this stage of its historic development (a certain world civilization) and the achieved level of mankind's impact on the environment. The rhythm of change of ecological modes of production satisfies the logic of the change of world civilizations — Neolithic, Early Class, Ancient, Middle Age, Early Industrial, Industrial, and from the

beginning of the 21st c. — Postindustrial, as well as the logics of following each other technological orders of production. The natural resources include both the sources of raw materials being utilized to manufacture tools (the historic periods are based on them — Paleolithic, Mesolithic, Neolithic, Eneolithic, the Bronze and Iron Ages) and the sources of energy.

Under the **ecological order** we understand modifications of an ecological mode of production in accordance with the change in technological orders. For instance, in the period of the industrial ecological mode of production ecological orders were changing. Their major power sources were coal, electricity, liquid fuel, natural gas in combination of the energy stored in an atomic nucleus and hydrogen fuel or other renewable energy sources in prospect.

Ecological crisis is a phase of an ecological cycle when the efficient use of natural resources (some of them being depleted) decreases and the pollution of the environment increases.

Ecological revolution is the involvement of more efficient natural sources of raw materials and energy in production and assimilation of technologies considerably reducing the environmental pollution in a transition to a new ecological mode of production.

The interaction between the nature and man began from the emergence of his remote ancestors. But one may hardly speak about well-defined ecological cycles and crises then as the impact of man on nature was really minor; it is rather the latter that univocally determined the opportunities and resources for life of small primitive societies.

The situation changed from the Mesolithic Age, with the invention of a bow and arrows and other thrower tools, when the communities, which increased in size and united into tribes, actively consumed the herds of gross animals so that the latter began to disappear. The *first ecological crisis* broke up involving a considerable part of the inhabited area of the Earth. The result was the reduction of the overall number of people.

The crisis was overridden as a result of a *Neolithic revolution* when additional natural resources were involved to support life of people — farmed fertile lands (*the basis of husbandry*) and the herd of animals reared which were simply consumed before (*animal husbandry*). It gave a saltatory inflow of resources and an increase in the number of population that meant the formation of civilization.

A decisive role of husbandry in the change of the relation between man and nature was noted by **John Bernal**: «The husbandry

led to essentially new relations between man and nature. Man stopped leading a parasitic way of life at the expense of plants and animals from the moment when he could grow the same amount of foodstuff within a small area as he could get by hunting and gathering within a vast area. He established the *dominance* over the wild life due to the cognition of its laws of reproduction and thereby attained a new and even greater independence from external conditions» [16, p. 60].

However, it turned out that cut-over-land tillage could not satisfy the needs in food of the increased population. Also, the increased herds of animals devastated rapidly the pastures; one had to move seeking new pastures. The *second ecological crisis* broke out at the end of the 4th millennium B.C. However, it was overcome by the transition to the *system of irrigation farming* as an ecological basis of the first local civilizations. A new natural resource was involved in reproduction — valleys of great rivers; the rivers also served as major transport routes. It enabled to improve the efficiency of labor many times, to found large cities and form local civilizations in the valleys of the historic rivers — Nile, Tigris and Euphrates, Indus and Ganges, Yangtze and Huang He. The natural preconditions for emergence of civilizations were also shown by J. Bernal (*fig. 5.2*). It became possible to speak about the first steps of the noosphere. That is what V.I. Vernadsky writes on this subject: «It may be viewed that within the 5–7th thousand years the establishment of the noosphere is under way and the growth of a cultural-biochemical energy of mankind increasing in the rates all the time» [28, p. 143].

But this ecological cycle reaching its peak in the 2nd millennium B.C. also led to the next, *third ecological crisis*. The most fertile lands fit for irrigation farming had already been developed, and a part of them became salinized, the yield dropped and was insufficient to feed the number of population considerably increased. And the tool made from comparatively soft metals such as copper, bronze did not fit for tilling strong soils in dry farming.

In order to overcome the crisis *the ecological revolution of the Iron Age* was required in the middle of the 1st millennium B.C. The manufacture of tools from strong iron enabled to develop new fertile soils in a considerable part of Europe and Asia. The ploughland areas increased many times as well as the yield from them, which enabled the inhabitants to develop crafts, construction, trade and arts. Two new sources of energy were involved in reproduction: muscular force of animals (they had been used before, but on a lesser

But by the end of the ancient world civilization the narrowness of its natural base, the ripening of the *fourth ecological crisis*, exhaustion of the resources for the growth under previous natural conditions of production, especially in the leading civilizations, became more and more obvious. This put in motion large masses of stock-raising population of the East who flooded to the West (Goths, Huns etc.), to the downfall of many cities and centers of civilizations. According to the estimates of **A. Maddison**, the population on the planet grew from 230.8 mln. people to 267.6 mln. during the entire period of the first millennium A.D. (0.01% of an average annual growth), world GDP – from USD 102.6 bln. to 116.8 (in prices of 1999), that is 0.01% growth, and the GDP per capita did not actually change [264, p. 256–261]. This was the millennium of stagnation of the world economy, with negative indicators in the middle of the millennium.

In Europe the transition to the *medieval ecological mode of production* began from a lower level of harnessing natural resources, increase in the significance of land as the main source of public wealth and a feudal rent and decrease in the production of mineral raw material. However, by the efflorescence of the Medieval Ages, in the 12thc. the efficiency in the land utilization considerably increased. Along with muscular force of animals the power of water and wind used in mills and craftworks began to be employed as the main power resources, which contributed to the development of craft and production of ores from non-ferrous and ferrous metals.

Fernand Braudel wrote about the «revolution of mills» of that period, about a «powerful farming revolution, which moved the peasants in well-knit rows against such obstacles as forest, bogs, sea and river coasts and favored the efflorescence of the three-field rotation» [23, p. 561, 563]. The growth of cities, consumption of the feudal nobility and development of domestic and international commerce was accompanied by the increase in production of noble metals. The population growth on the Earth in the first half of the second millennium by 64% (in Western Europe – in 2.3 times) and increase in the production volume (the growth of the world GDP in 2.1 times, in Western Europe – 4.3 times, in the territory of the ex-USSR – 3 times [264, p. 256, 259] resulted in a considerable increase in the involvement of natural resources in production and in the growth of the environmental. They deforested, depleted the deposits of mineral resources that were accessible considering the technology of that time. This led to the next *ecological crisis* at the end of the Middle

Ages, although not that deep-seated and long as at the previous historic fault, in the change of historic super-cycles.

The early industrial civilization began from mastering of a new ecological mode of production. Its pre-conditions (and effect) became the speed-up of the population growth rates (from 0.10% in the preceding age to 0.27% in 1500–1820) and the GDP growth rates for the same period (from 0.32 to 0.93% in the world) [ibid]. The production of ores and coal increased many times, new deposits in the colonies were involved in production. The flows of gold and silver flooded from the New World. The metallurgical works, manufactories, coal mines were built. «The production of gold, silver, copper, cobalt, iron ores generated a series of innovations... and the creation of devices gigantic for that time and intended for pumping out ground waters and pulling out of ore, — wrote **Fernand Braudel**. — Concurrently, the city was completing capitalistic development of its villages with the re-grouping of lands into large tenures, development of irrigable meadows and stock raising, digging canals being used for irrigation and carriages with the introduction of the innovative culture of rice and even with the disappearance of the culture of fallowing, with a continuous rotation of crops and grasses» [23, p. 565, 567]. However, this revolution in the use of agricultural lands was observed only in the narrow circle of Western European countries (Italy, the Netherlands and the UK). In other countries and civilizations traditional extensive farming prevailed. Often military conflicts caused large damages to the nature. The contradiction between headily growing manufactory industry and the number of the city population, on the one hand, and an outdated natural-ecological base, on the other hand, arose. In the 17th century the indicators of the growing ecological crisis were gaining shape.

This contradiction was solved on the basis of an *ecological revolution of the beginning of the industrial age*, which developed concurrently with the industrial revolution and in substance it was derivative from it. The transition to the machining manufacturing, steam energy and then construction of railways, steam-engines and steamboats increased the demand for coal as the main source of power many times, for the ores of ferrous and non-ferrous metals, for new practices for production and eliquation of metals. The technological revolution also transformed the agriculture, gave rise to the systems for the improvement of soil fertility based on the application of mineral fertilizers that required the production growth of agrochemical ores. The revolution on transport resulted in the allocation of a con-

siderable amount of land for railways and stations, intensive use of sea and river waterways, construction of the network of canals, including the Suez and Panama Canals. Having sprung up in Western Europe, the ecological revolution extended to the North America, Eastern Europe and Australia. With a delay, it was assimilated in China, India, Africa where the system of nature management did not only lag in its development, but often degraded, which led to the starvation and death of hundreds thousand and millions of people in lean years. The unevenness of polarization of the ecological development of various civilizations increased during this period.

In the development of the industrial ecological mode of production one could distinguish several ecological orders changing each other and closely connected with the semi-centurial Kondratieff cycles and more vividly manifesting themselves in the vanguard countries, on which the count of cycles and crises are based. The *first order* was developed in the last quarter of the 18th c. up to the 30s of the 19th c. and was based on mastering the steam energy, coal, development of ferrous metal ore production and steelmaking as the main material for manufacturing machines. In the agriculture the technologies of previous civilizations prevailed; the level of environmental pollution was comparatively lower in the countryside.

The second ecological order covered the period of the 30–70s of the 19th c. It required an enormous expansion of power-station and metallurgical coal, ores of ferrous metals for the development of the machine-building industry, construction of the network of railroads. The impact of the industry and transport on the environment intensified. In the large industrial centers a difficult ecological situation formed, which negatively impacted on the life and health of the city population, especially its poor sections. Chemization of husbandry increased the demand for agro-ores — original raw material for mineral fertilizers, but the scale of pollution in the countryside was minor.

The third ecological order covered the last two decades of the 19th c. and the first three decades of the 20th c. Mastering of electric power required a many time increase of non-ferrous ore production for electrical machinery and transmission of electric power by wires; copper and aluminum occupied the leading position among them. The development of automobile and air transport was based on the use of oil refining, oil production and refining grew rapidly. The agriculture required the employment of more and more amounts of mineral fertilizers. Environmental pollution increased. An immeasurable loss was caused to it during two World Wars.

In the 40–70s of the 20th c. the *fourth ecological order* prevailed. Its features are as follows: a key place was occupied by oil and natural gas in the fuel balance; the surface of the planet was enlaced with the network of pipelines; a computer revolution became an impulse for a swift development of production of rare and trace elements ores to create the elementary base of the electronic industry. The creation of a nuclear weapon and nuclear power led to the development of uranium and a new type of the environmental pollution – with radioactive waste. The tests of nuclear weapons, accident at the nuclear power plants, especially the Chornobyl catastrophe, have demonstrated convincingly a mortal danger overhanging mankind and the biosphere in the event of mass employment of nuclear weapon and other weapons of mass annihilation. At the same time the threat of an ecological catastrophe increased as a result of a many time increase of greenhouse gas emissions into air and pollution of water sources, increase in the number of population and volume of production. From 1938 to 1980 the number of world population doubled – from 2 200 to 4 400 mln. people, world GDP increased 4.8 times – from USD 5 625 bln. to 37 105 [133, p. 497, 503]. The mining industry grew with high rates, although lower than the industry in general (*table 5.1*).

The highest growth rates of the mining industry were observed in the 50s (2.7%) in the period when the fourth ecological order was forming. It was attained due to the oil and gas industry where the growth rates surpassed the average industrial rates or approximated to them. While in 1938–1950, especially in the period of World War II, the growth rates in the metal and ore industry came up to general industrial, then in the next period they noticeably dropped, especially in the 70s. The same tendency was observed in coal mining.

A long-range forecast made in the 70s by the group of experts under the guidance of a Nobel Prize winner **V.V. Leontieff** showed: by 2000 (according to the favorable scenario) the GDP growth rates of 3.6% were anticipated in the developed countries, and 6.9% – in the developing countries; and 3% and 4.9% per capital, respectively, with bridging the gap in income form 12:1 to 7:1 times [24, p. 29]. And it was envisaged that rates of the involvement of natural resources in production would be high and the growth rates of the environmental pollution would slow down (*table 5.2*).

It was outlined that under 70% of the growth rate of population on the Earth (an actual growth has made 64%) the GDP would increase 3.4 times under the growth of land fertility 2.8 times, oil

production – 4.7 times, natural gas – 4.1 times, coal – 3.8 times, non-ferrous metals – from 3.3 (zinc) up to 4.3 times (lead), under stabilization of the fish yield. At the same time the growth rates of emissions into the environment will reduce for solid wastes (1.1 times), they will considerably increase for pesticides – 6.2 times. The volume of air cleaning will increase 3 times, primary water treatment – 5 times and recycling of solid wastes – 3.7 times.

The reports to the Club of Rome and, first of all, that of **Donella and Dennis Meadows** «The Limits to Growth» published in 1972 became a sharp contrast to this optimistic forecast, a disillusion shower. The authors of the report came to the conclusion that the growth rates of population formed by the beginning of the 70s, pollution of the environment, production of food and depletion of resources will continue, within the 21st c. the world will come to the growth limits. As a result an unexpected and uncontrolled decline in the number of population will take place and production volume will drop sharply [168, p. 127]. The report disclosed the implementation mechanism of this pessimistic scenario: «The approximation to the limiting values and collapse are inevitable, and in such case the

Table 5.1

Dynamics of the World Mining Industry *

Exponents		1900	1938	1950	1960	1970	1980	1990	2000
All industry	a ¹	384	925	1355	2475	4040	5780	7730	10 190
	b ²		241	146	184	163	143	134	132
	c ³		23	32	63	50	36	30	28
Mining industry	a	133	247	342	446	556	711	858	1058
	b		186	138	130	125	128	121	123
	c		16	25	27	23	25	19	21
including coal	a	65	96	17	120	131	132	135	132
	b		148	122	102.6	109	100.8	102.3	98.8
	c		10	17	0.3	0.9	0.1	0.2	-0.2
oil and gas	a	10.5	52	100	170	256	379	500	692
	b		495	192	170	151	148	132	138
	c		4.4	5.6	5.5	4.2	4.0	2.8	3.3
metal and ore	a	20	46	69	80	80	88	99	101
	b		230	150	116	100	110	112.5	102
	c		2.2	3.2	1.5	1.0	1.0	1.2	0.2

*[133, p. 551, 561]

¹a – USD bln. in prices and according to the PPP of 2000

²b – in % of the previous period

³c – average growth rates for the period, %

Table 5.2

Dynamics of Natural Resources Consumption and Environmental Pollution *

Exponents	1970	1980	1990	2000	2000 to 1970, %
<i>Population</i>	3620	4404	5344	6405	177
<i>Land yield index</i>	100	131	184	276	276
<i>Resources production</i>					
Oil	3003	4998	9340	14 138	471
Natural gas	1426	2336	4262	5910	414
Coal	2165	3307	5232	8313	384
Iron	424	660	1 111	1612	380
Copper	6.4	9.3	46.5	23.6	369
Bauxite	11.4	16.7	27.9	38.5	338
Zinc	5.4	7.5	12.4	17.8	330
Lead	3.5	5.4	9.7	14.7	420
<i>Fish catch</i>	66.0	66.0	66.0	66.0	100
<i>Net total emission</i>					
Pesticides	2.6	5.4	13.4	16.0	615
Solids	14.9	13.3	22.7	16.2	109
<i>Environmental pollution reduction</i>					
Air	54.3	93.0	123.4	165.0	304
Primary water treatment	11.0	21.0	39.1	55.2	502
Solid wastes	534.9	902.1	1208.5	1977.3	370

* [24, p. 207–208]

depletion of unrenovable resources becomes the cause of it. The volume of industrial capital reaches the level at which it requires an enormous influx of resources. The process itself of this growth depletes the reserves of available raw materials. With the growth of prices for resources and depletion of resources, more and more funds are required meaning that less and less capital investments are made in a future growth. Finally, capital investments can't compensate for depletion of resources; then the industrial base is ruined, and along with it the system of services and agricultural production dependent on the industry... For a short period the situation will aggravate seriously as the population number is still growing... Finally, the population number reduces as the mortality increases as a result of a shortage of food items and medical services... The growth stops circa 2100» [ibid, p. 129]. Ecological and other global crises complement and intensify each other in resonance: «...Three simultaneous crises

may be blamed for it. The load on the Earth causes erosion, and food-stuff production reduces. A high level of the wealth of population, although not exceeding the present wealth level in the USA, causes a considerable depletion of resources. The environmental pollution grows, reduces, and then grows again, as a result the food production reduces again and the mortality increases. The technological solution may only extend the period of the demographic and industrial growth, but not move its limits» [ibid, p. 131].

The *world ecological crisis* in power industry, which developed in the 70s, where uneven growth of the world oil prices became the nucleus of it (from 2.11 USD per barrel in 1970 to 35.69 in 1980 – 16.8 times) [202, p. 71] confirmed the fears of scholars. The world price index for raw materials grew 11.5 times during 1971–1980 (comparing to the total growth of world price index – 1.8 times); the GDP growth rates dropped up to 46% for a decade as opposed to 67% for the preceding decade; production of raw material commodities – up to 30% as opposed to 69%, agricultural produce – up to 24% as opposed to 29%, finished products – up to 53% as opposed to 104% [ibid, p. 61–62].

The crisis pushed the transition to the *fifth ecological order*, closely connected with the similar technological order. However, it did not give such a large effect as the previous order (*table 5.3*). The

Table 5.3

Average Annual Growth Rates of the World Production and Prices for 1950-2000, % *

Growth rates	1951–1960	1961–1970	1971–1980	1981–1990	1991–2000
<i>GDP growth rates per year</i>	4,7	5,3	3,9	3,2	2,3
<i>Production growth rates:</i>					
total	5,2	6,1	3,7	2,5	2,0
agricultural products	2,8	2,6	2,1	2,5	1,5
raw materials	4,5	5,4	2,0	0,1	2,7
finished goods	6,3	7,4	4,3	2,9	2,3
<i>Average annual rates of the export price index growth:</i>					
total	7,2	8,4	20,7	5,4	6,1
agricultural products	3,6	4,1	16,8	3,5	3,1
raw materials	7,2	9,6	27,7	-1,3	5,4
finished goods	11,6	10,3	18,8	8,3	6,9

* [202, p. 61–62]

Table 5.4

A Share of Individual Power Sources in the World Power Balance, % *

Power sources	2000 B.C.	1000 B.C.	1900	1935	1973	2000
<i>Renewable sources</i>	100	100	32	26	15	5
Man's muscular force	70	10	-	-	-	-
Organic substance	25	20	16	13	-	-
Timber	5	70	16	8	-10	1
Water power	-	-	-	5	5	4
<i>Renewable sources:</i>	-	-	68	74	85	95
Gas	-	-	65	55	32	28
Oil	-	-	3	16	34	43
Natural gas	-	-	-	3	18	19
Uranium (nuclear power)	-	-	-	-	1	5

* [145, p. 698]

main efforts were directed at nature conservation – reduce fuel and raw material consumption per the unit of the GDP, growth of explored mineral reserves and development of less nature-intensive sector of services.

During the elapsed three decades of the 20th c. the growth rates of production and consumption of raw material and fuel slowed down sharply; in 2000 export prices for raw materials exceeded 16.9 times the level of 1970 under excess of general export price index 20.1 times [15, p. 61–62]. Admittedly, it should be noted that the dollar buying capacity as an international currency dropped several times during this period.

The fifth ecological order did not give an essential growth in the efficiency of nature management and reduction of the environmental pollution. The growth rates of agricultural production dropped from 2.6% (in 1950–1970) to 2% (in 1991 – 2000). In 1990–2000 95 thous. sq. km of forests passed out annually on the planet, including in Africa to the south of the Sakhara – 53 thous., in Latin America – 46 thous. sq. km. The average annual growth rate of power consumption made 1.5%, of CO₂ emissions into air – 0.7% [271, p.130, 142]. The worsening of climate conditions under the influence of human activities has become obvious. The threat of a global ecological catastrophe is growing, although the opinion of individual scholars on its causes, nature and term are contradictory.

The industrial ecological mode of production oriented at conquering the nature, increasing involvement of more new resources in production and intensification of the pressure on the biosphere has mainly exhausted its potential. Despite a number of measures for ecological rehabilitation undertaken in the developed countries, the global situation continues worsening. The development of a regular global ecological crisis indicates that time has come for the transition to the post-industrial, *noospheric ecological mode of production*.

The central link of such developing ecological crisis of the end of the post-industrial civilization is assurance of the society's demand in natural sources of power. The fossil fuel — coal, oil, natural gas — became the main source of power resources in the industrial epoch, and from the second half of the 20th c. uranium joined them. The data given in [table 5.4](#) indicates this.

While the previous world civilizations orientated themselves at renewable sources of power, the power base of the industrial civilization became unrenovable fossil fuel, in 2000 its share reached 95%, where a share of liquid and fuel gas — oil and natural gas — makes 62%. Although known reserves of oil and gas grow as a result of exploration works, the best deposits gradually deplete, which requires growing expenses of capital and labor for production, transportation, refining of fossil fuel. Its reserves are distributed very unevenly on the planet, by local civilizations ([table 5.5](#))

The main reserves of oil and gas are concentrated in local civilizations with low and average level of income — Moslem, African, Eurasian, Latin American, while the most developed nations — North American, West European, Japanese — main consumers of power — have an inconsiderable volume of reserves and short term of supportability with the same. By the end of the industrial civilization a certain polarization came into being in the power sector: at one pole — countries with high income where 15.6% world population lives consuming 52% of power (5,423 kg in oil equivalent per capita); at the other pole — countries with low income where 40.2% population lives consuming 12.3% of power (518 kg per capita — 10.5 times to the countries with high income) [271, p. 142]. The quarter of the world population, as it was noted at the summit on sustainable development in Johannesburg (2002), has no access to electricity at all. Such polarization is one of the indicators of a global power (and ecological) crisis of the retiring civilization.

Table 5.5

Distribution of Proved Oil and Gas Reserves by Regions of the World as of 01.01.2002 *

Regions of the world	Oil Reserves			Gas Reserves		
	bln. t	% to the world	ratio of production	trln. cub. m	% to the world	ratio of production
Near East	93,4	65,3	86,8	55,91	36,1	26,0
Latin America	13,7	9,1	38,8	7,16	4,6	71,6
Russia and CIS	9,0	6,2	21,1	56,14	36,2	78,5
Africa	10,2	7,3	27,4	11,18	7,2	90,2
Asian-Pacific Region	5,9	4,2	15,6	12,27	7,9	43,8
North America	8,4	6,1	13,5	7,59	4,9	10,0
Europe	2,5	1,8	7,8	4,86	3,1	16,1
World in general	143,0	100	40,3	155,08	100	61,9

*[145, p. 621, 666]

5.3. Ecological Future of Civilizations

In the 21st c. a transition to a post-industrial ecological mode of production will occur, on its banner one word will be written: «Noosphere». This will find its expression in three global tendencies: relative, and then absolute reduction in consuming primary natural resources; relative, and then absolute reduction of emission of pollutants of any kind into the environment; formation of ecological thinking, national, civilizational, global ecological policy and strategy. The overall result of such tendencies will be the ensuring of a rational co-evolution of the nature and man. Both these mega-systems can't stop the development according to the cyclical-genetic laws, however, the development of one of them should not be implemented at the expense of the other as it used to be in the industrial period.

The doctrine of the noosphere was formulated by **V.I. Vernadsky** and further developed in relation to the present-day period by **N.N. Moissejev**.

The noosphere as an increasing impact of a human mind and activity on the environment (biosphere) has a longstanding history.

«In the recent millennia, — wrote **V.I. Vernadsky**, — an intensive increase of the impact of one specific living matter — civilized mankind — on changing the biosphere is observed. Influenced by a scientific thought and human labor, the biosphere is transforming into a new state — *noosphere*. The mankind through a natural movement lasting a million and more years with the rate increasing in its manifestation permeates over the overall planet, segregates; moves off from other living organisms as a new unparalleled geological force. The evolution process of the biosphere, its transition to the *noosphere* obviously shows the speed-up in rates of geological processes... within [latest] few thousand years due to the growth of a scientific thought and social activity of mankind» [28, p. 20–21, 23].

Hence, the matter in question is not millions, but the latest 4–5 thousand years when the local civilizations formed and the systems of irrigation farming began to render a tangible influence on the biosphere in the valleys of great historic rivers. This influence was vividly expressed by **L.I. Mechnikov**: «Historic rivers, these great mentors of mankind, transform the areas irrigated by them either to the fertile granary feeding millions of people for labor of several days or to contagious bogs set with corpses of numerous victims. A specific geographic environment of such rivers could be turned to the man's advantage only through joint, severely orderly labor of large masses» [129, p. 358]. Let's add — and through human mind, understanding of the cyclicity of the overflow of rivers and a skill to use this for the benefit of man.

In the industrial epoch the force of man's impact, his mind and activity on the biosphere increased many times and reached the critical level that was noted by **V.I. Vernadsky**: «In the 20th c. for the first time in the history of the Earth, man knew and covered all the biosphere, completed the geological map of the planet of the Earth, settled on all its surface... Mankind taken in whole becomes a powerful geological force and before him, his thought and labor the question of *rebuilding of the biosphere in interests of free-thinking mankind as an organic unity* is put. This is a new state of the biosphere... and this is the "noosphere"... The **noosphere** is the last of many states of evolution of the biosphere in the geological history — state of our days» [28, p. 240–242]. Further decades corroborated the truth of this vision of an eminent scientist and at the same time there were discovered both positive and negative sides of an intensification of the society's impact on the evolution of the biosphere: mankind has so power-

ful means to impact on it that may both rebuild and refine it in the interests of a rational co-evolution of nature and society, and cause an irrecoverable damage, and also destroy as a result of a thermonuclear or other collision or transform it so far that no such narrow niche that occupied by thinking creatures will remain.

N.N. Moissejev cautioned against this danger, noted the necessity of a conscious selection when he wrote about *an ecological imperative as a mean to resolve a global ecological crisis*: «Mankind is approaching... the edge that separates the present epoch of a mainly technogenic civilization from the totally new period of its history. It will be characterized by a new civilizational paradigm, crisis. This post-industrial society... is in prospect to find the ways to keep the very species *Homo sapiens* on the Earth. Man has to change its way of life to such an extent that it would not be too much an exaggeration to call this stage of the history a new whorl of anthropogenesis... It is critical that the **strategy** of civilization will manifest itself, and it should be necessarily linked with the strategy of nature... We face the prospect of not only an ecological, but civilizational crisis... For continuation of its history man has to learn to coordinate not only a local, but the very global (universal planetary) activity with the needs of the Nature in fixing the rigid frames of his own development, his activity, their linkage with the development of the rest of the biosphere. These requirements are so tough that they may be correctly called an ecological imperative... With the development of civilization, at a certain stage a certain common aim arises that is to ensure the conditions of an ecological imperative» [135, p. 281–282, 288, 289].

The UN organization representing the interests of all mankind is well aware of a threat of a global ecological crisis and seeks to find the ways out of it. In 1972 the UN conference on the human environment was held in Stockholm, the UN program (UNEP) on the environment was drawn up. In 1980 the World Conservation Strategy was worked out. In 1992 the Rio-de-Janeiro World Summit on Environment and Development took place where the strategy for sustainable development entertaining the interests of both present and future generations was approved. In 2002 the Johannesburg World Summit on sustainable development summarized the results of the decade of pursuing the strategy and outlined new frontiers. The UNEP worked out and published a global environment outlook

for the period up to 2032 where based on the long-range ecological forecast four possible scenarios and their possible effects are addressed:

➡ *market first* – when uncontrolled use of the market mechanisms will lead to the destruction of the environment;

➡ *policy first* – implying the enhancement of state and interstate regulation of ecological processes;

➡ *security first* – for developed countries under increasing ecological degradation in the developing countries;

➡ *sustainability first* based on the strategic regional and global planning and implementation of the efficient management of natural resources, reduction of environmental pollution [46, p. 383–401].

One more possible scenario was omitted at that which may be called «*technology first*» – use of the achievements of a deploying innovative-technological revolution, formation of the sixth technological order for a transition to the resource-saving, ecologically friendly technologies.

In the treatise «Epochal Innovations of the 21st Century» [250] the formation of the noosphere is viewed as an **epochal innovation of the present century**, a significant element of the nucleus to form the genotype of a humanistically noospheric post-industrial society. Let's address the major elements of this process.

1. Reducing the consumption of natural resources in the 21st century is determined by several long-term active factors:

➡ deceleration, and by the end of the century, stop of the population growth;

➡ a transition to the dominance of the sixth (in the first half of the century) and seventh (in the second half of the century) technological orders, mastering of a wide circle of resource-saving, ecologically friendly technologies;

➡ the next power revolution, whose contents will be the dominance of renewable sources of energy, formation of hydrogen power; change in the structure of economy, reduction of a share of nature-intensive branches in the GDP structure.

The figures contained in [table 5.6](#). indicate a turn in the tendencies of *the population dynamics*. The population growth rates will fall (from 2.04% in 1965–1970 and 1.36% in 1995–2000 to 0.33% in 2045–2050), and they will be negative for the developed countries (–0.4). The Western European, Russian, Japanese and China civilizations will turn to be in the state of depopulation – reducing the population number – by the end of the 21st c. While less developed

Table 5.6

Tendencies of the Number and Density Dynamics of Population (UN forecast, version of 2004, average variant) *

Regions	Average Annual Population Growth Rates, %					Population Density, man per 1 sq. km				
	1950-1955	1965-1970	1995-2000	2020-2025	2045-2050	1950	2000	2025	2050	2050 to 2000, %
<i>World in general</i>	1,80	2,04	1,34	0,85	0,38	19	45	58	67	149
More developed regions	1,20	0,83	0,33	0,07	-0,10	15	22	23	23	105
Less developed regions	2,08	2,51	1,59	0,99	0,45	21	59	80	95	161
<i>Europe</i>	0,99	0,68	0,02	-0,22	-0,37	24	32	31	28	88
United Kingdom	0,23	0,47	0,34	0,37	0,17	204	242	262	276	114
Germany	0,56	0,57	0,17	-0,08	-0,17	192	231	230	221	96
France	0,75	0,81	0,37	0,14	-0,13	78	107	115	114	107
Italy	0,64	0,65	0,14	-0,29	-0,52	156	192	187	169	88
Russia	1,63	0,57	-0,22	-0,59	-0,59	6	9	7	6	67
<i>North America</i>	1,71	1,10	1,04	0,68	0,36	8	14	18	20	143
USA	1,61	1,05	1,09	0,68	0,38	17	30	36	41	137
<i>Latin America</i>	2,65	2,57	1,56	0,87	0,22	8	25	34	38	152
Brasilia	3,06	2,59	1,49	0,78	0,20	6	18	27	30	167
<i>Asia</i>	1,95	2,41	1,38	0,75	0,19	44	115	148	164	143
Japan	1,43	1,07	0,25	-0,30	-0,49	221	336	330	297	88
China	1,87	2,81	0,88	0,24	-0,35	55	130	150	145	112
India	2,00	2,28	1,75	0,93	0,32	109	311	425	485	156
Indonesia	1,67	2,37	1,34	0,61	0,06	42	110	138	149	135
<i>Africa</i>	2,19	2,60	2,34	1,81	1,21	7	27	44	64	237
Nigeria	2,24	2,53	2,48	1,58	1,0	2	127	206	279	220
South Africa	2,34	2,60	1,70	0,08	0,06	11	37	39	40	108
<i>Oceania</i>	2,15	1,93	1,42	0,95	0,45	2	4	5	6	150
Australia	2,26	1,91	1,22	0,85	0,44	1	2	3	4	200

*[271]

regions keep comparatively high, but far less to the 20th c. population growth rates: Africa (1.08%), India (0.26%); comparatively high rates will also remain for the USA (0.41%).

The density of population that considerably determines the load on the environment in the world in general will grow by 48% (in 1950–2000 – 137%), however this growth will be distributed unevenly by civilizations. It will be the lowest for Oceania (in 2050 – 5 people per 1 sq. m, including Australia – 3 people), Russia (6 people); the highest – in India, in a number of the Moslem civilization countries, Japan and Western Europe. The decline of the population growth rates, and then its stabilization by the end of the 20th c. will considerably reduce the demands for natural resources.

The second factor will become a *technological revolution* connected with the diffusion of the post-industrial technological mode of production implementing its achievements and advantages of technological orders – sixth (in the first half of the century) and seventh (in the second half of the century). In the priority lines of these orders – nanoelectronics, biotechnology, informatics – to a minimum extent natural resources will be involved, oriented at intellectual, environmental goods and services. This will considerably reduce the demand for natural resources and hazardous emissions into the environment.

The third factor – *power revolution* that will be oriented mainly at renewable sources of energy, first of all at hydrogen and fuel cells. This will lead to fall in a share of fossil fuel in the consumption balance of primary energy sources of the world, according to one of the scenarios offered by the International Energy Agency, from 85% in 2000, up to 60% in 2050 and 20% in 2100; the emission of greenhouse gases into air will reduce respectively.

The fourth factor – *structural shifts in economy*, further reduction of a share of the nature-intensive branches (agriculture, mining sectors of the industry) under a considerable increase of a share of high-tech and services sectors to a minimum extent consuming natural resources and polluting the environment. Thus, a share of agriculture in the GDP dropped from 5% in 1990 up to 4% in 2002, including in the countries with high income – from 3 to 2% [271, p. 188]. A share of mining industry in the structure of the world industrial production reduced from 34.5% in 1990 and 25.2% in 1950 up to 10.4% in 2000, and a share of mechanical engineering and metal working grew from 10.1 and 19.8% up to 35.9% [133, p. 561].

Table 5.7

**Dynamics of World Production
of Non-conventional Sources of Power ***

Type of Power	2002	2010	2020	2020 to 2002	Average annual increase rate, %
Geothermal sources	28	65	1150	441	8.2
Small rivers	70	175	220	314	6.6
Wind	18	76	125	694	11.4
Sun	1.2	19	35	2917	20.6
Flood tides	0.3	13	25	8333	27.9
Biomass	18	92	150	833	12.5
Total	135.5	440	670	494	9.3

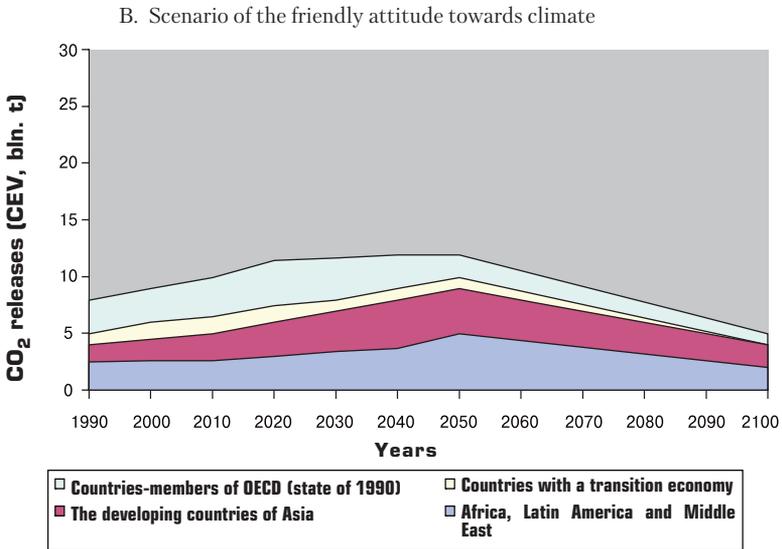
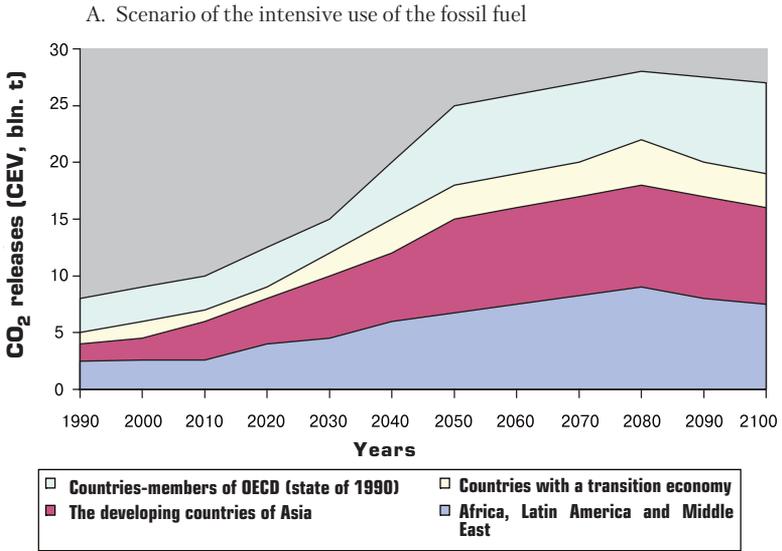
* [145, p. 698]

According to one of the scenarios of a super long-range forecast power consumption in the world will increase from 13.1 bln. TOE in 2000 to 19.2 bln. in 2020, 22.5 bln. in 2050, 23.9 bln. in 2070 and 24.2 bln. in 2100 [145, p. 736]. However, while in 2000–2020 the average annual growth rates of power consumption make 1.9%, then in 2070–2100 less than 0.05%. Oil production, according to the same scenario, will grow by 47% from 2002 to 2020, and by 2050 it will reduce by 5%; gas production will increase by 20% in 2020, and it will decrease by 8% during next 30 years [ibid]. Coal mining will increase by 29% in 2002–2050, nuclear power consumption – by 8% [ibid, p. 720–721]. The priority growth of non-conventional renewable sources of energy is anticipated (*table 5.7*).

2. Reducing the environmental pollution – first relative (as compared to the population growth rates and GDP), and then absolute – it is determined mainly by the same factors as given above: a slowdown of the growth rates, and then stabilization of the population number; technological revolution, diffusion of low impact, environment friendly technologies; power revolution, transition to renewable power sources, polluting the atmosphere to a minimum extent; shifts in the structure of economy in favor of resource-saving, environment friendly sectors. One more factor should be added to them: efforts of the world community to work out and implement ecological programs, introduction of economic mechanisms that render it disadvantageous for the market agents to pollute the environment. This tendency becomes more and more obvious, although it meets a great deal of resistance. The transition to the

Figure 5.3

Scenarios of the CO₂ Releases Dynamics in the 21st c.*



* [103, p. 259]

alternative sources of energy and energy-saving technologies will allow to reduce the volume of harmful emissions into atmosphere, to partly avoid the threat of climate warming in the second half of the 21st c. (*fig. 5.3, scenario B*).

3. Forming the noospheric civilization is one of the key tendencies of the 21st c. epochal innovations. One should not reduce the tendencies in relations between the society and nature to economy and technology only. In order to implement a positive variant of the noosphere, it will be necessary to rebuild the whole civilizational pyramid, all its elements — «floors» and «apartments». And one should start with man, its spiritual world and needs, formation of a noospheric thinking from an early age of each generation, universal ecological education, reducing an extreme consumption in the developed countries; working out and implementation at all levels — from municipal to global — the system of toughening national and international ecological standards and rules, ecological monitoring, tightened control and economic sanctions for violation of such standards and rules; establishment of ecological funds from the deductions of natural rent and a full removal of ecological anti-rent — super profit generated as a result of predatory use of natural resources and a breach of ecological standards.

These three tendencies form a base for a turn in the global ecological dynamics, transition to the noospheric civilization. However, **for prevention of a global ecological catastrophe and implementation of such transition it is necessary to work out a global ecological strategy for the 21st century**. The main outlines of this strategy may be presented as follows.

1. Priority of man, entertaining the interests of future generations in the nature management and environment protection. Two tendencies are equally pernicious, dead-end and futureless: both predation of the best natural resources and increasing environmental pollution in pursuit of profit, rent, ecological anti-rent of TNC and national entrepreneurs leaving depleted subsoil and land, unstocked forests, gassed air, enhanced radioactivity to the next generation, and calls of individual ultra ecologists — adherents of an inhuman theory of the «golden billion» — to reduce the Earth population six times for the sake to keep the biosphere. Both these seemingly opposite concepts are in accord with the final result: they deprive the next future generation of its future. There is another way out: to work out with a horizon of three generations a *global ecological strategy* ensuring the choice and implementation of an optimal co-evolu-

tion of the nature and society in the context of balance of interests of these three generations, which will be based on the super long-range multi-variant (scenario) forecast meant for a century of a possible evolution of the society and nature, man and biosphere and interaction between them. This strategy should be oriented not only at the efficient use of limited natural resources, maintenance of the biosphere and refining the environment, but at the establishment of optimal natural conditions for life activity and development of mankind, overcoming hunger and a dangerous tendency to depopulation that covering more and more countries and civilizations and in a far future it may threaten the degeneration of mankind, Homo sapiens type. Ecological and demographic catastrophes make two sides of one self-destructive «medal» and they should be prevented together based on the concept of a harmonious co-evolution of nature and society. Any one-sidedness is dangerous for future of mankind.

2. A combination of global, civilizational and local approaches to the solution of the problems with respect to ecofuture and sustainable development.

In the 21st c. with the development of globalization processes, formation of a common ecological, demographic, technological, economic, geopolitical and socio-cultural space with the scale of a planet, it becomes more and more obvious that mankind develops as a single mega-system within the framework of natural mega-systems of a higher level — biospheric, planetary, space (Solar system, our Galaxy, the Universe). The dynamics of all these mega-systems is interrelated, interlaced. If mankind may influence the biosphere within the noosphere, then it is forceless with respect to space mega-systems, it may only take into account the regularities of their dynamics in its activity. But mankind (society) also represents a «nested doll» of a number of social systems of a lower rank: local civilizations, states, and they, in its turn, from regions, municipalities, families and finally from the primary, indivisible atom of this social pyramid — individual man, individuum.

In the functioning and development of each complex social system consisting of more than one sub-systems, one should accentuate at least two laws: static *law of proportionality of all elements of the system* ensuring the efficiency of its functioning; dynamic *law of a regularity interchangeability of the states* of orderliness and disorderliness of the system in each cycle. In the transitional periods, in the state of crisis the system becomes disorganized, individual sub-systems are in the state of antagonism, and the effect of the system is

less than the total of its elements, it becomes disproportionate and at the extreme polarization it is doomed to die. In the phases of recovery and upturn the system becomes organized, and its total effect is more than the total of effects of elements making it, it gets an additional synergetic energy to move.

Globalization opens new opportunities for speeding up the movement of mankind as the system on the path of progress. However, a neoliberal model of globalization dominating now, increasing economic, ecological, technological and socio-cultural polarization of countries and civilizations, aggravation of their confrontation, international terrorism and a threat of the clash among civilizations — all the said reduces the efficiency of the system, making it disorganized, weakens the ability to cope with the increasing flow of new challenges and contradictions. Therefore, **the central task of the noospheric model of globalization based on the dialogue and partnership among civilizations in the settlement of global challenges is to overcome the polarization tendencies in the dynamics of civilizations and countries.** One should take into account that the problem to ensure sustainable development can't be resolved within one individual civilization regardless of however rich it is, but only on a global scale under accord of aims and interests of all the civilizations and the maintenance of the unity in their diversity and diversity in their unity.

3. The backbone way to pursue the global ecological strategy is a global technological turn, mastering and diffusion of resource-saving, environmentally friendly technologies first of the sixth, and then of the seventh technological orders. Only they will enable to decrease the demand for exhaustible natural resources and considerably reduce the level of the environmental pollution, ensure a rational co-evolution of society and nature. But in order to do so it is necessary that high environmentally friendly technologies should not remain the monopoly of a narrow group of the developed countries and TNC, and as soon as possible should become the assets of all mankind. The efforts of vanguard countries in reorganization of a wide flow of technologies transfer to the lagging countries, assistance in the creation in the latter a required level of education of the population and developed innovational infrastructure will be necessary for that. At the summit on sustainable development in Johannesburg we proposed to establish the *Global Technological Fund* under the UNDP for that, transfer a certain interest of the world technological quasi-rent — super profits generated from

exports of mechanical engineering products, weapons and high tech services [224, p. 205–206].

4. Ecologization of global economy, its re-orientation at the efficient nature management and minimization of the environmental pollution may be expanded in several directions:

➡ a full showing in the production costs and prices for production of nature-intensive sectors of socially necessary costs for reproducing natural resources (geological surveys, forestry, water economics and fishery, melioration and land restoration etc.); concentration of these resources and their earmarked use in the interests of the nature management. The notion that this profit is one of the forms of taxes is false and dangerous as it deprives the nature-restoring activities of separate and guaranteed sources of financing (similar to the payroll fund for reproduction of another primary resource – manpower);

➡ a cadastre assessment of limited natural resources used in the national and world economies and introduction of the rent payment system leveling the conditions for business operations of nature-managing countries and TNC; deduction of a part of super profit generated in export of products of mining industries (world natural rent) to the *Global Ecological Fund* for financing of large-scale ecological projects of a cross-civilizational nature and projects in the countries with low income with no resources of natural raw material;

➡ an estimation of damage caused to the present and future generations as a result of predatory management of natural resources, above-standard environmental pollution, introduction of national and international penalties for such actions, a full skimming and transfer of an ecological anti-rent to the ecological funds.

Ecologization of economy means that the natural resources in use and damage caused to the nature will get an objective assessment and an independent flow of reproduction as it is applied now when labor and material resources are used in businesses. In such case the efficiency of environmental measures undertaken will be assessed more completely and objectively and the damage caused to the society and the nature will be compensated.

5. Ecological partnership of the states and interstate organizations, entrepreneurs and civil society institutions for working out and pursuance of global and national ecological strategies.

Under a long-term ecological crisis the *states* (there is no country that does not feel it to a greater or less extent) should exercise their ecological function more efficiently, form and implement long-term strategies of an efficient management of natural resources available

in the country and environment protection in the interests of the present and future generations, ensuring natural conditions for sustainable development. Such strategy has already been adopted in many countries in line with the UN recommendations, and it gives not bad results in a number of countries, the environmental situation is improving.

However, the environmental well-being can't be ensured within a single country, even large and powerful. Natural resources which are necessary to ensure reproduction and life of people are rather scattered on the planet. The pollution of atmosphere, aquatic medium, radioactive emissions do not recognize state frontiers spreading throughout the planet (as it was demonstrated by the Chornobyl catastrophe). It is necessary to delegate a part of authority functions with respect to the way-out from the ecological crisis, working out and implementation of a global economic strategy to the supranational level – *intercivilizational organizations*. The UN already exercises such functions partially, convening summits on sustainable development (Rio-de-Janeiro, 1992, Johannesburg, 2002), adopting strategic programs and arranging its implementation through the UNEP, the IAEA and other international organizations, Global Ecological Fund. One should not underestimate the significance of this activity focusing attention of all countries of the world at the implementation of urgent environmental measures. But these measures do not give an anticipated result as they do not rest on the generally recognized system of rules of global environmental laws and instruments enforcing the provision of such rules, and the funds earmarked for the implementation of international ecological programs and projects are insignificantly small as against the impelling needs. At the global civil forum in Johannesburg we proposed to increase the sizes of the Global Ecological Fund many times on account of deductions from the world natural rent and the ecological anti-rent and vest the UN with authorities to pursue a global ecological policy [ibid, p. 200–205]. As a matter of fact, the UN is the only authorized representative, voicer and advocate of the interests of global civilizations, and it should have the rights and funds to exercise such authorities. This is one of the global strategic tasks of the 21st c.

The interstate organizations also include such civilizational and intercivilizational unions as the European Union, CIS, NAFTA, APEC, Islamic Conference Organization, African Union etc. The number of such unions will be growing in prospect, their powers will be extended. One of their prime functions is ecological, uniting the

efforts of states in the solution of common problems to ensure sustainable development, efficient nature management and environmental protection.

The third participant of ecological partnership — *international business*, business circles, TNC, international strategic alliances and other agents of the world market regulating their activities as the World Trade Organization etc. It is necessary to turn the activity of international business towards the implementation of global ecological programs and projects, enhance its responsibility for damage caused to the environment, seek the consent for deductions from a natural rent and ecological anti-rent to the Global Ecological Fund. Infusion of an ecological nature to international business is the prime element of the formation of the noospheric civilization.

Finally, the last, but not the least in significance participant of the ecological partnership — *global civil society* representing the interests of the whole mankind in all its diversity of races, civilizations, nations, ethnoses, social strata, denominations and convictions. This society is only being formed and realizes its interests, but its individual institutions already actively operate influencing the geopolitics. These are dozens of international public unions (as the International Green Cross, Greenpeace), thousands of non-governmental organizations, many mass media and the Internet. They express and advocate the interest of the layers in the improvement of the ecological situation on the planet, hold activities against environmentally hazardous projects, control the environmental activities of the states, TNC and international organizations. The Global Civil Forum held within the World Summit in Johannesburg, 2002, where participated tens of thousands of scholars, ecologists, public and religious figures, men of culture, students has shown a high activity and well-direction of actions of institutes of global civil society in advocating environmental interests of all mankind.

6. Socio-cultural bases of global ecological strategy of the 21st c. are the prime element of the formation of an integral socio-cultural order, formation of the noospheric, post-industrial civilization.

First of all, the matter in question is the responsibility of scholars for working out a new scientific paradigm determining the essence, mechanism of the implementation and effect of the formation of the noosphere, harmonious co-evolution of society and nature. **N.N. Moissejev** stressed the necessity to «imbue the principle of co-evolution with concrete contents taking the international system of scientific programs for that purpose and oriented at its studying.

Such researches should have an absolute priority before others» [136, p. 94]. The flow of scientific researches, inventions and design efforts should be directed at the implementation of specific aspects of such co-evolution, a flow supported with sufficient funds on account of national and international sources and the TNC funds.

It is not less important that ecological paradigm should be included in the *system of education* – from preschool, school to higher and post-graduate, should be received by the next generations, organically become a part of their outlook determining the nature of their activity and behavior.

An *ecological culture* should reflect the harmony of man and nature, beauty of nature, foster aesthetic perception of the world negating the violence over the nature, destructive actions.

The ecological, noospheric directives should saturate the *system of values* of each civilization, each nation, each family, their ideology, ethics and religious views. **N.N. Moissejev** focused attention on this in his book «Fate of Civilization. Way of Reason» which may be viewed as the catechism of the updated system of values: «Under the present conditions of developing universal planetary crisis a certain universal planetary ideology cementing the efforts of the planetary community should be worked out, and also efforts necessary for its survival directed at the surmounting of coming ecological crisis. The working out and fostering of such ideology should be the carcass of the document which will be titled the “Charter of the Earth” and numerous programs of further development of civilization» [ibid, p. 97].

Blessed by the world religions, universal human values like «Thou shalt not kill», «Thou shalt not steal» etc. should be completed by one more moral imperative: «Do not cause damage to the nature». The implementation of the global and national ecological strategies, destiny of the mankind, prevention of a global ecological catastrophe depends on the perception of this imperative by billions of people of various denominations, civilizations, nationalities, ethnoses, new generations who will have to take decisions in the 21st c.

5.4. Ecological Future of Russia

The ecological development of Russia is characterized by a combination of favorable and unfavorable factors. From time eternal Russia features the vast territory, fullness of natural resources and the hard climate. A low density of population, its scattered nature

throughout forests and steppes have determined that a transition to the Neolithic, formation of state institutions and a local civilization came into life several millennia later than in the epicenters of a civilizational progress. But the lagging was rapid to overcome and already by the middle of the 1st millennium B.C. a mixed Greek-Scythian local civilization was formed in the northern and eastern areas near the Black Sea, and by the end of the 1st millennium A.D. – Slavic civilization which was at the level of the Western European civilization.

The vastitude of the territory gave certain advantages in numerous wars when the inroads of Huns, Mongols, Polish-Lithuanian, French, Hitler's troops melted in the vast area not having an opportunity to conquer the whole country. The country had its own historic rivers along which active contacts among civilizations were maintained (Great Volga route «from the Varangians to the Persians» along the Neva, Volkhov, Volga; the Dnieper route «from the Varangians to the Greeks») served as the arterial roads around which the Russian civilization was formed, consolidated and developed.

The composition of leading natural resources changed. First, these were fertile lands and forests enabling to deliver through Tanais (in the estuary of the Don) and Pantikapeus to Athens grain, and in the Middle Ages – timber, honey to Western Europe and Arabic States, and in the industrial epoch – to deliver grain, timber and metals for export. In the second half of the 20th c. oil and gas took the first place in exports, and from the end of the century they became the main sources of currency revenues; ferrous and non-ferrous metals were after them. In 2003 a share of mineral resources reached 57.4% – USD 76.7 bln., precious metals and items of them – 17.7% – USD 23.7 bln., timber products – 4.3% – USD 5.6 bln. in the commodity composition of Russia's export. This enabled to import machines, equipment and transport vehicles for USD 21.3 bln., foodstuff – for 11.9 bln. US dollars in the same year [169, p. 654–655]. However, this good picture has its negative side: the dependence of the country on the conditions of the world fuel and raw material markets increased (a fall of the world oil prices became one of the main reasons of the default in 1998); rich deposits of oil and gas were fast to unstock; domestic prices and tariffs were growing being oriented at export prices; the flow of import goods suppressed national agriculture, mechanical engineering, consumer goods industry. Although during the crisis period hazardous emis-

sions into the environment reduced by a number of indicators due to a sharp fall in production, they began to increase again with a transition to the recovery of economy. The limiting wear of capital goods, including pipelines, increases the danger of technogenic catastrophes. Expenses of the state and enterprises increased many times for reproduction of natural resources (geological surveys, forestry, water management and fishery, irrigation engineering and reclamation of lands) and environmental measures. As a result of neo-liberal market reforms the state has nearly terminated the performance of its ecological function. While the principles for sustainable development have been formally proclaimed, in actual fact the present generation lives at the expense of future generations leaving depleted natural resources and polluted environment to its descendants. A lack of a real long-range ecological strategy also tells; the ruling and business elite is not interested in it as they are oriented at the here-and-now benefit as well as monopolies and TNC ruling the roast in many sectors.

The development of a *super long-range* (for the period up to 2100) **ecological forecast** adjusted for world tendencies becomes an urgent need for the future of the country, and on the basis of such forecast — **strategy of ecological development** of the Russian Federation for a period up to 2050. What are the main points of such forecast and strategy?

1. The contents, tendencies and effect of the implementation of **two scenarios of ecological development** are addressed in **the long term forecast**: mainly, *spontaneous-market* with certain elements of the state regulation and *innovation-based breakthrough* under the leading role of the state in the development and implementation of a long-range ecological policy and the pursuance of the sustainable development strategy in partnership with business.

Apparently, the first scenario will imminently lead to the exacerbation of an ecological crisis as a result of depletion or sharp worsening of the state of natural resources in use — mineral, forest, land, water, growth of the environmental pollution. It will shake the opportunity of an economic growth, leading to the cut-down of export and currency revenues, it will considerably worsen the position of the country in the geoecological space. However, this should be checked and proved quantitatively — by types of natural resources, regions and time. It should be also taken into account that as a result of a transition to the resource-saving technologies of the sixth order it is likely that from the 30s the increasing reduction of

the demand for mineral resources and fuel will begin, a fall of world prices for it that will have an adverse effect on currency revenues and economy of Russia.

The scenario of an innovative-breakthrough ecological development of Russia should also be elaborated in detail: what concrete measures should be undertaken in order

➔ to increase explored mineral reserves, increase the efficiency of its reclamation from subsoil, deepening the complexity of processing;

➔ to provide irrigation engineering and land reclamation, reproduction and protection of forests (including protection against fire — for 2003 only they've broken out on 2.4 mln. ha of forestlands, 68.4 mln. m³ of standing timber was burnt down that is 7.4 and 8 times more than in 1995 respectively) [169, p. 64];

➔ to decrease water extraction from the sources and discharge of sewage;

➔ to reduce emissions of pollutants into air;

➔ to achieve a turn in ecological dynamics (to determine how much funds will be required for that and from what sources);

➔ to change the structure of export and to reduce its dependence on the world fuel and raw material market etc.

2. Such detailed scenarios of a super long-range forecast adjusted for the world tendencies will serve as a basis for working out, approval at the highest state level of a **long-term strategy of ecological development of the Russian Federation** for a period up to 2050. We are of the opinion that this strategy should be targeted at the solution of the following *major tasks of a long-term nature*.

Firstly, *ensuring the conditions of reproduction of natural resources in use* accommodated to the interests of future generations. The matter in question is prospecting and surveying of mineral deposits, betterment of land fertility and reclamation of soils damaged through mining operations, protection and reproduction of forests, manage water economy and fishery etc. Expenses for such operations — a part of production costs — should be included in the cost value and not be taxed. If a part of expenses compensation rates for reproduction of natural resources comes to the state, they should not be melting in the total budgetary revenues, and should be concentrated in the earmarked funds used for prospecting and preliminary surveying of new fields and deposits of mineral resources, reproduction and protection of forestland against fire and other similar projects of a national economy level.

Secondly, *mastering and diffusion of brand new technologies* ensuring the betterment in use of natural resources as the improvement of production rate of strata, complexity and depth in the processing of mineral and forest resources, reducing losses and waste utilization etc. One should take into account that now only a small part of natural resources involved in reproduction reaches the stage of final consumption. Economic sanctions for above-standard losses are necessary that will promote the assimilation of low-waste and non-waste technologies.

Thirdly, radical measures are necessary for *reducing the environmental pollution*. One should take into account that while in the 90s, the sewage discharges and emissions into air from stationery sources considerably reduced in Russia that is mainly related with a decline in industrial production. Pollution of atmosphere increased in large cities due to the growth in number of cars, and emissions of CO₂ into air 2.6 times increased the average world level per capita in 2000. An economic growth leads to a considerable increase in the environmental pollution, the more so as economic sanctions for pollution are rather weak, and monitoring is incomplete. Such system of sanctions should be envisaged that could compensate for such damage in full (including an ecological anti-rent) and would make the environmental pollution economically unsound. But for the efficiency of such market levers, a complete and exact monitoring of sources and size of pollution is required as well as an independent system of authorities engaged in such monitoring by regions, and also the fitting-out with instruments and other advanced means of monitoring.

Fourthly, and this is the main point, *the environmental strategy should be targeted at the universal diffusion of low impact, environmentally friendly technologies* in all branches of economy and household. First of all, it refers to the power sector, consumption of electric and heat energy etc. In this regard the environmental strategy interlaces with power, and also with the program for assimilation and diffusion of new types of materials. The criteria for nature conservation and ecological cleanness should take one of the key points in the evaluation, selection and state support of any investment and innovative projects in any sector, in any region.

Fifthly, one will have to *change the structure of foreign trade*, which is now oriented at exportation of mineral products and metals: in 2002, a share of fuel, ores and metals made 64% in Russia in the structure of exports according to the World Bank, where an average in the world 9%, for countries with high income — 6% and low

income – 27% [263, p. 200]. The minor part of the rent generated from it is forwarded for an innovative replacement of capital assets, rich deposits depleted. In prospect, it is necessary to increase a share of products with a high level of processing in exports, thus reducing the dependence on the fluctuations of conditions on the world fuel and raw material markets taking into account the conditions of operation in the WTO. All this demands implementation of a long term industrial and structural policy.

Sixthly, a long-range environmental strategy should envisage *the formation of a noospheric thinking*, especially with new generations who inherit the country with the depleting natural-resource potential and a high level of the environmental pollution. This need was emphasized by **N.N. Moissejev**: «One should learn to live in concord with the Nature and its laws. And these principles should be enfolded in man. Then, the first that might and should be done today is to understand, accept these principles and solve the problems of education and upbringing that could learn them at their mother's knees... I give the first priority to these principles: a new civilization should begin not even with a new economy, but new scientific knowledge and new educational programs» [136, p. 100].

The matter in question is not only and not so much about training of specialists-ecologists (although they are quite necessary), but about learning noospheric principles and technologies in any branch of knowledge, in each line of profession, on an organic inclusion of noospheric knowledge, ecological ethics in consciousness and the course of actions of each man. In doing so, one should avoid extremes inherent to individual ecologists very much given to ecology who propose to reduce the number of the population on the Earth up to one billion in order to preserve nature, and liquidate the nature-intensive sectors of economy, convert ecology into religion. A transition to the noosphere means a *harmonious co-evolution of the nature and man*, ensuring natural conditions for the development of the society taking into consideration of the interests of present and future generations, resting on the might of science and technology oriented at such co-evolution.

3. Market and nature often act as antagonists. In pursuit of profit entrepreneurs often neglect the laws of natural reproduction, use natural resources predatory, go to the environmental pollution. The civil society and the state representing it should oppose such aspirations. The matter in question is the formation of an *ecological partnership of the state, entrepreneurs, science and civil society*. The state

plays first violin here. Firstly, it should create the system of laws determining the rules for exploitation of the environment, and strictly control how entrepreneurs and individual nationals meet these rules gradually tightening. Secondly, the state works out long-term forecasts, strategy and programs for environmental activity, efficient nature management, environmental monitoring and development of innovative technologies necessary for that. Thirdly, the state immediately participates by its own forces and means in the implementation of large environmental projects falling outside the framework of interests and abilities of private investors — in prospecting and preliminary surveying of new oil and gas provinces, mastering new regions rich in natural resources, in the development of an ecological infrastructure and environmental monitoring means. The state undertakes such activity with the involvement and under control of the civil society, its institutions, scholars, non-governmental organizations and mass media.

In its absorption in neoliberal market reforms in the 90s the Russian state forgot about its ecological function in many ways. As a result the country lived at the expense of future generations, spending the riches accumulated by previous generations. Now time has come to take the path leading to the noospheric civilization in order to keep and transfer environmental assets and clean environment for next generations, avoid an environmental catastrophe in future.

5.5. On the Path to Noospheric Civilization

At the end of the 20th c. **N.N. Moissejev**, developing the theory of noosphere, suggested an *idea of co-evolution of nature and man* as the implementation of an ecological imperative of our epoch. One cannot stop either evolution of biosphere, or the development of the society; but an optimal interaction adjusted for vital interests and harmonization of changes in the nature and society should be ensured.

This is just where there is the essence of our approach to the necessity and ways of the formation of the **noospheric civilization** in the 21st c. ensuring harmonious development of both man (society) and the environment, and natural resources in use. This is the gist of a new stage of evolution of a global civilization. If one looks more in depth, this is the idea that makes the core of the *concept of global*

sustainable development approved at the summit in Rio-de-Janeiro in 1992 reiterated and elaborated at the similar summit in Johannesburg in 2002 (although the Russian translation of the term «sustainable development» as **N.N. Moissejev** observed, is not exact and may give rise to the illusions of the development without crises).

Wherein is the gist of the noospheric civilization? What is its principal distinction from the preceding industrial civilization now still dominating? What are the ways and stages of the formation of the noospheric civilization? Let's try to give answers to these prime questions reflecting today's level of cognition of co-evolution of society and nature.

1. A new model of interaction between society and nature, man and biosphere is being formed, radical changes take place both in a scientific paradigm and the system of civilizational values.

The industrial civilization was of a technogenic nature. The aspiration for using the might of human mind, system of machines and technologies to conquer the nature, for using its resources for a rapid growth of production, saturating of the market and making profit underlie it. In this market race natural resources were taken as a free gift of nature that should be used in every possible way, and first the environmental pollution was not taken into consideration at all. This ensured a fast economic progress, but at the expense of the nature and to the damage of the same in many ways. The contradictions of the 20th c. lay bare that such model of interaction between society and nature has lack of prospects, the dead-end of such industrial ecological mode of production.

In critics of such contradictions a great deal of ecologists, adherents of «ecogeism» have gone into the opposite extreme: for the sake of saving and conservation of the environment it is necessary to restrict the number of mankind to a «golden billion», refuse from energy-intensive technologies, made saving of the nature the cornerstone on the account of a refusal from the progress of mankind. The absurdity of such idea that has nothing to do with the theory of noosphere is apparent. Moreover, the attempts to implement this idea would result in the break-down of the society: who would begin to reduce the population of the Earth from the present more than six billions to one billion and how? Who would render a judgement of death to «excessive» five billions and serve an execution? And could the human kind be kept at all under such prospect?

The concept of a noospheric civilization excludes both extremes — the development of the society at the expense of the

nature and conservation of the biosphere at the expense of the society. The matter in question is the *humanistically-noospheric* society, a harmonious co-evolution of nature and society under a maximum consideration of interests of both present and future generations of people.

Therefore a major precondition for the formation of the noospheric civilization is the formation and diffusion of a scientifically valid concept of such civilization, *noospheric paradigm* as one of the main elements making a new picture of the world in the 21st c., the inclusion of such paradigm, ecological thinking in the sphere of reason of millions and billions of people, in the composition of scientific heritage, social genotype transmitted to the next generations.

But the question is not only in science, but also in *civilizational values* that determine the judgments and behavior of people. The commandment «Do not make damage to the nature» should get the universal recognition in all religions and ethic systems, awareness of enduring unity, co-evolution of society and nature, in harmony with humanistic norms and commandments safeguarding life and dignity of each man.

Hence, the first precondition for the formation of the noospheric civilization lies in the spiritual sphere, in cognition of regularities and ways of the formation of this civilization of noospheric system of values.

2. Ecologization and humanization of technologies. Some ecologists see the main enemy of nature in the system of machines, in employed technologies and offer to refuse from the priority of science and latest technological systems.

In the formation of the noospheric civilization the matter in question is not to refuse from the priority of the development of science and technologies, but to change their vector, adding the humanistically-noospheric orientation. It means that the main flows of scientific researches, inventions, innovations should be targeted not at the creation of more and more powerful and sophisticated systems of weapons and mining of natural resources, but at the production of quality goods and services for meeting material and spiritual demands of man and building up his health based on the non-waste processing of natural raw materials and its gradual replacement with man-made materials, conservation and refining the environment, use of renewable sources of energy and materials. Environmental and ergonomic criteria should play a decisive role in the evaluation of

new technologies, investments in their innovative assimilation and diffusion. A scientific and engineering thought should be drastically reversed towards harmonization of the development of the nature and the society, the technological key to the formation of the noospheric civilization is in it.

3. Ecologization and humanization of economy, system of market relations. The industrial economy is built on the universal market, in pursuit of profit and super profit. Environmental criteria were not taken into account first, and then played a restricted, secondary role. The market, moreover capitalistic market, is a ruthless system to man and nature as the size of profit and super profit may be increased due to their exploitation, it can resist and win in the competitive battle. It was especially vividly manifested from the end of the 20th c. under conditions of globalization and the dominance of transnational corporations (TNC) using skillfully market mechanisms for generating huge super profits from the world economy, acting as **N.N. Moiseyev** vividly put in the role of the «devilish pump». The TNC world is the largest adversary of the noospheric civilization, and without its transformation, the noosphere would remain a good dream.

The TNC world using skillfully the globalized market mechanism in its mercenary interests is incompatible with the humanistically-noospheric civilization. Another ecological mode of production should be opposed to it. Its fundamental base are:

➡ recognition that along with the market sector of economy there exists the non-market sector of economy, the function of which is reproduction of the prime reproduction resources — human capital, spiritual world and natural resources; if this sector does not function properly on the account of a part of income received from the market sector through the state fiscal mechanism, the society has no future;

➡ understanding of social and ecological responsibility of business, agents of the market, necessity of their concern — in this or that form — about people (first of all, employed workers and their families), nature, science and culture, sustainability and security of all the society;

➡ mixed economy, combination and interaction of private capitalistic, small commodity (small business), family personal, public and state forms, each of them occupying that niche where it may function most efficiently, with the highest social and environmental effect;

➡ rebuilding of international economic relations in the globalized world economy on the principles of partnership and efficient interaction among civilizations, closing a gap between rich and poor countries;

➡ working out of supranational (civilizational and global) mechanisms of control over the agents of the world market and globalization processes in the interests of global civil society, present and future generations, rational co-evolution of society and nature.

Certainly, market relations will continue (it is impossible to replace them with something else) as well as institutions adequate to them, in such economy there will be observed middle-term, long-term (Kondratieff's) and super long-term (civilizational) cyclical fluctuations, economic crises of a greater or lesser depth in change of cycles. But this will already be not monopolistic (state-capitalistic) and not socialist (state-bureaucratic) economy, but economy of a new *integral, humanistically-noospheric*, post-industrial type, a full set of distinctive features are still to be created and studied.

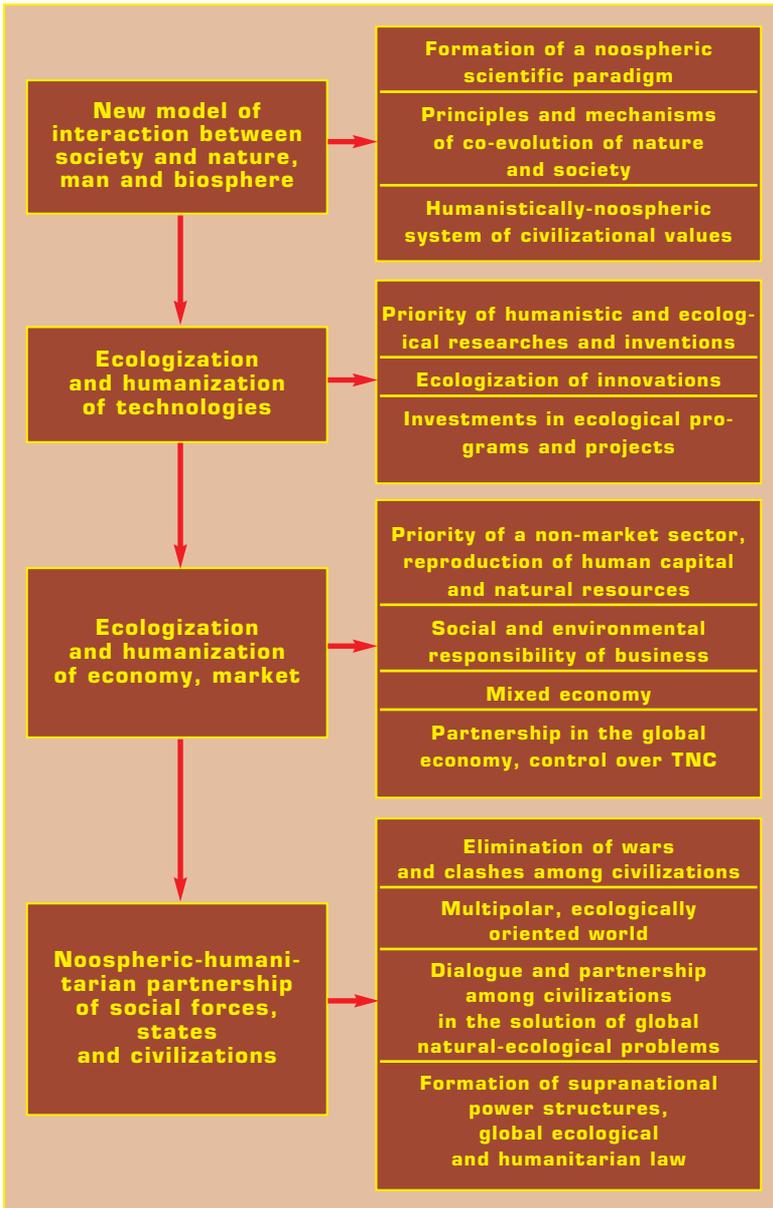
4. Social-political and state-legal system of the noospheric civilization. A social-political system of any world civilization beginning from an early class, each local civilization is full of class struggle, wars and revolutions, social contradictions throughout its life cycle. This is a system of organized violence, confrontation, but at the same time a dialogue and interaction among various social forces, states and civilizations. They represent various parts of the organic whole — state, civilization, world community, cannot exist and develop normally without such dialogue and cooperation, interrupted from time to time by collisions and bloody wars when the balance in the society is disturbed, or during the change of social-political cycles of various duration.

While the toughest forms of social confrontation were observed in the early class society, by the division of the single social structure into the slave owners and the slaves, sovereign pharaohs and rightless subjects before that, the concept of democracy, citizenship, and freedom were already taking shape in the ancient society (though for a narrow circle first). They expanded the scope of its operation from epoch to epoch, despite the swing of the pendulum of freedom.

The contradictions of the sociopolitical system reached its utmost limit in the 20th c. giving rise to the confrontation of democratic and totalitarian states, socialism and fascism, waves of socialist and national liberation revolutions, two the most bloody for all the history of mankind world wars and brought mankind to

Figure 5.4

The Formation Scheme of the Noospheric Civilization



the brink of a self-destruction in the thermonuclear war. The dead-end and danger of such sociopolitical system and such world order have become obvious. The radical change in the very fundamentals of sociopolitical system and global world order has become imminent, not on the principles of hierarchy, dictatorship and global empire, but on the principles of mutual understanding, dialogue, partnership of various social and political forces, states and civilizations while maintaining social, state, civilizational diversity. Only such integral system may guarantee the implementation of the said basic specifics of the noospheric-humanistic post-industrial world civilization.

However, the formation of a new order will be long and contradictory, not excluding upheavals and clashes — inside civilizations and between civilizations, between the states, inside the states. It is already seen now a great deal of pitfalls and hidden dangers on this way. They include international terrorism that has become the world epidemic of the beginning of the 21st c. and has deprived millions of people of the sense of security; extremism of certain religious and social forces and ecological movements; aspirations for the unipolar world and settlement of the complex global tasks from the posture of strength; permanent seats of international conflicts and wars; a lack of control from the global civil society over the processes and forms of globalization, TNC activities.

One of the directions in the transformation of the state-political sphere on the way to the noospheric civilization will become a delegation of a part of powers of the sovereign states to the upper level, civilizational unions (and the European Union may be given as an example) and global organizations like the UN that will enable to establish the institutions of the civil society on the global level. The system of global law will be necessary (there are already its grounds — in the field of control over the nuclear weapon and atomic power, in the environmental sphere etc.). This will become epochal innovations of the 21st c., will consolidate the fundamentals of the formation and functioning of the humanistically-noospheric post-industrial society.

Our vision of the structure and the fundamentals, specifics of this society is given in [fig. 5.4](#).

Chapter 6

DEMOGRAPHIC BASIS FOR TRANSFORMATION OF CIVILIZATIONS



The foundation of a civilization dynamics is demographic processes. This is naturally determined: the dynamics of population number, its sex and age patterns, its density, human generations changes, variations in requirements, abilities, experiences and skills, concerns – all this predetermines changes in a society and its interrelationships with the environment, the rates of technological, economical and socio-cultural progress, occurring cyclical fluctuations and societal crises arising from time to time, its evolutionary prospects. Therefore, it is extremely important to understand the cyclical-genetic regularities of human population dynamics, identify the demographic cycle trends and crises of the historical past, and probable scenarios for the 21st century, which all are the subject of this chapter. It is the more so as the next age expects a turning point in the multi-millennarian trends of the Earth's population dynamics, a shift from the growth to depopulation, which will result in drastic changes of the civilization patterns and evolutions.

6.1. Classification of Demographic Cycles



The life and evolution of the human and mankind are full of cycles and crises. Let's try to classify them.

1. A human life cycle – from the birth to the death, passing through the phases (periods) of infancy, childhood, adolescence, youth, maturity, ageing, declining years, with crisis shocks when phases change. It is not every person that is able to pass all the life cycle phases. The human population comprises all the age groups; however, the ratio in terms of periods, civilizations and countries varies (*table 6.1*).

If we divide the population by age into 4 groups, i.e. a pre-industrial group (0–14 years), innovatively active group (15–34 years), conservative group (35–59 years), and an elderly group that is dropping out mostly from the industrial activities (60 and more years), then the following trends can be noted:

➔ the first group's share achieved its maximal value (37.4%) in 1970, during a period of the post-war demographic boom, then it started to decline and will achieve 20.1% by 2050 according to a moderate alternative of the UN forecast;

➔ the specific weight of the innovatively active group

Table 6.1

The Earth's Population Age Structure Dynamics (the forecast) *

Age groups		1950	1970	1990	2000	2020	2040	2050	2050 as % against 1950
All ages	a ¹	2519	3696	5280	6086	7578	8704	9076	360
	b ²	100	100	100	100	100	100	100	100
0–4	a	337.9	520.1	625.8	613.8	647.3	621.2	604.4	179
	b	13.4	14.1	11.9	10.1	8.5	7.1	6.7	50
5–9	a	269.5	458.4	566.9	607.1	637.7	614.5	612.7	227
	b	10.7	12.4	10.7	10.0	8.4	7.1	6.7	63
10–14	a	258.8	402.2	519.9	607.0	618.1	616.4	615.5	238
	b	10.3	10.9	9.8	10.0	8.2	7.2	6.7	65
0–14	a	866.2	1380.7	1712.6	1827.9	1903.1	1852.6	1832.6	212
	b	34.3	37.4	32.5	30.0	25.1	21.2	20.2	59
15–19	a	238.7	365.4	514.7	560.2	598.5	624.8	612.0	256
	b	9.5	9.9	9.7	9.2	8.0	7.2	6.8	72
20–24	a	220.6	299.4	487.2	510.6	590.2	631.2	612.5	278
	b	8.8	8.1	9.2	8.4	7.9	7.2	6.8	77
25–29	a	193.8	249.6	438.1	501.2	582.5	624.1	617.6	319
	b	7.7	6.8	8.3	8.2	7.8	7.2	6.9	90
30–34	a	164.6	237.1	383.5	473.4	528.4	599.3	620.1	377
	b	6.5	6.4	7.3	7.8	7.7	7.0	6.9	106
15–34	a	817.7	1151.5	1822.5	2045.4	2189.6	2579.4	2662.2	326
	b	32.5	31.2	34.5	33.6	31.3	29.6	29.3	90
35–39	a	161.4	216.1	346.0	425.1	475.6	572.4	609.6	378
	b	6.4	5.9	6.6	7.0	6.9	6.7	6.8	106
40–44	a	146.4	198.2	282.1	369.9	464.0	557.6	583.2	398
	b	5.8	5.4	5.4	6.1	6.2	6.4	6.5	112
45–49	a	126.8	170.0	229.2	331.1	434.1	551.8	555.6	438
	b	5.0	4.6	4.3	5.4	6.1	6.3	6.2	124
50–54	a	107.1	138.2	213.5	266.2	380.5	540.5	538.5	503
	b	4.2	3.7	4.1	5.2	5.7	6.1	5.9	140
55–59	a	90.1	129.9	185.8	210.9	316.6	482.1	526.1	584
	b	3.6	3.5	3.5	3.5	5.0	5.5	5.7	158
35–59	a	631.8	852.4	1256.6	1603.2	2076.8	2704.4	2813.0	445
	b	25.1	23.1	23.8	26.3	27.3	31.1	31.0	124
60–69	a	131.1	192.1	285.7	338.7	580.1	607.6	933.9	712
	b	5.2	5.2	5.4	5.6	7.6	9.2	10.2	196
70 and over	a	74.2	119.2	219.5	267.8	422.8	992.3	1029.0	1387
	b	2.9	3.2	4.2	4.4	5.5	11.4	11.3	390
60 and older	a	205.3	310.5	508.0	606.5	1030.6	1661.9	1962.5	956
	b	8.2	8.4	9.2	10.0	13.6	19.1	21.7	265
Average age of the Earth's inhabitants, years of inhabitants		23.9	22.2	24.6	26.8	31.6	36.2	37.8	158

* [272, vol. 1, p. 20; vol. 2, p. 20–21]

¹a – mln. people;²b – % of the total numbers

(15–34 years) remained quite stable in the second half of the 20th c., though it will fall down in future. An explanation of the entry of an age group of 15–19 years is that the developing countries comprising a majority of the Earth’s population have already engaged them in the industrial activities, although the same group is in the educational process and has not been engaged in the industrial process still in the developed countries;

➔ the employed population at a mostly conservative age (35–59 years) was less in number than that of an innovatively active group in the middle of the 20th c.; however, the first half of the 21st c. will see a reverse proportion;

➔ the share of population at an age over 60 that is dropping out gradually from the industrial activities and featuring most conservative views (a desire to maintain the prevailing genotype and defend it against modifications) was in a range of 8 to 10% in the second half of the 20th c.; however, the group’s share will be at least twice as much (to achieve 21.4%) by the middle of the 21st c., and will be 2.6 times as much after this century; the share of population at an age over 70 will be 3.9 times as much.

A human life cycle shows a general trend towards an increased duration. This is demonstrated in a growth of the average age of the Earth’s inhabitants (from 23.6 years in 1950 to 26.4 years in 2000, and 36.8 by 2050 according to a moderate alternative of the UN forecast – 1.56 times for 100 years), and in a much more natural increase in the average expected life duration – from 46.5 years in 1950–1955 to 74.3 in 2045–2050 according to the forecast (a moderate alternative).

Therefore, a general trend is the extended human life cycle.

2. Human generation cycles. Demographic dynamics appear also as a generational change of people. This notion is used in three meanings [240, p. 4–5]. The first is a demographic cohort of people born in a certain year, who started their life cycle in this year. The second notion is genealogic: a generational change in the life of one family originating from the same roots. The third notion is symbolic, sociological. The United Nations Development Programme’s Report on the human potential development in Russia for 2001 defined the generations of people as «major social groups of people born in about the same historical period and featuring a close set of values, similar social experiences, and combining world perception patterns... The socio-biological stages of the personal evolution overlap the sequence of historical events and, as a result of this “chemical reaction”, generations are

established with their unique social characteristics... It is these generational groups, where essential socialization processes progress, generalized historical experiences are transferred from seniors to juniors, and a social capital is accumulated into a kind of civilization mirrors where one can see specific features of a society's evolution as a whole» [61, p. 16–17].

Generations of people along with the family are a tool to implement the socio-genetic regularities of inheritance, variability and selection. **S.N. Ikonnikova** has noted reasonably: «The links between generations govern the process of culture succession, translation of values and life styles. Every generation “stands on the shoulders” of the previous one, assimilates the achieved development level and, on this basis, becomes an initiator of conversions, modernization and transformation of the social and private life. A change of generations generates the continuity in a society's history and culture, while transferring accumulated experiences and promoting a search for new things. Those two aspects of the generational interrelations, i.e. assimilation of the cultural heritage and innovation, are to show a universal law of the mankind's historical evolution unity» [cited by 240, p. 4].

Life cycles of every generation (and their duration offers a general trend towards an increase along with the growth of an average human life duration) comprise several phases:

➡ *a preparatory phase* – before an age of 20, when its representatives perceive intensely the social genotype, a heritage of the previous generations, assimilate the historical experiences and realize their place in life, as well as prepare for a period of labor activities;

➡ *an innovative phase* (lasting for some 15–20 years) when a new generation in the period of intense labor activities strives to upgrade the heritage received, adapt it to the changing life environment of a society, while entering into a more or less pronounced conflict with the previous generation;

➡ a relatively *conservative* period (lasting for some 15–20) when the prevailing generation secures the innovations made by it in the hereditary genotype and transfers them to the forthcoming generation, and strives to protect the same against unreasonable changes;

➡ a final, mostly *post-industrial*, period, when conservatism is growing, dissatisfaction with activities of the next generation increases, and attempts are made to transfer the experiences to its descendants (that is why one can observe a transfer of the heritage in part to a generation but one, i.e. to grandchildren through grandmothers and grandfathers).

When noting those trends, **Arthur Schlesinger Junior**, a U.S. historian, writes: «Every generation having become a political adult, spends initial fifteen years to challenge the generation that has already gained and protects the power. Then this new generation itself comes to power, after which its political activity weakens, and a new growing generation pretends for a role of successor» [231, p. 50–54].

A gap between the adjacent generations is inevitable. It is rather small at the evolutionary stage of the society's development, in the historical cycle rise and maturity phases. However, the gap increases, including a clash of the generations during the periods of revolutionary breaks, when a new generation rejects the heritage and strives to change radically the life, «raze» the recent world, while causing an unreasonable damage to the social genotype from time to time. Such flash-forwards are typical of, first and foremost, a revolution, although these, as **Pitirim Sorokin** noted, are generally overcome at its second stage finalizing the selection function of social genetics.

The features of each generation are established not by arithmetic mean figures of the total generation numbers, but by a way of thinking and acting in its active segment (commonly, within 15–20% of the total numbers), which represents most clearly and completely the specifics and concerns of the generation, implements intensely the inheritance, variability and selection functions and carries a passive segment being a majority of the generation.

3. Demographic cycles of ethnoses, nationalities and nations, life cycles of their generations can differ significantly. This is predetermined by both natural and climatic factors (a life environment in regions of the Extreme North, Variable Zone, in a hot tropical climate; the supportability with water, food, the nature of meals etc.), as well as social factors (the population distribution in urban and rural areas, the labor and life environment, the country's life standards and economic development levels, expenditure for public health and environment protection etc.). The differences in demographic cycles can be judged in these terms upon a data on the average age and average expected life duration by civilization and country (*table 6.2*).

In general, the life duration of the Earth's population has grown for half the century by 39%; as per the moderate UN forecast alternative, it will increase by 15% in the first half of the 21st c., which means the growth rates will slow down substantially. At the same time, the life duration has been growing at higher rates in less developed regions (by 52%) as compared with developed ones (13%). As a result, the gap

Table 6.2

Forecast of Average Expected Life Duration by Civilization and Leading Countries, years *

Civilizations and countries		1950-1955	1965-1970	1985-1990	1995-2000	2015-2020	2030-2035	2045-2050 in % to	2045-2050 in % to 1950-1955	1995-2000 in % to 1950-1955	2045-2050 1995-2000
World	a ¹	466	562	629	646	689	722	75.1	161	139	116
	b ²	100	100	100	100	100	100	100	100	100	100
<i>Western European</i>											
Western European	a	67.6	71.3	75.6	77.9	80.9	82.6	84.1	124	115	108
	b	145	127	120	171	117	114	112	77	118	65
Southern European	a	63.3	70.1	75.3	77.3	80.3	82.1	83.7	132	122	108
	b	136	125	120	120	117	114	111	82	88	93
Northern European	a	69.2	71.8	75.0	76.7	80.0	81.9	83.5	121	111	109
	b	148	128	119	119	121	113	111	75	80	93
<i>Eastern European</i>											
Poland	a	61.3	69.9	70.9	72.7	76.8	78.8	86.5	141	119	119
	b	132	124	113	113	111	109	115	87	86	102
<i>Eurasian</i>											
Russia	a	64.5	70.1	70.2	66.0	66.9	70.1	72.9	113	102	110
	b	138	125	112	102	97	97	97	70	74	95
<i>Northern American</i>											
USA	a	68.8	70.5	74.4	76.7	79.4	81.1	82.7	120	111	108
	b	148	125	119	119	115	112	110	74	80	93
<i>Latin American</i>											
	a	51.4	58.8	66.7	70.2	75.0	77.6	79.5	155	137	113
	b	110	105	106	109	109	107	106	96	99	97
<i>Japanes – Japan</i>											
	a	63.9	71.1	78.3	80.5	84.5	86.6	88.3	138	126	110
	b	137	127	124	125	123	120	118	86	91	94
<i>Chinese – China</i>											
	a	40.8	59.6	67.1	60.0	83.4	55.2	86.9	213	147	145
	b	88	106	107	124	121	115	116	132	141	94
<i>Indian – India</i>											
	a	38.7	48.0	57.2	61.5	69.5	72.7	75.9	196	159	123
	b	83	85	91	95	101	101	101	122	114	106
<i>Buddhist</i>											
Republic of Korea	a	47.5	57.6	69.8	74.6	80.5	82.8	84.4	178	157	113
	b	102	102	111	115	117	115	111	109	111	97
Vietnam	a	40.4	47.8	63.1	68.8	74.3	76.9	78.9	195	170	115
	b	87	85	100	107	108	107	105	121	123	98
<i>Muslim</i>											
Northern Africa	a	42.0	49.0	60.5	65.4	70.8	74.1	76.8	188	156	117
	b	90	87	96	101	103	103	102	113	112	101
Indonesia	a	37.5	46.0	60.1	64.9	71.0	74.2	76.9	205	173	118
	b	81	80	99	100	104	104	103	127	123	103
<i>Oceanic</i>											
Australia/ New Zealand	a	69.6	70.9	75.9	78.5	82.1	83.6	85.0	122	113	108
	b	149	126	121	122	119	116	113	76	82	93
<i>African (to South from Sahara)</i>											
	a	37.4	43.4	49.4	47.0	50.8	57.5	63.6	170	126	135
	b	80	77	79	73	74	80	85	106	91	116

*[272, vol. 1, p. 650–677]

¹ a – years;

² b – % against the word average

between them reduced from 25.1 years to 12.3 years, and the years to come up to 2050 will see a reduction down to 8.5 years. A record-holder in terms of life duration appears to be the Japanese civilization; it left behind the African one at 31.3 years. The highest rates (96%) have been typical of life duration in China; this half the century will see the leadership of the African civilization.

4. **Civilizational demographic cycles** can be viewed in three terms:

➡ features specific to the demographic dynamics of the world civilizations replacing each other;

➡ cycles in the dynamics and patterns of the local civilization generation populations;

➡ demographic cycles of the particular local civilizations.

Every *world civilization* offers its own features specific to the total numbers, densities, population dispersions, life durations and rate of changing generations of people. For instance, the Earth's population numbers were in a range of 25 to 50 million people during the period of early class civilization. These settled mostly in valleys of great historical rivers to the north of the equator, and the average life duration was in a range of 25–30 years. As a result of a rise in the productive forces during the period of Antique civilization, the total population numbers had increased by the start of a new era and achieved 230 mln. people, the settlement area expanded greatly; the prevailing numbers resided in Asia (3/4 of the world population), a bit more than one tenth – in Western Europe [264, p. 256]. The human life duration and the generation life cycle appeared to be more extended. However, the demographic dynamics deteriorated drastically in the first millennium A.D. during the period of antique civilization crisis and decline and establishment of the medieval one under the circumstances of tightening wars and relocation of nations (for a thousand of years, the Earth's population numbers had increased by as low as 17% as per **A. Maddison's** estimate), the average life duration had even reduced, and the life cycle of one human generation had shortened.

The population growth rates, the population and human generation life cycle durations had increased substantially during the period of early industrial and, in particular, industrial civilizations. The average annual growth rates of the world population had increased from 0.1% in 1000–1500 to 0.27% in 1500–1820, and to 1.93% in 1950–1973 [ibid, p. 257]. This resulted in some contradictions related to the growth of a demographic load on the environment and the limited nature of natural resources.

Some considerable differences in the demographic cycles are observed in terms of *local civilizations*. This is predetermined by both different natural and climatic environments they exist in, as well as technological, economic and socio-cultural factors. For instance, the average population growth rates had differentiated in 1973–2001 from 0.32% for the Western European civilization to 2.65 for the Indian and 2.69 for African civilizations [ibid]. The average expected life durations vary also to a great extent in terms of civilizations.

Although every local civilization features its own path of demographic dynamics, it is possible to generalize some of the parameters in terms of *local civilization generations* showing specific features of the world civilizations replacing each other. It was typical of the *first generation* (during the period of early class civilization) to show moderate rates of extending demographic cycles in view of high losses during wars and widespread work of slaves, who generally had no family and featured a short life cycle. Almost the same features were specific to the *second generation* of civilizations during the antique era, though the population growth rates accelerated notably. The *third generation* during the medieval era and especially the *fourth generation* during the early industrial and industrial eras featured a significant accelerated growth rate, and an extended life cycle of both a human and human generation. The highest figures were achieved in the second half of the 20th c. Since late in the 20th c., certain civilizations have shown some signs of a demographic crisis, depopulation (for example, in Russian civilization).

Essential *factors of local civilizational demographic dynamics* are as follows:

- natural and climatic conditions of their geographic location;
- technological and economic development levels, income differentiation of population groups; an effect of the latter factor is paradoxical – the higher growth rates are specific to civilizations with lower earnings;
- migration streams that intensify especially during transitional ages;
- public health and morbidity rates, epidemics that remove a substantial percentage of the population from time to time (for example, during the period of «black death» in Europe);
- military political factors, destructive cross-civilizational and intra-civilizational clashes where a substantial percentage of the most viable population perishes;
- socio-cultural (especially religious) factors affecting the birth rates.

6.2. Historical Trends in Cyclical Dynamics of Population Numbers

At initial stages of the prehistory the Earth's population number was quite low and expanded rather slowly. According to some demographers, by the end of the *Paleolithic age* only approximately about 3 mln. people lived on the planet. There are some reasons to believe that the human had assimilated then less than one third of the modern oecumene and the average population density had hardly achieved some 8 to 10 people per 100 square km.

During the *Mesolithic* period it is possible to mention the first long demographic cycle lasting for 3 or 4 thousand years. It started from the accelerated human population growth rates as a result of using bows and arrows, improved stone tools, better meals and assimilated new areas. However, the first global environmental and demographic crisis had burst out by the end of the period. As **N.N. Moissejev** noted, «an epoch of rapid improvements in the process of stone processing and application transformed a biological species of *Homo sapiens* into monopolist predators: the development of new arms (mostly non-shattering ones) moved the human out of a competition on the part of other predators. The human benefited from those opportunities immediately. It seems that just a few thousand years were required to kill all mammoths and major ungulates as the basis of the Neolithic hunters' rations. Once again technical achievements had placed the mankind at the edge of a catastrophe. This time, however, it faced a prospect of starvation, which seems to take place almost throughout the planet's area... During the time of the Neolithic crisis the Earth's population (except for tropical forests) had probably shrunk about ten times» [136, p. 33–34]. Nevertheless, it should be clear that the demographic crisis related to late Mesolithic period rather than the Neolithic period, and served as an impulse for the Neolithic revolution, which opened a way for a new demographic explosion. An **S.I. Brooke's** standpoint is more accurate: «The shift towards farming that commenced in the Middle East about ten thousand years ago and undermined substantially the natural environment impact on the human, played a crucial role in the modified population number dynamics. As a result of such modifications, the Earth's population had already accounted for 25 mln. people some 5 or 4 thousand years ago, and about 50 mln. people 3 thousand years ago. At that time, the bulk of the population con-

centrated in Ancient Egypt, Mesopotamia, on the Indian-Ganges Plain, in the Hwang He and Yangtze Valleys and the Middle Asia oases» [25, p. 15]. It was this demographic explosion that turned out to be the formation basis of the early class world civilization in the above-mentioned regions of the world.

Demographic crises, when the Earth's population numbers didn't expanded or even reduced, were observed also during the subsequent ages, especially in the periods when world civilizations changed, although the depth of such crises failed to reach the values comparable with the parameters of the crisis of the late Mesolithic period. According to the estimations of some scholars, the Earth's population numbers had not increased between 200 and 400 — the antique civilization decline period; between 1600 and 1650 — the shift towards the final phase of the early industrial civilization.

A detailed data on the trends of the population dynamics by civilization and major country are available for the two most recent thousand years (*tables 6.3 and 6.4*).

During the first millennium A.D. — the period of a total crisis of the first, and the establishment of the second historical super cycle, the antique civilization decline, and the transition to the medieval civilization — the Earth's total population numbers had almost not expanded. A growth from 230 to 268 mln, people was mostly at the account of Japan, Latin and Northern America and the former USSR area, while the average annual growth rates were as low as 0.01%. The highest population growth rates were achieved in Great Britain and Japan (0.09%), Latin America, Scandinavia and Africa (0.07%). The population numbers continued to be the same in Western Europe and India, and even decreased in Italy and China (from 7 to 5 mln., from 4.5 to 4 mln., and from 59.6 to 59 mln., respectively). Late in the period the bulk of the population concentrated in India (28%), China (22%), Africa (12.1%) and Western Europe (9.5%). The former USSR area accommodated as low as 2.7% of the global population.

The subsequent five hundred years (1000–1500) are related to the period of the medieval world civilization expansion, rise, and decline, and the start in the early industrial civilization, Western Europe recovered from the civilizational crisis, and the population numbers started to grow rapidly (the average annual growth of 0.16%, including 0.25 in Germany and 0.17% in France). In 500 years the population numbers increased more than twice, and the share in the global population increased from 9.5% to 13.1%, despite severe losses incurred during the period of plague in the 13th c. The higher

Table 6.3

Dynamics of Population Numbers by Civilization and Leading Countries *

Countries		1	1000	1500	1600	1700	1820	1870	1913	1950	1973	2001
World	a ¹	230	268	438	556	603	1042	1272	1791	2524	3916	6149
	b ²	100	100	100	100	100	100	100	100	100	100	100
Western Europe	a	24.7	25.4	57.3	73.8	81.5	113.0	187.5	261	305	359	392
	b	10.7	9.5	13.1	13.3	13.5	12.8	14.7	14.6	12.1	9.2	6.4
Great Britain	a	0.8	2.0	3.9	6.2	8.6	21.2	31.4	45.6	50.1	56.2	59.7
	b	0.3	0.7	0.9	1.1	1.4	2.0	2.5	2.5	2.0	1.4	1.0
Germany	a	3.0	3.5	12.0	16.0	15.0	24.9	39.2	65.1	68.2	79.0	82.2
	b	1.3	1.3	2.7	2.9	2.5	2.4	3.1	3.6	2.7	2.0	1.3
France	a	5.0	6.5	15.0	18.5	21.5	31.2	38.4	41.5	41.8	52.2	59.7
	b	2.2	2.4	3.4	3.3	3.6	3.0	3.0	2.3	1.7	1.3	1.0
Italy	a	7.0	5.0	10.5	13.1	13.3	20.2	27.9	37.2	47.1	54.8	57.8
	b	3.0	1.9	2.4	2.4	2.2	1.9	2.2	2.1	1.9	1.4	0.9
Eastern Europe	a	4.8	6.5	13.5	17.0	18.8	36.5	53.6	79.5	87.6	110.4	120.9
	b	2.1	2.4	3.1	3.0	3.1	3.5	4.2	4.4	3.5	2.8	2.0
Former USSR	a	3.9	7.1	17.0	20.7	26.6	54.8	88.7	156.2	179.6	249.7	290.3
	b	1.7	2.7	3.9	3.7	4.4	5.3	7.0	8.7	7.1	6.4	4.7
USA	a	0.7	1.3	2.0	1.5	1.0	10.0	40.2	97.6	132.3	211.9	285.0
	b	0.3	0.5	0.5	0.3	0.2	1.0	3.2	5.4	6.0	5.4	4.6
Latin America	a	5.6	11.4	17.5	8.6	12.0	21.7	40.4	80.9	165.9	308.4	531.2
	b	2.4	4.3	4.0	1.5	2.0	2.1	3.2	4.5	6.6	7.9	8.6
Japan	a	3.0	7.5	15.4	18.5	27.0	31.0	34.4	51.7	83.8	108.7	126.9
	b	1.3	2.8	3.5	3.3	4.5	3.0	2.7	2.9	3.3	2.8	2.1
China	a	59.6	59.0	103.0	160.0	138.0	381.0	358.0	437.1	546.8	881.9	1275.4
	b	25.8	22.1	23.5	28.8	22.9	36.6	28.1	24.4	21.7	22.5	20.7
India	a	76.0	76.0	110.0	135.0	165.0	209.0	253.0	303.7	359.0	589.0	1023.6
	b	32.5	28.0	25.1	24.3	27.3	20.1	19.9	17.0	14.2	14.8	16.6
Other Asia	a	36.6	41.4	55.4	65.0	71.8	89.4	119.8	184.8	392.8	677.6	1227.6
	b	15.9	15.5	12.6	11.7	11.9	8.6	9.4	10.3	13.6	17.3	20.0
Africa	a	16.5	32.3	46.6	55.3	61.1	74.2	90.5	124.7	227.3	390.0	821.1
	b	7.2	12.1	10.6	9.9	10.1	7.1	8.7	9.8	9.0	10.0	13.4

*[264, p. 256, 258]

¹a — mln. people;

²b — as % of the world

rates as compared with the average global figures were typical of the Russian (0.17%), Eastern European (0.15%) and Japanese (0.14%) civilizations. China (a growth rate of 0.11%) and India (0.08%) had overcome a stagnation period and started to accelerate the population growth rates.

Table 6.4

Average Annual Population Growth Rates, % *

Civilizations and major countries	1-1000	1000-1500	1500-1820	1820-1870	1870-1913	1913-1950	1950-1973	1973-2001
World	0.01	0.10	0.27	0.40	0.80	1.93	1.93	1.62
Western Europe	0.00	0.16	0.26	0.69	0.77	0.71	0.71	0.32
Great Britain	0.09	0.14	0.53	0.79	0.87	0.50	0.50	0.22
Germany	0.02	0.25	0.23	0.91	1.18	0.63	0.63	0.15
France	0.03	0.17	0.23	0.42	0.18	0.96	0.96	0.48
Italy	-0.03	0.15	0.20	0.77	0.92	0.66	0.66	0.19
Eastern Europe	0.03	0.15	0.31	0.97	1.33	1.01	1.01	0.32
Former USSR	0.06	0.17	0.37	0.97	2.08	1.44	1.44	0.54
US	0.06	0.09	0.50	2.83	1.63	1.45	1.45	1.06
Latin America	0.07	0.09	0.07	1.25	0.95	2.73	2.73	1.96
Japan	0.09	0.14	0.22	0.21	0.47	1.14	1.14	0.55
China	0.00	0.11	0.41	-0.12	0.43	2.10	2.10	1.33
India	0.00	0.08	0.20	0.38	1.01	2.11	2.11	2.05
Other Asia	0.01	0.06	0.15	0.59	1.01	2.40	2.40	2.19
Africa	0.07	0.07	0.15	0.40	0.75	1.64	2.37	2.69

[264, p. 257]

The period of 1500–1820 embraced almost the entire period of the early industrial civilization. The average annual population growth rates had increased 2.7 times (from 0.1 to 0.27%). The leaders were Great Britain (0.53%), USA (0.5%), China (0.41%), former USSR (0.37%) and Eastern Europe (0.31%). India (0.2%), Africa (0.15) and Latin America (0.07%) lagged far behind. In this case, colonization results produced an effect.

The following periods (1820–2001) are related to the industrial civilization expansion, rise, maturity and decline stages. The population growth rates accelerated from stage to stage – 0.40% in 1820–1870, 0.80% in 1870–1913, 0.93% in 1913–1950 (in this case, the two world wars produced an effect, which removed tens million lives), and 1.93% in 1950–1973 – the top level during the mankind history. A trend towards declining population growth rates was observed in the latest quarter of the 20th c., which intensified in the 21st c.

The leadership in terms of growth rates belonged initially to the U.S. (due to a flow of immigrants), the former USSR and Great Britain. Then Latin America and, during the post-war period, Africa, India and Moslem countries became the leaders. The population numbers decreased in China from 381 mln. in 1820 to 358 mln. in 1870 (an average annual rate of -0.12%). The population numbers in Russia had increased during the same period from 54.8 to 88.7 mln. people, which means a growth rate of 0.97% (against the average global rate of 0.59%).

Late in the industrial era the trends of demographic dynamics changed drastically. It is possible to speak about the expansion of a *global demographic crisis* that would also cover the space of the 21st c. As early as in 1973–2001, the population growth rates all round the world decreased from 1.93% to 1.62% , while these were mostly maintained at the account of four civilizations, such as African (2.69%), Indian (2.05%), Moslem and Latin American (1.96%). The population growth rates decreased in Western Europe from 0.71% to 0.32% , in Eastern Europe from 1.01% to 0.32% , in the former USSR from 1.44% up to 0.54% (since 1992, depopulation years have been observed), in Japan from 1.14% to 0.55% , in China from 2.11% to 1.33% .

What **conclusions** can be made from an analysis into the historical stages of the demographic civilizational development?

First, a *general trend* during the five millenniums has been *the planet's population number growth* at an accelerated pace (with a decelerated pace during certain periods and an absolute reduction in some countries and civilizations). The species of *Homo sapiens* has assimilated almost the entire planet's area suitable for living and late in the 20th c. approached the population growth limit and that of a demographic load on the biosphere.

Second, *the rates of demographic dynamics have shown some cyclical fluctuations*, high growth periods alternating with decelerations and crises of demographic cycles, which mostly coincide with appropriate cycle phases of the world civilizations and historical super cycles and with the economic growth rate fluctuations.

Third, *during the rise periods* of local civilizations in their life cycle, as well as those of leadership in the global civilizational progress, *the population growth rates increased*; and these decreased in the subsequent phases of the cycle. This is observed clearly in case of the Chinese civilization during the period of early industrial world civilization, Western European at the early stage of the industrial civilization and Northern American in its next phase. However, there

are some exceptions from the rule. The African civilization showed higher economic growth rates in the 20th c. as compared with the other civilizations, though it was among the outsiders in economic, technological and sociopolitical terms. China achieved high economic growth rates in the latest quarter of the 20th c. at the background of decreasing population growth rates (from 2.10 to 1.33%). It means that the interrelations among demographic, economic and civilizational cycles are not simple.

6.3. Demographic Challenges of the 21st Century

The 21st c. poses three central challenges concerning the population dynamics to the mankind. In brief, those can be identified as *depopulation, polarization and migration crises*. Each of them offers its own displays, causes and dangerous consequences to the forthcoming species of Homo sapiens on the globe. Let's discuss the essence of and probable responses to each of them.

1. Depopulation Challenge. As noted previously, a turning point has been observed since the latest quarter of the 20th c. in the path of demographic dynamics, which is likely to extend to the forthcoming centuries. Let's discuss the symptoms of the turning point based on a UN demographic forecast data (*tables 6.5 and 6.6*).

Judging upon the data indicated on the tables, following the demographic boom being the all-time high of the history when the global population growth rate achieved 2.04% per annum in 1965–1970, as early as 1990s saw a turning point of the multi-century demographic growth acceleration trend. The average annual population growth rates in 1995–2000 decreased to 1.35% and will drop down to 0.33% late in the first half of the 21st c., according to the UN forecast. If this trend exists in the second half, then starting from 70s of the 21st c. the growth rates will be negative, and the Earth's total population numbers will start decreasing and come back to the numbers of 2000, that is about 6 billion people by about 2200–2290.

A fundamentally new demographic phenomenon has arisen and is spreading now over the worldwide civilization, i.e. *depopulation*. Some periods when the Earth's population decreased were observed in the past as well, though it was an exception from the rule, a short-term

Table 6.5

Forecast of Population Number Dynamics by Civilization and Leading Countries *

Countries		1950	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050
World	a ¹	2519	3024	3697	4442	5280	6086	6843	7578	8199	8704	9076
	b ²	100	100	100	100	100	100	100	100	100	100	100
Developed regions	a	813	915	1007	1083	1193	1194	1225	1244	1251	1247	1236
	b	32.3	30.3	27.3	24.4	21.8	19.7	17.9	16.4	15.3	14.3	13.6
Less developed regions	a	1707	2109	2689	3360	4110	4892	5617	6333	6846	7454	7840
	b	67.8	69.7	72.7	75.6	78.2	80.13	82.1	83.6	84.7	85.7	86.4
Northern Europe	a	77.3	81.0	86.5	89.1	91.8	94.2	97.1	100.1	103.0	104.5	105.6
	b	3.1	2.7	2.3	2.0	1.7	1.5	1.4	1.3	1.2	1.2	1.2
Western Europe	a	140.9	151.9	165.7	170.5	176.1	183.6	187.4	118.9	189.6	181.1	185.5
	b	5.6	5.0	4.5	3.8	3.3	3.0	2.7	2.5	2.3	2.3	2.0
Southern Europe	a	109.0	118.1	127.2	137.9	142.7	150.9	150.1	147.3	143.8	143.3	138.7
	b	4.3	3.9	3.4	3.1	2.7	2.4	2.1	1.9	1.7	1.7	1.6
Great Britain	a	49.8	51.6	54.8	55.5	56.8	58.7	60.5	62.5	64.7	65.1	67.1
	b	2.0	1.7	1.5	1.3	1.1	1.0	0.9	0.8	0.8	0.7	0.7
Germany	a	68.4	72.8	78.2	78.3	79.4	82.3	82.7	82.3	81.5	80.2	78.8
	b	2.7	2.4	2.1	1.8	1.5	1.4	1.2	1.1	1.0	0.9	0.8
France	a	41.8	45.7	50.8	53.9	56.7	59.3	61.5	63.0	63.7	61.8	63.7
	b	1.7	1.5	1.4	1.2	1.1	0.9	0.9	0.8	0.8	0.7	0.7
Italy	a	47.1	50.2	53.8	56.4	56.7	57.7	58.2	57.1	55.4	53.4	50.9
	b	1.9	1.7	1.5	1.3	1.1	0.9	0.8	0.7	0.6	0.6	0.6
Eastern Europe	a	220.2	253.5	276.4	295.0	310.8	304.6	290.4	275.6	258.3	240.7	221.5
	b	8.7	8.4	7.5	6.7	5.9	5.0	4.3	3.7	3.2	2.8	2.4
Russia	a	102.7	119.9	130.4	138.7	148.4	146.6	140.0	133.1	125.3	148.3	111.8
	b	4.1	4.0	3.5	3.1	2.8	2.4	2.0	1.5	1.5	1.4	1.2
Northern America	a	171.6	204.1	231.9	255.5	213.4	315.0	346.0	375.0	400.4	420.8	437.9
	b	6.8	6.8	6.3	5.8	5.4	5.3	5.1	5.0	5.0	5.0	4.8
USA	a	157.8	186.2	210.1	230.9	255.5	284.2	312.3	338.4	360.9	379.5	395.0
	b	6.3	6.2	5.7	5.2	4.9	4.7	4.6	4.6	4.6	4.4	4.4
Latin America	a	167.3	218.6	285.2	363.2	443.7	522.9	598.8	617.0	722.4	761.3	782.9
	b	6.6	7.2	7.7	8.1	8.4	8.6	8.7	8.7	8.7	8.7	8.6
Japan	a	83.6	94.1	104.3	116.8	123.5	127.0	125.0	126.7	122.6	117.6	112.2
	b	3.3	3.1	2.8	2.6	2.3	2.1	1.9	1.5	1.5	1.3	1.2
China	a	554.8	657.5	830.7	998.9	1155	1250.4	1365.5	1452.4	1454.6	1433.9	1392.2
	b	22.0	21.8	22.5	22.5	21.9	21.0	20.0	17.8	17.8	16.5	15.3
India	a	357.6	442.3	554.9	688.9	846.4	1021	1183	1332	1449	1534	1593
	b	14.2	14.6	15.0	15.5	16.1	16.8	17.2	17.4	17.4	17.6	17.4
Oceania	a	12.8	15.9	19.6	22.9	26.7	30.9	35.0	38.9	42.5	45.4	47.6
	b	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Africa	a	224.1	281.7	363.5	478.8	635.9	812.5	1007.1	1228	1463	1705	1937
	b	8.8	9.2	9.7	10.6	11.8	13.1	14.4	17.2	17.2	18.9	21.3
Asia	a	1396	1699	2140	2630	3169	3676	4130	4554	4872	5091	5217
	b	55.5	56.3	58.0	59.3	60.2	60.6	60.7	60.1	60.1	58.5	57.4

* [272, vol. 1]

¹a – population numbers, mln. people;²b – share in the world population, %

Table 6.6

Forecast of Average Annual Population Growth Rates by Civilization, * %

Countries	1950-1955	1965-1970	1975-1980	1985-1990	1995-2000	2005-2010	2015-2020	2025-2030	2035-2040	2045-2050
World	1.81	2.04	1.44	1.72	1.34	1.14	0.97	0.73	0.56	0.38
Developed regions	1.20	0.83	0.67	0.60	0.33	0.24	0.13	0.03	-0.05	-0.10
Underdeveloped regions	2.09	2.51	2.08	2.09	1.79	1.34	1.14	0.86	0.66	0.45
<i>Northern Europe</i>	0.40	0.56	0.20	0.33	0.27	0.19	0.28	0.28	0.10	0.11
<i>Western Europe</i>	0.66	0.70	0.42	0.49	-0.29	0.17	0.06	0.00	-0.10	-0.15
<i>Southern Europe</i>	0.83	0.68	0.80	0.38	0.31	-0.19	-0.10	-0.21	-0.26	-0.40
Great Britain	0.23	0.47	0.04	0.27	0.34	0.28	0.35	0.32	0.18	0.17
Germany	0.56	0.57	-0.10	0.45	0.08	0.00	-0.05	-0.11	-0.18	-0.17
France	0.75	0.81	0.44	0.52	0.37	0.34	-0.20	0.10	-0.02	-0.13
Italy	0.64	0.65	0.36	0.05	0.14	0.03	-0.24	-0.32	-0.39	-0.52
<i>Eastern Europe</i>	1.48	0.70	0.64	0.49	-0.34	-0.47	-0.55	-0.68	-0.71	-0.76
Russia	1.63	0.58	0.65	0.69	-0.22	-0.45	-0.53	-0.61	-0.56	-0.59
<i>Northern America</i>	1.71	1.10	0.97	1.04	1.04	0.91	0.77	0.68	0.54	0.42
USA	1.61	1.01	0.95	1.00	1.05	0.92	0.77	0.61	0.47	0.38
<i>Latin America</i>	2.65	2.57	2.33	1.93	1.56	1.29	1.01	0.73	0.46	0.22
Japan	1.43	1.07	0.93	0.44	0.25	0.06	-0.20	-0.36	-0.42	-0.49
China	1.87	2.61	1.48	1.53	0.88	0.58	0.44	0.07	-0.13	-0.35
India	2.00	2.28	2.08	2.07	1.75	1.40	1.11	0.75	0.53	0.32
Oceania	2.15	1.98	1.46	1.58	1.42	1.15	1.03	0.83	0.58	0.45
Africa	2.21	2.62	2.82	2.78	2.34	2.11	1.93	1.70	1.47	1.21
Asia	1.96	2.42	1.87	1.86	1.38	1.12	0.91	0.60	0.40	0.19

* [272, vol. 1].

break in the total population expansion flow, which was transformed by Malthus into an inviolable law. Now the depopulation appears to be a global epidemic. It started from some Eastern European countries during a period when economic reforms were undertaken: from 1982 in Hungary (the population numbers decreased by 6.2 by 2003), then extended to Bulgaria (from 1990 — a reduction in the numbers by 1452 thousand people by 2003 that is 16.2%) and in other countries [264, p. 97]. Neoliberal reforms of 1990s pushed a depopulation process in 9 of 15 republics of the former USSR: from 1990 in Latvia

(a reduction by 12.2% in 2003), from 1991 in Estonia (by 10.4%), from 1992 in Lithuania (by 3.1%) and Russia (by 2.6%). Since 1993 the same processes have begun in the Ukraine (by 7.5%), Kazakhstan (by 1.5%) and Armenia (by 3.9%), from 1996 – in Belarus (a reduction by 0.8% by 2003) [ibid, p. 108–109].

However, one should not believe that the epidemic has spread only into a number of reforming countries of the former socialist system and is a kind of a «transition period disease». According to the moderate UN forecast alternative, starting from early 21st c., the countries with depopulation will include Japan (a reduction of the population numbers by 13.6% by 2050 as against 2000), Germany (by 3.9%), Italy (by 22%) and some other Western European countries, several Southern African countries. Starting from 2130s, it will also include China, whose population numbers will be by 3.8% or 55 mln. people lower in 2050 than in 2030. By 2050 the average annual population growth rates will decrease in India from 1.76% in 1995–2000 to 0.26% in 2045–2050, from 1.41% to 0.39% in Oceania, and from 1.41 to 0.18% throughout Asia, from 2.36 to 1.08% in Africa, from 1.56 to 0.20% in Latin America, from 1.07 to 0.40% in USA. The depopulation rate in Russia will grow from –0.34% to –0.86%. It means that late in the 21st c. a prevailing majority of the countries and civilizations can find themselves in a condition of depopulation.

How shall we judge this demographic overturn? It seems that ecologists must be glad and play kettle-drums: a demographic load on the natural environment will reduce in a natural way free of any coercion. Initially, a number of countries and civilizations, and then a majority of them will move if not to a cherished «golden billion», then at least they will return to six billions, from which the count of third millennium population started. It means that the mankind will consume fewer natural resources, reduce emissions into the natural environment, and a global catastrophe threat will be delayed.

However, the growing depopulation poses a number of threats to the future of the mankind, which should be considered. As it follows from [Table 6.1](#), the mankind will age from decade to decade. While 2000 saw the average age of the human equal to 26.8 years (that is 12% above the level of 1950), then it will achieve 37.8 years and increase by 41% for the half-century by 2050 according to the UN forecast. In such case an aging pace is maintained, then the average age will achieve 53 years by 2100, and 75 years by 2050, and 106 years by 2200, i.e. it will mean an extreme old age. This prospect will hardly make anybody happy.

The global population age structure will worsen drastically. The share of population at an age below 15 will decrease from 30.1 to 20.1% that is by one third for the half-century; that at an innovation age of 15 to 34 from 33.6 to 27.4% by 19,5%. Instead, the share of population at a conservative age of 35–59 will increase from 26.3 to 31.1% that is by 18% and at an age of 60 and above from 10 to 21.4% (by the factor of 2.14).

If this trend is the same in the long run, then the Earth will be overcrowded with old people late in the 21st c., children will be a rare exception, and the share of employed people at an innovation age will be reduced to minimum. Our warning will come true: «Thereby a cherished dream of the “golden billion” concept supporters will be realized in a remote prospect of the 23rd c., although as a caricature: the superannuated mankind that is not capable of a healthy natural lifestyle and dying will transform into a poor remainder of the once vigorous, prosperous species of *Homo sapiens*, who assimilated avidly the Earth’s wealth» [239, p. 100–101]. This species will come to the end of his life cycle and disappear from the planet’s face. A global demographic catastrophe will appear to be much more terrible than an environmental one.

It is sufficient to imagine such a remote prospect to understand that the mankind will be able to respond to new challenges and find a way from a demographic crisis threatening its existence. Moreover, a general population law is valid in this case. Facing a threat to its existence, a biological species will respond with a birth rate growth. Examples can be demographic trends in modern Africa and a paradox found when the 2002 population census was undertaken in the Chechen Republic: a rather small nation responded to losses they suffered in previous years with the top birth rate in Russia, and the census clerks noted surprisingly several hundred thousands of «additional» residents in the Republic.

It is not possible to say that the depopulation, i.e. a reduction in the population numbers resulting from internal rather than external grounds under a civilizational crisis conditions, is a unique phenomenon and is found for the first time during the history of civilizations. For instance, **Polibius** (201–120 A.D.), a Greek historian, the author of «The History» in 40 volumes, wrote about a demographic crisis that had hit Ancient Greece during the period of its decline: «At present all Hellas suffers from the infertility of women and a population fall at large, so the towns have become deserted, crop failures are observed, though we have seen no continuous wars nor plague horrors... The

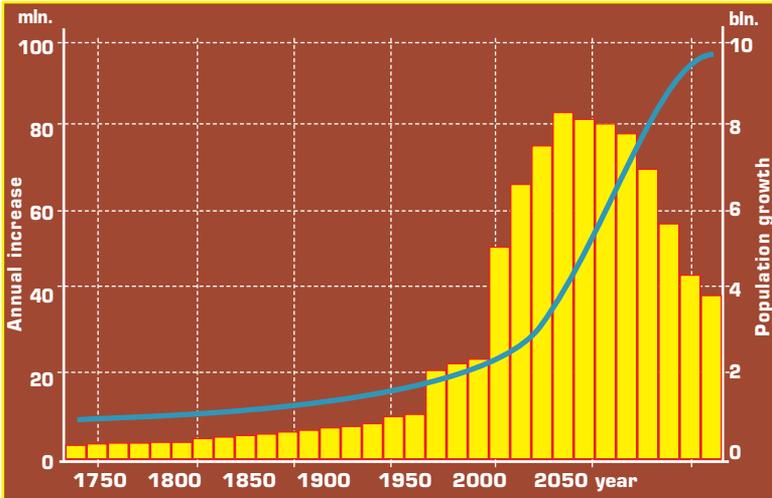
point is that the people have got spoilt, they turn out to be vain, love-making and emasculate, they do not want to contract a marriage, and if they marry, they do not want to breed their children... The houses become empty, and like beehives the towns of people come gradually to a decay and impotence» [cited by 71, p. 21]. Later on similar crises were observed in late Rome and in other civilizations during the periods of decay; sometimes it ended in a downfall of played-out civilizations. However, the mankind as a whole found their way out from demographic crises and the population growth rates accelerated again, generating thereby an imagined danger of the Earth's overpopulation. As the history of civilizations has shown, demographic cycles permit to overcome both extreme types of a demographic crisis, e.g. depopulation and overpopulation.

Therefore, it seems more likely that in civilizations and countries where depopulation processes evolve, the forthcoming generations will comprehend this danger and respond to a challenge of demographic catastrophes with an increased birth rate and a reduced death rate, which will inhibit the population number reduction rates and stabilize it in the long run. In particular, such a trend started displaying itself in Russia where the birth rate growth has commenced since 2000, and it has increased for 4 years by 22%. To be frank, the death rate increased by 10.3% at the same time, so the natural losses reduced insignificantly by as low as less than 5%, though the trend is promising. The population number growth, although at a low rate, is maintained still in all Western European countries, in Australia, New Zealand, Canada and, at a higher rate, in USA where the population numbers have increased by 13% for 10 years, however, including that at the account of migration as well. A growth in the numbers is expected in the long term up to 2050 according to the moderate UN forecast alternative to achieve 408,7 mln. people (43.4%). The depopulation mitigation will be also promoted by the expansion of healthy lifestyles (smoking, alcoholism, and drug addiction reductions), medical and pharmaceutical achievements. Therefore, one can expect that the real dynamics of the population numbers in the countries and civilizations endangered with depopulation will approach the higher rather than lower alternative of the UN demographic forecast for a period up to 2050, which will be a good response of the mankind to the depopulation challenge (*fig. 6.1*).

An investigation into depopulation processes in civilizational terms was started in 1890 with the publication of a book by a French demographer **A. Dumont** (1849–1902), «The Depopulation

Figure 6.1.

The Long-Term Tendencies of the Number of World Population Growth (UN forecast, average alternative)



and Civilization». Relying upon a stage-by-stage theory of civilizational dynamics, he proved that the civilization evolution leads to a decreased birth rate and reduced population numbers in developed countries, first and foremost, in well-to-do population communities, and then in a society as a whole. This is predetermined by a number of considerations: a decreased children death rate; a more expensive upbringing and education of children who then leave the family; women involved in industrial and social activities; growing income and greater care of own prosperity in workers' families, and then in peasants' ones. Dumont undertook a historical study of depopulation periods in various civilizations: in the Ancient Greek society, especially in Sparta; attempts to stop the process in Rome in the 3rd c. through benefits granted to families having more than two children and bachelors deprived of a right to dispose of their heritage; in catholic Spain during a period from Karl V to Philip II. Dumont thought that the civilization contains a toxic element destroying the population; however, it is necessary to struggle not against the civilization but against this element [71, p. 264–265]. Dumont's ideas were commented in academic and literary communities as well as developed by **Oswald Spengler**, who wrote: «Now all civiliza-

tions enter into a stage of enormous depopulation, which spreads over several centuries. An entire pyramid of people suitable for culture is perishing» [233, p. 109].

A. Dumont's observations and findings contain a lot of valuable things that can be used to diagnose the depopulation, which threatens to embrace many countries and local civilizations (and not only developed ones) in the 21st c. and drive the global civilization into a condition of depopulation, aging and gradual extinction of the mankind at large in the 22nd c. However, the *causes and effects of demographic crises* are much more complex.

First, the factors influencing a reduction in the population numbers in a country or civilization can be *murderous wars, deadly epidemics, or major natural calamities* resulting in numerous victims. In the 13th c. a plague epidemic resulted in a reduction of the European population from 73 mln. people in 1300 to 43 mln. in 1400, which means by 41% [241, p. 158]. Between 1500 and 1600 the population of Latin America decreased twice as low, including that of Mexico three times as low [264, p. 250]. In the next century the population of China decreased by 14% [ibid]. The First World War and the subsequent revolution, Civil War and the Great Patriotic War were accompanied with a reduction in the Russian population from 91 mln. people in 1917 to 87.6 mln. in 1923 and from 110.4 million in 1941 to 101.4 mln. in 1950. The forecasted population number reductions are 11% in South Africa by 2050 against 23% in 2000 [272, p. 144], which is predetermined by high AIDS morbidity rates.

Second, a reduced birth rate results from *a number of economic factors*, especially during the periods of reforms affecting both prosperity and assurance of future of numerous population clusters. For instance, when reforms started in Bulgaria, the birth rates dropped from 16.2% per 1000 people in 1970–1975 and 13.9% in 1970–1980 to 8.0% in 1995–2000; in Hungary – from 16.3% in 1975–1980 to 10.4% in 1995–2000. In Russia a period of neoliberal market reforms saw a reduction in the birth rates from 16.6% in 1980–1985 to 8.9% in 1991–2000, but they have increased slightly in most recent years. In general, the birth rates decreased in Eastern Europe (including Russia) from 16.4 in 1980–1985 to 9.3 in 1995–2000 [272, p. 76, 150, 269, 390]. High inflation rates, reduced life standards, a diminished governmental support of public health and large families, more expensive housing as well as educational and medical services weaken the operation of a reproductive instinct in young families.

Third, *a number of demographic factors* contribute to the depopulation: a reduction of family numbers to one or two children; a reduction in fertility that is the number of children per woman at a fertile age (from 5.02 in 1950–1995 to 2.83 in 1995–2000 and 2.02 by 2050 according to the forecast). Besides, it is a reduction in the wedlock numbers and an increase in the numbers of children born out of wedlock who are not desired by the actual parents; the expansion of unnatural homosexual families; gender factors such as the involvement of women in social and business activities, a missing desire to burden oneself with care about maintenance and upbringing of children.

Fourth, the depopulation is caused or aggravated by *changes in ethics, especially among young people*: an aspiration towards sexual pleasures free of responsibility for the birth and upbringing of children as promoted by literature and mass media («a sexual revolution» in **Pitirim Sorokin's** terminology); widespread prostitution, sexual contacts before and out of wedlock; lack of moral principles and responsibility to the past and future generations for the fate of the home country and civilization.

The operation of the above-mentioned factors is interrelated and aggravated during turning ages in the period of a civilizational crisis. However, a conclusion concerning a «toxic depopulation poison» specific to the civilization is a mistake. During the history of a civilization depopulation periods alternate with periods of rather high population growth rates. For example, the population growth rates in China in 1500–1820 were 0.41%; in 1820–1970 – 0.12%, and in 1950–1970 2.1%. In Western Europe a population growth rate of 0.26% in 1500–1820 achieved 0.7% in 1950–1973, and then declined.

Different population growth or reduction rates are observed and predicted during the same period in different countries of the same civilization: for example, in Western Europe in 1995–2001 from 0.07% in Sweden and 0.0% in Slovenia to 1.44% in Luxembourg. Moreover, one country can show opposite trends in different regions: for example, during the first half year of 2004 in Russia the «overpopulation extreme» is Chechen Republic (an average annual growth rate of 1.9%), and the «depopulation extreme» is Pskov Region with a natural population reduction rate of –1.64%.

According to the UN forecast, a common trend for the first half of the 21st c. is a reduction in the birth rates in all civilizations and the emergence of many local civilizations in a stable depopulation

condition (Russian, Japanese, Western European and also, starting from 2040, Chinese civilizations). This requires from scientists to investigate this phenomenon thoroughly and develop some recommendations to reduce the rates and decrease the adverse effects of depopulation.

2. Demographic polarization. Different rates and sometimes directions of the demographic dynamics between countries and civilizations have existed at all times. For example, during the first millennium A.D., this value differentiated at an average growth rate of 0.1% from 0.09% in Great Britain and Japan to zero in China and India. During the industrial civilization revival period in 1870–1912 it differentiated at an average growth rate of 0.80% from 2.08% in USA, 1.63% in Latin America, to 0.43% in India and 0.47% in China. At the background of a demographic boom during the period of 1950–1973 and an average global growth rate of 1.93% the differentiation was observed from 3.11% in Mexico, 2.37% in Africa to 0.50% in Great Britain and 0.39% in Australia [264, p. 257]. Such differentiation can be explained and poses no serious threat.

However, the first half of the 21st c. saw a trend that is appropriate to be defined as *demographic polarization*. According to the moderate UN forecast alternative (see [table 6.6](#) above) 2045–2050 will see an average annual population growth rate of 0.33% all round the world, a growth rate of 0.40% in underdeveloped regions and a reduction of 0.14% in developed regions. At the same time Africa will maintain a high growth rate of 1.08%, Latin America of 0.40%, while Russia will show -0.86% , Western Europe at large -0.2% , Italy -0.80% , and Japan -0.56% . One extreme representing underdeveloped, poor countries will show a developing overpopulation crisis (though at a lower pace than that in the 20th c.); the other will show a crisis of depopulation, reduced population numbers and aging.

Such a polarity of the global demographic space will be the source of a growing geopolitical and geosocial tension and an expanding threat of a clash between civilizations. For instance, the UN estimates have shown that the population numbers of the Indian and Moslem civilizations will increase by 56%, the African by 74%, and the Latin American by 60.5% in 1999–2050. While the Latin American civilization has sufficient areas and resources to employ and increase earnings of the population, the position of the Indian and Moslem civilizations appear to be critical. The bulk of the Indian civilization and a vast majority of the Moslem one have concentrated at the quite small Hindustan Peninsula. For a half of the

century the Indian population numbers will increase by 526 mln. people and twice as much based on the maximal alternative; the population numbers of Pakistan 2.6 and 3 times as much, respectively, given quite limited natural resources and a high population density. This makes a prospect of a conflict between India and Pakistan very realistic, which means, in essence, a clash between civilizations. A threatening situation has built up in the African civilization (Africa to the south of Sahara), whose own development resources are scarce, and the population growth rates are the highest. It is the area where a threat to the entire global civilization exists.

To overcome the demographic polarization is a scientific task of the mankind in the 21st c. We have already discussed the measures and trends, which can contribute to a reduction in the depopulation rates in civilizations and countries where the trend has already appeared or can appear during decades to come. Of at least the same importance is a reduction in the population growth rates in civilizations and countries suffering from the overpopulation. This trend has appeared and will be observed obviously to an increasing extent during the first half of the 21st c. According to the moderate UN forecast alternative, the average century population growth rates will decrease from 1985–1990 to 2045–2050: from 2.78% to 1.2% in Africa (2.6 times as low); from 2.07 to 0.32 in India (7.8 times as low); from 1.86 to 0.19% in Asia at large (9.8 times as low); from 1.93 to 0.22% in Latin America (8.8 times as low, see [table 6.6](#) above). As a result, a demographic polarization threat will go down gradually, in particular, when depopulation rates are reduced in the countries suffering from it.

3. International migration. Streams of migrants and migrating nations were also observed previously during transition periods of the history under the influence of worsening natural conditions, overpopulation or military threats. It is sufficient to recollect the great Greek colonization of the 8–6th cc. B.C., Alexander the Great's campaigns, the assimilation of new areas by Romans, huge streams of Huns, Mongols from the East, the relocation of Bulgarians into areas of the Middle Volga and the Balkans, the assimilation of the New World by Europeans and Siberia by the Muscovy Tsardom.

During the second half of the 20th c. the relocation of nations gained a nature of international migration, i.e. relocation of a percentage of the population from overpopulated and poor countries to rich countries demanding for additional labor to perform unskilled

Table 6.7

Share of Foreigners in Population and Manpower of Some Countries *

Countries	Foreign population inflow, thousand people		Foreign population				Share in manpower, %	
	1990	2001	thousand people		% of population		1990	2001
			1990	2001	1990	2001		
USA	1536	1064	19 767	31 811	7,9	11,1	9,4	13,9
Canada	214	250	4343	5448	16,1	18,2	18,5	19,9
Austria	-	75	456	764	5,9	9,4	7,4	11,0
Belgium	50	66	905	847	9,1	8,2	7,1	8,9
Denmark	15	25	161	267	3,1	5,0	2,4	3,5
France	102	141	3597	3263	6,3	5,6	6,2	6,2
Germany	842	685	5343	7319	8,4	8,9	-	9,1
Italy	-	233	781	1363	1,4	2,4	1,4	3,8
Luxembourg	9	11	113	167	29,4	37,5	45,2	61,7
The Netherlands	81	95	692	690	4,6	4,3	3,1	-
Norway	16	25	143	185	3,4	4,1	2,3	4,9
Portugal	-	14	108	224	1,1	2,1	1,0	2,0
Spain	-	-	279	1109	0,7	2,7	0,6	3,4
Sweden	53	44	484	476	5,6	5,3	5,4	5,1
Switzerland	101	160	1100	1419	16,3	19,7	18,9	18,1
Great Britain	175	373	1723	2587	3,2	4,4	3,3	4,4
Australia	121	89	3965	4482	22,9	23,1	25,7	24,2
Japan	-	233	1075	1778	1,9	2,4	0,1	0,2

*[271, p. 346]

works (for example, in Western Europe) or replenish the intellectual capital (a «brain drain» from Russia and other countries to the USA). The stream of immigrants is expanding. While 1960–1964 saw an average annual migrant flow from developing countries to North America and Western Europe of 243 thousand people, then 1985–1989 saw 1066 million that is 4.4 times as much [271, p. 93]. The disintegration of the USSR and Yugoslavia was also accompanied by a temporary expansion of migrant and forced relocated people flows. In 1994 1146.7 mln. people moved into Russia (including

1146.3 mln. people from the CIS and Baltic countries), and 231.7 thousand people moved out; in 2003, 129.1 thousand people moved in (119.7 thousand people from the CIS countries), and 94 thousand people moved out; the numbers of forced relocated people and refugees decreased from 271 thousand people in 1995 to 4.7 thousand people in 2003. However, the numbers of informal migrants have been growing substantially, especially to Moscow, which has been a multi-civilization city. An understanding of migrant percentages, as well as population and employee numbers can be derived from [table 6.7](#).

In general, the stream of immigrants is expanding, though some countries (the USA, Germany, Sweden, Australia) show a trend towards a reduction; the greatest growth rates are specific to Great Britain, Norway, France and Canada. Immigrants gained a high share in the population (37.5%) and employment (61.7%) numbers in Luxembourg, Australia (23.1% and 24.2%), in Switzerland (18.9% and 18.1%), in Canada (18.5% and 19.9%), in Germany (8.9% and 9.1%). In a number of countries, the economy cannot operate normally if there are no immigrants. Cross-civilization movements are also intensifying, especially in Western Europe, Northern America and Australia.

The international migration features some positive aspects. It permits to mitigate a demographic polarization trend, obtain additional employees and fill vacancies (especially those of unskilled labor) in accommodating countries, which are mostly developed ones, employ vacant workers and gain additional earnings for the countries. However, the migration generates also severe contradictions, including cross-civilization ones. Enclaves of other civilizations are expanding in Western Europe and Russia. An example of Kosovo and Macedonia demonstrates that it can result in cross-civilization conflicts and military clashes. Xenophobia and racism manifestations are growing in some population clusters. A trend of some countries is to strengthen a political influence based on the diaspora in other countries. An influence of Moslem religion is increasing in France, Belgium, Germany and Great Britain, which is pregnant with cross-confessional contradictions. The USA which was proud of its «melting pot» consolidating migrants from various countries into a single nation predicts anxiously a period when the white population will be less than half the country's population and thinks about the effects. The civilizational mix of Australia's population is also changing.

Alarming trends related to the international migration will intensify in the first half of the 21st c. This calls for some scientific comprehension of the processes and the development by the international community of a system of prospective actions permitting to mitigate the contradictions related to an inevitable expansion of migration streams. The UN demographic forecast provides for a reduction in the numbers of net migrants into developed regions from 2130 thousand people as an average annual figure for 2101–2005 to 1990 thousand people in 2050 [272, vol. 1, p. 42].

6.4. Demographic Threats to Russia

Demographic threats of the 21st c. are especially dangerous to the Russian civilization. They have manifested apparently since late 20th c. during the period of the USSR disintegration and the performance of neoliberal market reforms. What are their specific features?

1. Depopulation threat. Historically, the present area of Russia is less suitable for the human life than the ancient civilization centers, and a shift towards the Neolithic period commenced there some two thousand years later than in these centers. The Greek and Scythian civilizations period from the 7th c. B.C. was characterized by a rapid population growth, which was interrupted, however, during the invasions of Goths and Huns. Nevertheless, almost two thousand years A.D. saw higher population growth rates in the area of the former USSR: 0.06% against an average global figure of 0.01% during the first millennium, 0.17% against 0.10% in 1000–1500, 0.37% against 0.27% in 1500–1820, 0.97% against 0.40% in 1820–1870, and 1.33% against 0.80% in 1870–1917. The share of the former USSR population in the global population had increased from 1.7% early in the period A.D. and 2.7% in 1000 to 8.7% in 1913.

However, the country underwent a number of social cataclysms in the 20th c., which were accompanied by huge human losses and reduced demographic growth rates: in 1913–1950 0.26% against an average global figure of 0.93%; in 1950–1973 1.44% against 1.93%; in 1973–2001 0.54% against an average global figure of 1.62%.

Since 1994 Russia has entered into a depopulation period. The average population reduction rates were 0.34% in 1995–2000 and according to the moderate UN forecast alternative will increase to 0.58% in 2005–2010 and 0.86% in 2045–2050. As

Table 6.8

Forecast of Russia's Demographic Dynamics *

Terms	1950	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050
Population numbers, mln. people	102.7	119.9	130.4	138.7	148.2	146.6	140.0	133.1	125.3	118.3	111.8
% of the global	4.1	4.0	3.5	3.1	2.8	2.4	2.0	1.8	1.5	1.4	1.2
% against 1950	100	117	128	135	144	143	136	130	122	115	109
Age structure, %											
0–19	38.6	36.1	36.0	29.9	29.8	26.7	21.2	23.0	21.0	20.7	22.0
20–39	30.3	33.7	29.1	30.1	31.2	29.1	31.7	28.1	23.1	24.3	23.4
40–59	20.0	20.9	22.7	26.5	22.9	25.9	29.2	27.6	31.0	31.8	25.5
60 and above	9.2	9.3	11.9	13.5	16.0	18.3	17.8	22.4	24.9	27.0	31.3
Average age, years	25.0	27.4	30.6	31.3	33.3	36.4	37.9	40.0	43.4	44.9	43.5
	1950–1955	1955–1960	1965–1970	1975–1980	1985–1990	1995–2000	2005–2010	2015–2020	2025–2030	2035–2040	2045–2050
Average annual population growth rate, %	1.63	1.11	0.58	0.65	0.66	-0.22	-0.45	-0.53	-0.61	-0.56	-0.59
Birth rate per 1000 people	26.5	25.1	14.9	15.9	16.0	8.9	11.2	10.3	9.4	10.7	10.5
Death rate per 1000 people	9.5	8.7	8.2	10.3	10.9	14.2	16.0	16.0	15.9	16.0	16.8
Children death rate per 1000 infants	9.7	5.7	3.2	3.0	2.4	1.7	1.6	1.3	1.1	1.0	0.9
Average expected life duration, years	64.5	66.8	70.1	69.0	70.2	66.0	65.0	66.9	69.2	71.0	72.9

*[272, vol. 1, p. 372; vol. 2, p. 726–727]

a result, the country's share in the global population will decrease from 4.1% in 1950, 3.5% in 1970, 2.8% in 1990 and 2.4% in 2000 to 1.7% in 2020 and 1.1% in 2050. Given such a state of affairs, it is rather difficult to pretend to the role of a great power of the world. Some trends of Russia's demographic dynamics for the period between 1950 and 2000 and in the long run up to 2050 are presented in *table 6.8*.

While the population of Russia had increased between 1950 and 1990 from 102.2 to 148.3 mln. people (by 45%), then the fol-

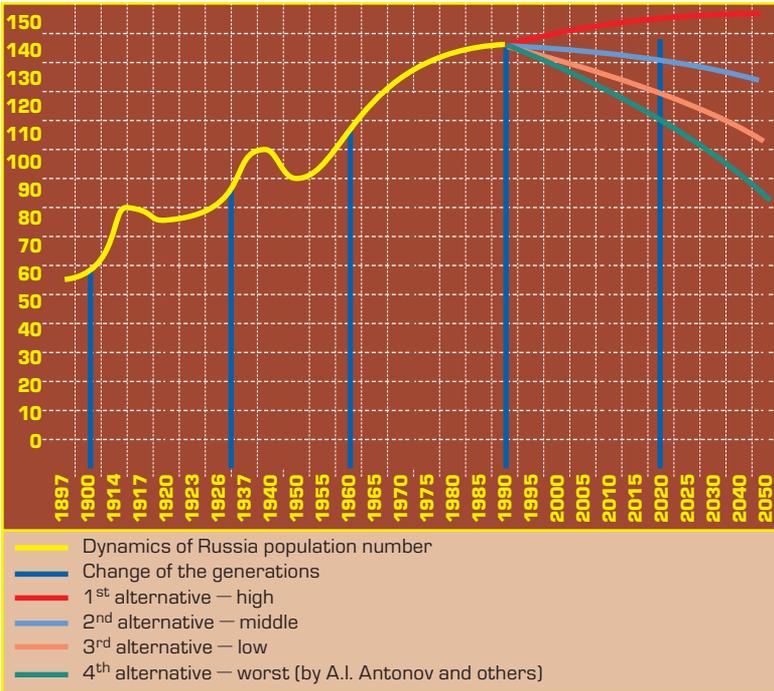
lowing period saw a reduction in the population numbers, and it will decrease to 101.5 mln. people by 2050, which is lower than the 1950.

If we extrapolate the trends forecasted up to 2050, then the population numbers of Russia, according to the moderate alternative, will decrease to 69 mln. people by the end of the 21st c., and to 47 mln. people by 2150. This will mean a demographic catastrophe, the degraded, once powerful, civilization, which withstood successfully the Western and Eastern civilization for ages. Then populous neighbors will raise their claims for the depopulated area (*fig. 6.2*).

However, this scenario of the demographic evolution is rather improbable; the population laws will operate, which will result in a birth rate growth and a death rate reduction. A probability that the migrant stream will expand is high both as an intra-civilization one (from the CIS countries) as well as a cross-civilization one (from the

Figure 6.2.

Dynamics of Russia Population Number and Forecast Alternatives



oriental countries). This will permit if not to overcome the depopulation, then to cut down its size drastically.

However, one should not rely upon the spontaneous operation of population laws and market forces. It is necessary to realize clearly, both on the part of the government and civil society as well as each family, a threat of degradation and removal from the historical arena, which is posing to the civilization counting thousand years. It is immediately required to have active long-term demographic, migration and social policies, an anti-depopulation program, which is supported by huge resources and differentiated by region, for the demographic polarization is observed inside the country as well. While some regions show high population reduction rates (the depopulation extreme is Pskov Region with an annual reduction rate of -1.6%), other regions, especially those in the Northern Caucasus, offer high population number growth rates, overpopulation and excessive manpower (the overpopulation extreme is Chechen Republic with an annual growth rate of 1.9%) (*table 6.9*).

Both demographic policies and a program must embrace an integrated set of actions to:

- ➡ stimulate the birth rates in regions where they are low, especially for young families (including housing policies);
- ➡ streamline both cross-regional and cross-country migration streams;
- ➡ improve the population's life standard and quality, cut down poverty to a great extent;
- ➡ implement a social state's functions (it has been much a slogan yet than a real strategy that is of an anti-social nature from time to time, when market reforms are performed at the population's expense);
- ➡ bring up oncoming generations in the spirit of responsibility for the fate of civilization.

2. Deteriorating of population's qualitative structure. A second demographic threat to Russia is a deterioration in the qualitative structure of the population that can be considered in three aspects:

- ➡ a shift towards a poorer age structure and aging of the population, an increased demographic load on the employed people;
- ➡ a growing morbidity rate, a deteriorating condition of the public health, especially that of children;
- ➡ a reduced education quality, a growth of functional illiteracy and occupational incompetence.

Some negative trends in *the age structure of the Russian population* can be seen in [table 6.1](#). The share of the population at an age below 20, i.e. the oncoming generation, decreased from 38.6% in 1950 to 26.7% in 2000 and will reduce, according to the moderate UN forecast alternative, to 20.7% in 2040, though it will increase slightly by 2050 to achieve 22%. The share of the innovative active population at an age of 20–39 will be quite stable up to 2010 and then will decline significantly from 31.7% to 23.4%; that of the conservative population at an age of 40 to 59 will increase from 22.9% in 1990 to 31.1% in 2030, and decrease to 25.5% by 2050. Nevertheless, the most intensive growth will be typical of the share of the population at an age of 60 and above, e.g. from 9.2% in 1950 and 18.3% in 2000 to 31.3% in 2050. A trend towards aging of the population will intensify: the average age of Russians will increase from 25 in 1950 and 33.3 in 2000 to 43.5 in 2050 that is by 74% for 100 years. If this trend continues to be the same, then after 100 years, i.e. by 2050, the average age of Russians will achieve 76! And if we assume a lower rate of aging as provided by the UN forecast up to 2050 – 23% for half the century, all the same the average age will achieve 66 by 2150, which is also not a low figure. A demographic load on the population at an active working age: while it decreased from 1950 through 2000 from 54 per 100 to 44 per 100, then it will increase to achieve 66 by 2050, mostly due to the people at an old age – from 18 in 2000 to 38 in 2050 [272, vol. 2, p. 768–769]. Apparently, this trend threatens the Russian civilization with extinction.

Another indicator of the population's quality – *a public health standard* – shows negative dynamics as well. The evidence is not only the death rate growing substantially from 9.5 pro mille (per 1000 people) in 1950 to 10.9 in 1990 (by 15% for 40 years) and to 14.3 in 2000 (by 31% for 10 years) as well as a further death rate growth predicted by the UN to 18.4 pro mille in 2050 (by 29% for 50 years), but also the population's morbidity growth rates, especially those of children.

With the general morbidity rate growth per 1000 people from 651 in 1990 to 670 in 1998, the active tuberculosis morbidity rate increased from 1990 through 2002 by the factor of 2.5, that of lues venereal by the factor of 2.6, that of teenager drug addiction by the factor of 3.1; the number of people recognized as handicapped for the first time increased from 26.6 per 10000 people in 1970 to 82.5 in 2002 – according to a data of the World Bank, Russia's expenditure for the public health per capita amounted to USD 167 in 2003 that is

3.5 times lower than the average global level, and 20.7 times lower than in the developed countries [271, p. 102].

Third indicator of the population's quality is *an education standard* and conformity of the manpower to the changing reproduction conditions (functional literacy and occupational competence). Formally, the education in Russia is at the same level with that of the developed countries. The literacy standard achieved 98.5% among the population at an age of 15 and above in 2002, 98.5% among men and 96.5% among women at the background of average global figures of 84% and 71%, respectively. The incidence of education among various age groups is far in excess of the average global figures and close to that in the developed countries [ibid, p. 78, 86].

However, some disturbing trends are found behind the averaged figures. The governmental expenses for education during the time of neoliberal reforms declined drastically and amounted to 3.1% of the GDP in 2001–2002 against average figures of 4.1% around the world and 5.2% in developed countries [ibid, p. 70]. A reform of the school education aimed at standardization, harmonization and knowledge control by means of tests is not focused on the development of a personality's creative abilities but for the memorization of knowledge to become obsolete rapidly, which will be of low value after some 10–15 years. The training of skilled workers through vocational schools has been almost terminated, and it is necessary to expand imports of workers. The spread of private universities downgrades the higher education quality. The education of engineers has been curtailed to a great extent, while excessive economists and lawyers are available. A continuous education system that was declared in public has been left on paper, a system of refreshment and skill improvement intended for workers has been curtailed to a great extent, and that intended for governmental officials and chief executives of major companies is almost missing, which all result in strategic errors and failures due to professional incompetence which is sometimes disastrous. There are no people to make and perform strategic decisions, develop, manufacture and apply new types of equipment and totally new technology. Russia is losing rapidly its former advantages of education, which predetermined a successful technological breakthrough of 1950s and 1960s.

3. Interregional demographic polarization. Behind Russia's average figures it is necessary to look at the differentiation of demographic

Table 6.9

Differentiation of Natural Population Growth Rates by Russian Region *, %

Regions	1970	1980	1990	1995	2000	2002	2005 I Half-Year
Russian Federation	5,0	4,9	2,2	-5,7	-6,7	-6,5	-6,5
Central Federal District	3.0	1.1	-1.9	-9.2	-9.8	-10.0	-9.2
Moscow	2.3	1.9	-2.3	-8.9	-6.7	-6.3	-3.9
Tver Region	-1.0	-2.3	-3.3	-11.9	-13.5	-14.6	-14.8
North-Western Federal District	4.7	4.2	0.8	-7.9	-8.6	-8.6	-8.9
Nenets Autonomous Area	12.9	11.4	0.7	0.7	0.3	1.4	3.0
St. Petersburg	3.5	2.1	-1.4	-8.9	-9.5	-8.5	-7.8
Pskov Region	-1.6	-2.6	-3.2	-13.1	-14.7	-15.1	-17.0
Southern Federal District	6.6	7.5	5.5	-2.1	-3.6	-3.3	-2.5
Chechen Republic	5.4	14.3	16.1	-	-	-	19.3
Republic of Ingushetia	15.4	19.9	20.0	17.4	13.3	11.6	10.2
Republic of Dagestan	22.1	19.9	20.0	14.4	10.2	-7.5	8.9
Rostov Region	4.4	3.4	0.0	-6.6	-7.3	-6.5	-7.9
Volga Federal District	6.3	5.0	3.1	-5.0	-6.4	-3.0	-7.2
Republic of Bashkortostan	9.3	8.2	6.5	-1.5	-2.9	-3.0	-3.7
Nizhny Novgorod Region	3.9	1.4	-1.6	-9.5	-10.3	-11.1	-12.0
Ural Federal District	7.0	6.2	3.8	-4.6	-5.2	-4.3	-4.1
Yamal-Nenets Autonomous Area	9.7	11.4	13.0	6.7	6.2	7.4	8.5
Sverdlovsk Region	6.1	4.7	1.0	-7.1	-8.1	-7.2	-6.9
Siberian Federal District	8.1	8.0	4.5	-4.2	-4.9	-4.8	-5.5
Taimyr Autonomous Area	12.0	14.2	8.9	0.7	0.5	4.8	4.5
Kemerovo Region	6.4	5.8	1.6	-7.7	-7.6	-7.8	-8.5
Far Eastern Federal District	10.6	9.7	7.3	-2.4	-3.4	-3.1	-4.3
Republic of Sakha (Yakutia)	12.3	12.2	12.8	5.5	3.9	4.3	4.3
Khabarovsk Region	10.1	9.6	5.9	-3.5	-5.5	-5.4	-6.5
Gap (as points):							
Between Federal Districts	5.9	8.6	9.2	7.1	6.4	6.9	6.7
Between political divisions of the Russian Federation	22.7	22.2	23.3	28.3	26.8	27.2	36.3

*[169, p. 98–117]

Table 6.10

International Migration Dynamics *

Years	Moved into RF		Moved out of RF		Migration age		
	thousand people	Including those from CIS and Baltic countries	thousand people	Including those from CIS and Baltic countries	thousand people	% of population numbers	% of natural population losses
1992	926.0	925.7	673.1	570.0	176.1	0.12	80
1993	923.3	922.9	483.0	369.1	440.3	0.30	59
1994	1146.7	1146.3	337.1	231.8	809.6	0.54	108
1995	842.0	841.3	339.6	229.3	502.2	0.34	60
1996	631.6	631.2	288.0	191.4	346.0	0.24	44
1997	583.3	582.8	234.3	149.5	352.6	0.24	47
1998	495.3	494.8	216.7	133.6	284.7	0.19	40
1999	367.2	366.7	238.0	129.7	154.6	0.11	17
2000	350.9	350.3	160.8	83.4	213.6	0.15	22
2001	187.4	186.2	137.6	62.5	72.3	0.05	7.7
2002	184.6	179.6	106.7	53.8	77.9	0.05	8.3
2003	129.1	121.5	94.0	47.0	35.1	0.024	4.0

*[271, p. 346]

figures, which has expanded greatly during most recent decades (see [table 6.9](#)).

The gap between the federal districts increased from 5.9 points in 1970 to 9.2 in 1990, then decreased to 6.4 points in 2000 at the background of a total natural growth rate reduction, after which it started growing slowly. The polarization over the Federation's political divisions increased from 23.3 points in 1990 to 35.4 in 2004.

4. Migration threats. A period of neoliberal market reforms in 1990s was characterized by a substantial intensity of the population's mobility both on an international and domestic, interregional scale. Dynamics of the international migration can be judged upon a data from [table 6.10](#).

The immigration peak was achieved in 1994 when following the USSR disintegration the stream of people having arrived in the country achieved 1147 thousand people, and the net migra-

tion achieved 810 thousand people, which exceeded the natural losses by 8%. However, the net immigrant growth dropped drastically after that to 35 thousand in 2003 that is 23 times lower than in 1994 and amounted to just 4% of the natural population losses.

The table presents the official migration figures. Along with that, there is informal migration of a huge size that sometimes exceeds the official figures several times as much, especially in Moscow and Moscow Region, as well as some other megalopolises.

The importance of migration streams is contradictory and ambiguous. The widening of the stream of *immigrants* during 1990s (almost totally from the CIS and Baltic countries) was related mostly to the USSR disintegration and a desire of the Russian-speaking population, who suddenly found themselves abroad, to return to the historical motherland. However, further streams of migrants from several countries of the CIS appeared to be related to a protracted crisis and a desire to find some earnings for the family. In respect of Russia, they help to fill niches at the market of low-skilled labor (that is most important for Moscow) and mitigate an adverse effect of the depopulation. However, a great percentage of legal and illegal immigrants from the Caucasus Republics, China, North Korea and Viet Nam flows into commercial activities, replenish the numbers of mafia structures or find themselves under their control.

It is necessary to have a long-term immigration strategy taking account of actual requirements of the Russian economy for human resources by type, qualification, area and establishing an environment for normal life and employment conditions of legal immigrants and, under some circumstances, of their naturalization. In doing so, the experiences of Western European countries and the USA will be useful. It is required to make a long-term forecast of immigration streams. One should also note that as a result of migration streams inter-civilization problems arise and sometimes aggravate, some xenophobia signs are observed.

The emigration from Russia is of another nature, especially that to Israel, Germany and the USA. Many gifted young people, high-skilled professionals and scientists can be found among the emigrants, and such a «brain drain» undermines the country's research and engineering as well as innovative potential. Although some of the leaving people come back home later, who have been enriched with experiences and contacts, they account for a small share still; a centrifugal stream

is prevailing many times, which undermines the innovative upgrading prospects. Therefore, it is necessary to have a long-term emigration strategy focussing on several segments to:

➡ establish an environment for gifted researchers, computer experts, culture workers so that they can implement their gifts and receive good remunerations;

➡ contribute to the development of international research, engineering and cultural links, offshore programming so as to be able to participate in exports of intellectual and hi-tech services and acquisition of an intellectual rent without living the home country for a long time;

➡ establish stable contacts with compatriots residing abroad, provide them with opportunities to participate in the development of research and engineering and cultural relations with Russia.

The inter-regional migration has expanded greatly (see *table 6.11*).

The Russian domestic migration vector has changed. While a stream of inter-regional migrants moved from the European segment of Russia to Siberia and Far East during the post-war period, then a stream of the reverse direction is prevailing at present: from Far East and Siberia to the Central Federal District and partly to the North-

Table 6.1 1

Russian Domestic Inter-Regional Migration 2002 *

Federal Districts	Moved in, thousand people	Moved out, thousand people	Balance, thousand people	
			thousand people	% of population
Russian Federation	20 17.3	2017.3	-	-
Federal Districts				
Central	445.8	364.4	81.4	0.21
North-Western	191.5	187.5	4.0	0.03
Southern	288	301.6	-13.6	0.06
Volga	409	423.1	-14.1	0.05
Ural	195.8	198.5	-2.7	0.02
Siberian	358	385.8	-27.8	0.14
Far Eastern	129.2	156.6	-27.4	0.41

*[168, p. 75–78, 123]

Western District. The population numbers are decreasing in the Extreme North areas rich of natural resources. This is the evidence of missing earmarked long-term regional and migration policies and intensifies a threat of international migration into areas free of Russian demographic and economic resources.

Based on a long-term demographic and economic forecast by Russian region, it is necessary to formulate a social and economic development strategy of Siberia and Far East in the long run up to 2050 to reverse the trends prevailing for the two most recent decades, which are unfavorable and dangerous for the future of the Russian civilization.

5. Anti-social governmental policies. A serious social and demographic threat to Russia is a strategy of neoliberal market reforms that was pursued intensely by the Government during 1990s, which placed the burden of the USSR disintegration, economic decline and extortionate privatization losses on the public, especially lower-income groups. Although all reforms were undertaken allegedly in favor of the public, and the RF Constitution contains a provision concerning the social state, real steps of the government were actually of an anti-social nature and deteriorated severely the social and demographic situation in the country most often, and appeared to be the basis of a deepest demographic crises.

It is possible to mention some of those practical steps:

➡ inflation waves in 1992 and 1998 accompanied by a drastic decline of the population's real cash earnings (2.5 times lower for 10 years) and devaluation of savings accumulated by families; actually, it was expropriation of earnings from the majority of the population to the benefit of a pack of oligarchs and top officials;

➡ a reduced support of children, disabled, retired and ill individuals. Chargeable services in the medical sector are spreading and medicines have become expensive multiple times as much as compared with the population's earnings;

➡ an evolving «benefit monetization» campaign, a rejection from the provision of a number of vital services free of charge to people who need them at the background of egalitarian distribution of amounts, a reduced social support at the federal tier; this will result ultimately in a death rate growth and birth rate reduction;

➡ dismantling of a social infrastructure maintained by enterprises, which affects painfully the position of families, especially where one-town enterprises exist;

➡ a reduced share in the budgetary income of regions and municipalities with additional social duties imposed on them at the same time.

All those shocking economic and social «therapy» measures affected immediately the demographic figures; the birth rates decreased from 1.34% in 1990 to 0.86% in 1997, the death rates increased from 1.12% to 1.62% in 2002, the public health deteriorated severely as it was shown above. The effects of such a strategy were especially adverse for the regions of Far East where steps are taken intensely to «clear» vast areas from residents (the population numbers decreased in the Far Eastern Federal District from 8045 thousand people in 1989 to 6634 thousand in 2002 that is by 18% [169, p. 78].

In order to maintain and revive the Russian civilization, its central component being the human population, it is necessary to apply radically a social strategy vector, reject the market fundamentalism, turn the state and business to the public, improve their social responsibility. Only in this case a sound basis will be ensured of the economic growth that is not an end in itself. A roundup demographic indicator — demographic dynamics, depopulation mitigation — must be decisive when the operational efficiency of governmental authorities is appraised at every tier.

Chapter 7

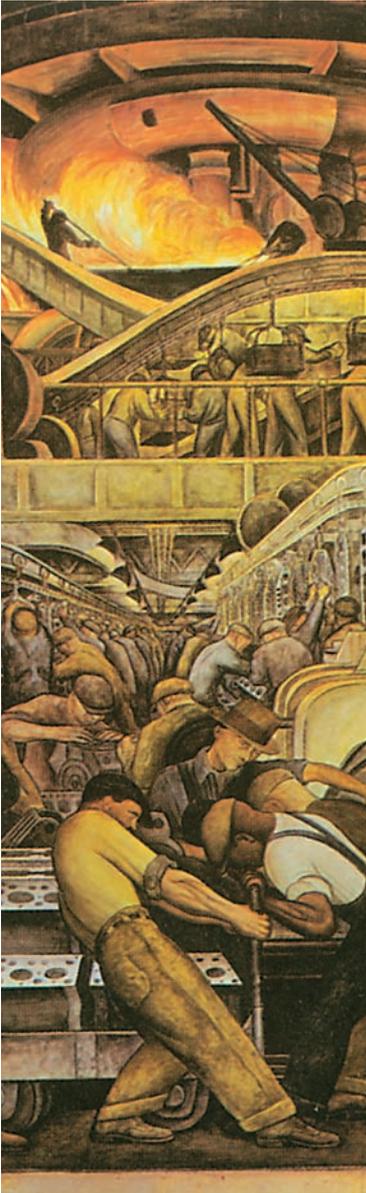
INNOVATIVE- TECHNOLOGICAL CYCLES AND CRISES: A CIVILIZATIONAL ASPECT



A synthesis of labor and natural resources finds its expression in the technological dynamics of civilizations, a periodic change of technological modes of production, technological orders and generations of technologies, large and middle waves of innovations permitting to overcome technological and economic crises. Although the innovative-technological dynamics has been inquired into enough in detail including in our works [102; 240; 247–249; 272–276], a civilizational aspect of this dynamics is worth a separate examination.

It is a problem of the current interest for the technologic upheaval unwrapping in the world at the beginning of the 21st century may cause the growth of technologic gap between civilizations and the exacerbation of global contradictions.

7.1. Technologies in the Structure and Dynamics of Civilizations



It should seem that the concept of technologies is customary and generally known. However, from the positions of a civilizational approach a lot of unclear, requiring understanding and clarification arise in it.

Let's begin with the concept «*technological mode of production*» and its place in the pyramid (structure) of civilizations (*fig. 7.1*). It may be viewed in three aspects:

➡ as a *totality of means of production* involved by a society at a certain stage of its development into reproduction process in order to ensure satisfaction of a wide range of its demands — both personal and collective. The matter in question is three major elements — instruments of labor (machines, equipment, structures), subjects of labor and sources of power;

➡ as a *totality of manpower involved in production, labor resources* with a certain level of skills distributed by sectors, regions, types of activity and professions and gearing the means of production;

➡ as a set of *technologies and ways to organize production* meeting this level of development of production forces and ensuring the most efficient combination of manpower and the means of production.

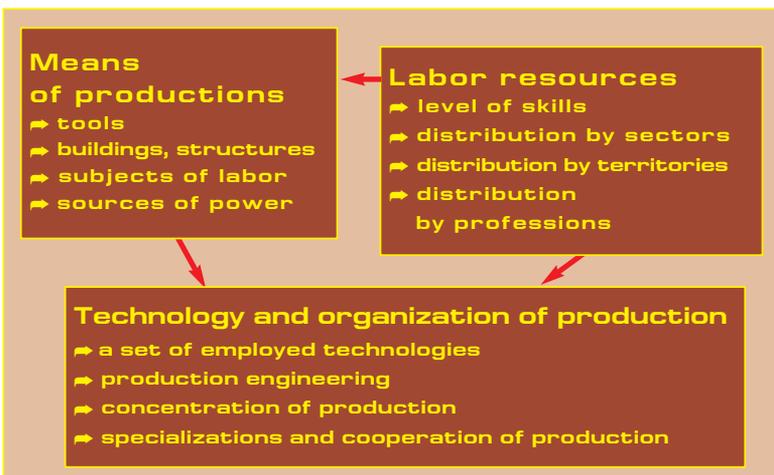
All these elements of a technological base of society are closely connected, function only in interaction and mutual completion. In order they could function efficiently, it is necessary to have a strictly defined proportionality – not only by quantity, but quality of individual elements. Only in a totality they determine the *technological level* of a given civilization (world or local), its efficiency finding its final expression in the level of efficiency of social labor (GDP production per one employed) and also technological and economic interconnections among civilizations.

However, the difficulty is that this proportionality can't be permanent, stable; changes occur continuously. Some of them are accidental, chaotic, and others are of a steady nature, predictable, expressing the *cyclical-genetic regularities of technological dynamics* (sometimes they say – technogenesis). Let's define in brief these regularities in the context of a geocivilizational approach.

1. A technological progress is a general regularity of cyclical dynamics of civilizations. It is dictated by both an increasing population and a general tendency of growing demands of each man, each country and civilization, and ensures an advance growth of the GDP as against the population growth rates. Besides, such advance from epoch to epoch goes, as a rule, with the increasing rates. One could

Figure 7.1

The Structure of a Technological Mode of Production



judge about that based on the data of **Angus Maddison** on the ratio of the GDP growth and population for a long historic period – two thousand years (*table 7.1*).

For the last half of the second millennium the world population has grown 14 times, and the world GDP – 149.8 times, 10.7 times per capita. The main factor that determines such advance was a technological progress, creation and employment of new generations of equipment and technology, the waves of innovations periodically rolling around the world. The peak of this advance was reached in 1950–1973 when the average annual GDP growth rates per capita reached 2.92% – 58.4 times higher than in 1500–1820, and 5.4 times higher than in 1820–1870 – in the period when the industrial revolution evolved [264, p. 256–263]. The technological progress is the basis of a transition from epoch to epoch in the development of a global civilization, growth of efficiency of the world civilizations following each other.

2. Dynamics of a technological base of civilizations is characterized by unevenness, cyclicity; the periods of an accelerated growth are replaced by the periods of backwater, stagnation, and also technological crises when the potential of prevailing technological modes of production and technological orders is exhausted. Zero rates of the average GDP growth per capita in the 1st millennium A.D. are first of all determined by the fact that in the middle of the millennium a painful change of world civilization and historic (millenary) super-cycles occurred, and it was accompanied by a destruction of a considerable part of production forces. This process was especially painful for Western Europe: in 1000 the GDP volume was 8.5% lower than at the beginning of the millennium; in the middle of the millennium the fall was more considerable.

A transition to the industrial technological mode of production led to the increase in the GDP growth rates per capita from 0.05% in 1500–1820 to 1.30% in 1870–1930. However, then the reduction of 0.88% in 1913–1950 was determined by other factors: this period witnessed two destructive world wars, and a technical advance was first of all targeted at the creation of weapons, means of destruction of man by man.

In 1950–1973 the record GDP growth rates per capita of 2.92% were reached for all the history of mankind (including Japan 8.06%, Western Europe 4.05%, Eastern Europe 3.8%, USSR 3.35%). This could be attributed to successes of a scientific-technological revolution. However, in the last quarter of the 20th c. the GDP growth

Table 7.1

Relation of the GDP and Population Growth Rates for Two Thousand Years *, %

Countries		1–1000	1000–1500	1500–1820	1820–1870	1870–1913	1913–1950	1950–1973	1973–2001
World	a ¹	0.01	0.10	0.27	0.40	0.80	0.93	1.93	1.62
	b ²	0.01	0.15	0.32	0.93	2.11	1.82	4.90	3.03
	c ³	0.00	0.05	0.05	0.54	1.30	0.88	2.92	1.41
Western Europe	a	0.00	0.16	0.26	0.69	0.77	0.42	0.71	0.32
	b	-0.01	0.29	0.40	1.658	2.11	1.19	4.79	2.31
	c	-0.01	0.13	0.14	0.98	1.30	0.76	4.05	1.88
Eastern Europe	a	0.03	0.15	0.31	0.77	0.92	0.26	1.01	0.12
	b	0.03	0.19	0.41	1.41	2.3	0.86	4.86	1.01
	c	0.00	0.04	0.10	0.63	1.39	0.60	3.81	0.60
Former USSR	a	0.06	0.17	0.37	0.97	1.33	0.38	1.44	0.54
	b	0.06	0.22	0.47	1.61	2.40	2.15	4.84	-0.42
	c	0.00	0.04	0.10	0.63	1.06	1.76	3.35	-0.96
USA	a	0.06	0.09	0.50	2.83	23.08	1.23	1.45	1.04
	b	-	-	0.86	4.20	3.94	2.84	3.93	2.94
	c	-	-	0.36	1.34	1.82	1.61	2.45	1.86
Latin America	a	0.07	0.09	0.07	1.25	1.63	1.96	2.73	1.96
	b	0.07	0.09	0.23	1.22	3.48	3.42	5.38	2.89
	c	0.00	0.01	0.16	1.82	1.82	1.43	2.58	0.93
Japan	a	0.09	0.14	0.22	0.21	0.95	1.32	1.14	0.65
	b	0.10	0.18	0.31	0.41	2.44	2.22	9.29	2.71
	c	0.01	0.03	0.09	0.19	1.48	0.88	8.06	2.14
China	a	0.00	0.11	0.41	-0.12	0.47	0.61	2.60	1.33
	b	0.00	0.17	0.41	-0.37	0.36	-0.02	5.02	6.72
	c	0.00	0.06	0.00	-0.25	0.10	-0.62	2.86	5.32
India	a	0.00	0.06	0.15	0.59	1.01	2.06	2.40	2.15
	b	0.00	0.12	0.19	0.38	0.97	0.23	3.54	5.12
	c	0.00	0.04	-0.01	0.00	0.54	-0.22	1.40	3.03
Africa	a	0.07	0.07	0.15	0.40	0.75	1.64	2.37	2.69
	b	0.07	0.07	0.15	0.75	1.32	2.57	4.43	2.89
	c	0.00	-0.01	0.00	0.35	0.57	0.92	2.00	0.19

*[264, p. 257, 260, 263]

¹a – average population growth rate;²b – average GDP growth rates;³c – GDP growth rates per capita

rates per capita slowed down up to 1.41% worldwide – 2.1 times; this indicates that the potential of the industrial technological mode of production was exhausted. Negative GDP growth rates per capita were observed on the territory of ex-USSR (-0.96%), in Africa and Eastern Europe – low (0.19 and 0.60%)

3. A technological progress develops unevenly by local civilizations; this or that civilization becomes a technological leader,

and in the life cycle of each civilization the periods of an innovative-technological breakthrough are followed by long periods of moderate growth rates, stagnation and even a technological degradation. In the first millennium A.D. as it follows from [table 7.1.](#), zero GDP growth rates per capita were observed in all civilizations, and in Western Europe even negative (-0.01). In 1000–1500 the leadership passed to the Western European civilization, where the growth rates made 0.13% – 2.6 times higher than average in the world; China developed with priority rates (0.06%) too. Eastern Europe, ex USSR and India somewhat lagged behind the world rate of advance, and it was minimum (0.01%) for South America, and even negative (-0.01%) in Africa.

At the next stage, in the period of the early industrial world civilization and the beginning of the industrial revolution (1500–1820), the leadership was with the USA by the GDP growth rates per capita (0.36%), Latin America (0.16%) and Western Europe (0.14%) against 0.05% world average. Eastern Europe and ex-USSR exceeded two times the average world level by growth rates (0.10%); Japan was not far from them (0.09%). At the same time, the largest civilizations of the Orient was going through the stagnation: China – zero growth, India – negative (-0.01%).

These tendencies consolidated in 1820–1870 in the period of a rise of the industrial world civilization. The leaders were Latin America (1.82%), the USA (1.34%) and Western Europe (0.88). The growth rates exceeded the world average in Eastern Europe and ex-USSR (0.63). A technological crisis was observed in China (-0.25%), stagnation in India (zero growth).

In the period of maturity of the industrial world civilization (1870–1913) the leadership in the GDP growth rate per capita remained with the USA and Latin America (1.82%), followed by Japan (1.48%), Eastern Europe (1.39%), Western Europe (1.33%). Under the average world growth of 1.30% Russia lagged behind a little from the average world level (1.06%). The recovery began in India (0.54%), Africa (0.57%) and to a less extent in China (0.10%).

In the first half of the 20st century (1913–1950) a decline of growth rates of economic and technological progress was observed nearly in all civilizations, except Africa, that was mainly determined by two world wars and the world crisis of 1929–1933. The leaders remained the USA (1.61% average GDP growth per capita) and Latin America (1.43%) – civilization of the New World, to a less extent involved in the world wars. The leadership was with the

USSR (1.76%) despite heavy losses during the wars. In Western Europe the growth rates were lower than the world average (0.76%) even lower – in Eastern Europe (0.60%). There were thrown back, degraded China (–0.62%) and India (–0.10%); for this period the GDP per capita dropped by 20.5% and 9.2% respectively.

In the post-war period when the fourth technological order was assimilated and diffused, a scientific-technological revolution developed, Japan reached the record growth rates of the average GDP per capita (8.06% – so-called «Japanese Miracle»); Western Europe was next (4.05%), Eastern Europe (3.81) and the USSR (3.35%). In Latin America and the USA the growth rates were somewhat lower than the world average (2.58% and 2.45%). The rates were relatively higher in China (2.86%), Africa (2.00%) and India (1.40%). This was the period of hopes for all-might of progress of science and technology, a bright future of all the mankind, although clouded by the sinuosities of the «Cold War» and the chance that mankind could be self-destroyed in the nuclear war.

The next turn of tendencies is observed in the last quarter of the 20th c. As a result of the decay of the USSR and neoliberal market reforms the countries of the ex-USSR left the drag race and degraded technologically: the decline rates of the GDP per capita made 0.96%. The leadership remained with Japan (but with a more modest figure of growth 2.14%), Western Europe (1.88%) and the USA (1.86%). The place of an absolute leader by the growth rates was occupied by China (5.32%), followed by India (3.01%). The growth rates sharply declined in Africa (0.19%), Eastern Europe (0.68%) and Latin America (0.91%). The next change of leaders is under way that is connected with a transition to the post-industrial technological mode of production.

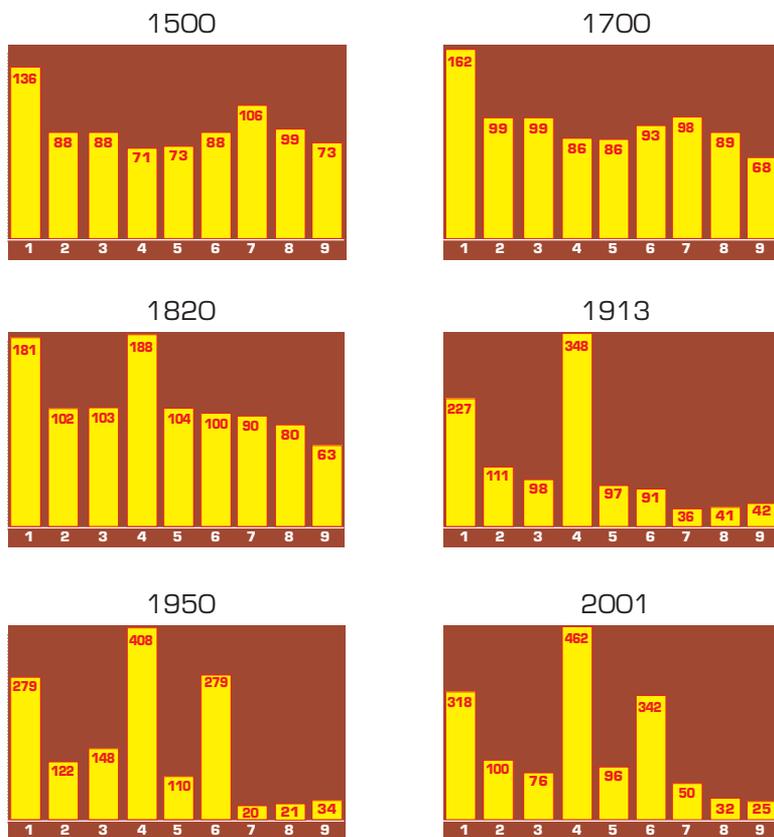
4. A general tendency towards an increase in a technological and economic gap between local civilizations is observed (table 7.2, fig. 7.2). While in the first millennium A.D. this gap was not more than 1.12 times, then by 1500 it increased up to 1.93 (Western Europe and the USA) and by 1700 up to 2.37 (Western Europe and Africa). Then in the industrial society it increased rapidly reaching 9.6 by 1913 (the USA and China).

The maximum gap was reached by 1950 – 21.78 times (the USA and China), and by the end of the 20th c. it somewhat reduced – up to 18.77 times (the USA and Africa). In the second half of the century Japan improved sharply its positions (from 91% to the average world level in 1950 up to 342% in 2001), and then China (from 20%

to the world level in 1973 up to 59% in 2001). The former USSR that had improved its positions in the 20th c. (from 98% to the world level in 1914 to 148% in 1973) made an unprecedented jump back at the end of the century – up to 76% in 2001 or two times. Such considerable technological and economic degradation as a result of the decay of a local civilization has not been observed since the times

Figure 7.2

Dynamics of a Technological Gap between Civilizations



GDP per capita in prices of 1990, in % of the world

1 – Western Europe; 2 – Eastern Europe; 3 – former USSR; 4 – USA;
5 – Latin America; 6 – Japan; 7 – China; 8 – India; 9 – Africa

Table 7.2

Technological and Economic Gap between Civilizations *

Countries		1	1000	1500	1700	1820	1870	1913	1950	1973	2001
World	a ¹	445	436	566	615	667	875	1525	2111	4095	6049
Western Europe	a	450	400	771	998	1204	1960	3457	4579	11 416	19 256
	b ²	101	92	136	162	181	224	227	217	279	318
Eastern Europe	a	400	400	496	606	683	937	1695	2111	4988	6027
	b	90	92	88	99	102	107	111	100	122	100
Former USSR	a	400	400	499	610	688	943	1488	2841	6059	4626
	b	90	92	88	99	103	108	98	135	148	76
USA	a	-	-	400	527	1257	2445	5301	9561	16 689	27 946
	b	-	-	71	86	188	279	348	453	408	462
Latin America	a	400	400	416	527	692	681	1481	2506	4504	5811
	b	90	42	73	86	104	78	97	119	110	96
Japan	a	400	425	500	570	669	737	1387	1921	11 343	20 683
	b	90	97	88	93	100	84	91	91	279	342
Japan	a	450	450	600	600	600	530	552	439	839	3583
	b	101	103	106	98	90	61	36	21	20	59
India	a	450	450	550	550	533	533	623	619	853	1957
	b	101	103	99	89	80	61	41	29	21	32
Africa	a	430	425	414	421	420	500	637	894	1410	1489
	b	97	97	73	68	63	57	42	42	34	25
Gap between upper and lower level, times		1.12	1.12	1.93	2.37	2.99	4.89	9.60	21.78	19.89	18.77

*[264, p. 262]

¹a – GDP per capita in prices of 1990;²b – to the world

of the decay of the Western Roman Empire (except for a short period of the decay of the Russian Empire, a destructive Civil War and a foreign military intervention). But at the end of the century there was no war and intervention, a technological and economic crisis was «man-made».

5. The regularities of technological genetics – heredity, variation and selection – are very important factors in the dynamics of the technosphere. The regularities of technogenetics (making a part of a more general scientific discipline – sociogenetics or socioeconomic genetics about the importance of study of which **N.D. Kondratieff** wrote from imprisonment) have been still weakly inquired into. It is worth mentioning the treatise of **B.I. Kudrin** [96],

where the concepts of technoevolution, technogenesis, intellectual and information selection are disclosed. B.I. Kudrin calls technoevolution the science about general laws of the development of equipment and technology, about principles for creation of goods and their families. He advocates the hypothesis that technoevolution repeats the features of a biological revolution at a qualitatively other level; information selection makes the factor directing such technoevolution, its action is vectorized [ibid, p. 149].

The regularities of technoevolution are addressed in the works of **A.I. Anchishkin** [6] and **S. Yu. Glaziev** [43]; however, they do not accentuate the concept of technogenetics.

Let's give *our understanding of technogenetics*, its main regularities in the processes of heredity, variation and selection.

In technoevolution *the regularity of heredity* means that the attained level of technological development, achievements of science and technology survive when there is a transition from one civilization to another, transfer to other generations forming a necessary element of a social genotype, although they are modified, mutated, enhanced at each next stage. The ability to use fire is maintained for hundreds of thousands of years; the wheel invented millennia ago still serves honestly to man in the transport systems, which have been sophisticated many times. The computer invented just a century ago will remain in this or that kind in the genotype of technology for the future. And the technogenotype of globalization is maintained and enhanced thereby.

The regularity of hereditary variation has no less significance, it is realized through technological innovations. Each historic epoch, each new technological mode of production or order, each generation of equipment (technology) is born in the cluster of epochal or wave of base innovations. They in their turn express a new level in the development of science and invention activity and meet the increased, changed technological demands of society, replenish, enhance a technological genotype. The need for such innovations, social order in them arises in the periods of technological and economic crises. At the same period the outdated technosystems die or go in the shade, local civilizations leading in the technological progress change.

In the process of the recovery from a crisis *an artificial selection* of the most efficient of many possible innovations intensifies sharply. Many new ideas and inventions will not be demanded and cast aside as inefficient or premature. The structure of scientific-technological

achievements, discoveries and inventions selected for an innovative mastering is changing by phases of technological cycles. In the phases of the formation of a new technological mode of production, technological order and generation of technology, the demand sharply increases for base innovations that form the brand new equipment and technology. Then the improving innovations come to the forefront, they are necessary for creation of new models of equipment and modification of technologies. At the completion phases of cycles the demand for innovations reduces sharply, pseudo-innovations spread – partial improvements of the generations of technology obsolete at the root and sometimes bringing a negative effect. The activity of an innovation selection is not the same in various local civilizations.

In the market economy the main tool of a technological selection is competition, a mechanism of the formation of an innovative super-profit – *innovative quasi-rent*. The entrepreneurs who have first mastered the efficient innovation get super-profit – *technological quasi-rent* – within a certain period of time until it becomes widespread, determining a socially normal level of price and quality of goods or a service. Those lagging in a technological competition incur losses and have to leave the field of economic activity. As a result the general level of costs and prices for a comparable volume of production (not adjusted for inflation) reduces from epoch to epoch, and quality and the range of goods and services improve. This process especially accelerates during transitional periods, when generations of technology and technological orders change. As a result the technological genotype of society enhances. The vanguard civilizations and countries concentrate the main mass of innovative quasi-rent with them.

However, this process is going not simultaneously for various civilizations and countries, a change of technological leaders occurs from time to time, and the count of general technological dynamics of mankind (global civilization) begins from them. Therefore the statement that some civilizations (for instance, western) are innovative by their nature, and others due to the mentality inherent to them, their technological genotype – inertial, conservative, doomed to a technological lagging is hardly valid. Actually, the flag of a technological breakthrough goes from one civilization to another (or group of civilizations) from time to time. In the first generation of local civilizations the leaders were civilizations of Egypt and Mesopotamia, during the second – Greek-Roman, Indian and

Chinese. Then the palm went to Western Europe, first of all, to Italy, and from the industrial revolution to the United Kingdom and it gave up its leadership to the USA from the end of the 19th c. In the last quarter of the 20th c. China reached the leadership in the rates of economic growth and technological development, however in terms of a technological level it is far behind the USA, Japan and Western Europe. The formation of the post-industrial technological mode of production in the first half of the 21st c. is likely to be accompanied by a replacement of a technological leader, a radical rebuilding and considerable enhancement of the technological genotype of the global civilization.

Sometimes they speak about the genotype of the system as a *hereditary invariant*, something that is transferred from epoch to epoch, from generation to generation unchanged. Such ideas hardly meet the reality. Actually, the genotype of any system, including technological, does not remain unchanged, it changes periodically and enhances as a result of hereditary variance and selection adapting to the changing conditions of life and development of this or that system. This ensures its viability and progress. A present technological genotype of civilization is by many orders of magnitude more complicated and richer than it was millennia and even a few centuries ago.

7.2. Stages of Technological Dynamics of Civilizations

The origin of technological dynamics of civilizations may be dated back to the *Neolithic revolution*. About ten millennia ago on the basis of the development of a social division of labor technological systems implementing the processes of plant-growing and cattle husbandry, crafts and construction arose.

Certainly, a set of tools was minor in the Neolithic Age of the world civilization, the main materials for production included stone, wood, bones, skins of animals etc., the source of power — a muscular force of man himself, and then of tame animals. A simple cooperation of labor underlay the organization of production, and the level of concentration of production did not go beyond the framework of a large family or community. And the efficiency of labor began to bring a more or less steady (also not always) surplus product only by the end of that period.

A decisive importance of the Neolithic revolution in the anthropogenesis and emergence of civilizations was noted by **N.N. Moissejev**: «The Neolithic revolution gave rise to all existing civilizations. Also, as the revolution in the Paleolithic that transferred mankind to a new channel of social development, a new rebuilding was of a “technogenic nature”, i.e. it was determined by the development of man-made tools... The Neolithic, i.e. the period of a rapid improvement of stone processing and use technologies has turned the biological species into Homo sapiens – monopolistic predators: creation of new weapons... has put mankind out of the competition from other predators» [136, p. 32–33]. N.N. Moissejev believes that after the Neolithic revolution the history of civilizations began, in various regions of the planet various civilizational specifics arose [ibid, p. 37]. However, one could hardly say that along with a technological mode of production of the Neolithic world civilization a technological base of local civilizations formed in the Neolithic Age. The archeological excavations show that a set of tools and objects of labor although was different in particulars in various regions of the world (connected to the differences in climate, natural conditions of production and life of people), but it was not differentiated enough so that a conclusion could be made about the formation of local civilizations in this period. It is rather a period of the accumulation of technological preconditions for the emergence of local civilizations at the next stage of the evolution of the global civilization.

At the same time it was the period when the structure of a *technological base of civilizations* was created. In the following centuries its composition changed further on, but included the same main elements:

- ➡ the subjects of labor given by nature and which were modified, transformed by man to satisfy his needs;
- ➡ the instruments of labor (tools) necessary for such transformation and made of the same subjects of labor;
- ➡ use of energy sources (at first — a muscular force of man and fire) for a transformation of the subjects of labor using the instruments of labor into consumer items and means of production necessary for man;
- ➡ differentiation of a set of subjects and means of labor and sources of energy depending on the type of activity in the system of social division of labor (husbandry, animal husbandry, crafts, construction);

➡ forms of organization and cooperation of the process of labor, uniting efforts of groups of people (large family, stem, community, tribe) to get necessary subjects and instruments of labor and end-products necessary for reproduction;

➡ differentiation of knowledge and skills, their habits of work necessary for reproduction in these specific natural and climatic conditions, communication of accumulated knowledge, skills, abilities from generation to generation.

Technological, ecological and economic modes of production of the Neolithic civilization were inseparably connected, but did not fit yet the fourth floor of the civilizational pyramid — state-political system which emerged only at the next stage.

A lack of civilizations in the Neolithic Age was noted by historians: «Tillage of land with horn and stone tools even on the softest soils was a very hard job giving though reliable, but abstemious diet. Tame wild goats and sheep gave still very little wool, not enough milk; dairy produce and meat had to be fast to consume as they could not keep them long. Only in Asia Minor, Syria and Palestine developed and rich settlements, sometimes even surrounded by wall sprang up already in the 7th—6th millennia B.C. (it means that there was something to steal and to protect), however, these were exceptions, and these ancient cultures (Jericho in Palestine, Chatal-Huyuk in Asia Minor) did not develop into civilizations» [74, vol.1, p. 28].

A transition to *an early class civilization* was accompanied by the largest technological overturn for that period — a **technological revolution of the Bronze Age**. The use of metals — copper, bronze, gold — expanded the opportunities to manufacture a wide range of labor tools, weapons, and commodities. The use of irrigated cropping in the valleys of great historic rivers increased the labor efficiency many times and gave an impetus to the formation of the states.

The manufacturing and use of labor tools and weapons made of metals became the basis for a technological overturn of that time: «The manufacturing of metal tools of labor and implements, — **John Bernal** stresses, — was a technical attainment, which marked a new qualitative change in the field of man's dominance over the environment. Metal tools are more valuable and durable, and metal weapons are many times efficient as compared to stone in the fight both against animals and enemies — other people... The technology of metal production and use of metal tools had a great significance for

other branches of engineering... The creation of first machines, specifically a wheeled cart and a water wheel became possible due to metal. Even in the farming the hoe drawn by a span of bulls or a steel plough became fully efficient only when stone was replaced with metal in tillage» [16, p. 69, 70]. The contents of the energy revolution of that period was the completion of man's muscular force with energy of tame animals — buffaloes, horses etc., which increased the scales of energy applied in production many times.

The creation of *irrigation systems* became the largest, epochal innovation, a technological breakthrough giving rise to the formation of the generation of local civilizations at the turn of the 4th and 3rd millennia B.C. in the valleys of the Nile, Tigris and Euphrates, Indus and Ganges. «Where the organized river irrigation was possible and where the soil was formed from the fructuous warp, yields began to grow fast, which was also promoted by the introduction of a tonguing and grooving along with the hoe (first using the asses, and then the oxen) and the overall improvement of tillage practices. These practices were maintained nearly unchanged for millennia. In Egypt and Sumer apparently the crops gave easily ten time, twenty time and larger yield already by the end of the 4th millennium B.C. And this means that each man began to produce considerably more than it was required for his own feeding. The growth of yield was also exclusively favorable for the development of animal husbandry, and the development of animal husbandry contributed even more to the improvement in the level of life of people. As it turned out the community was able... to release a part of its efficient people from agricultural labor. This contributed to a rapid growth of a specialized craft: pottery, weaving, braiding, shipbuilding, stone-cutting, copper, etc. Copper mastering had a special significance, first it was used as one of kinds of stones, but it was soon to be applied for forging, and then casting. Many tools and weapons which could not be made of stone, wood or bone could be made of copper and which even when broken could be remelt and used anew. A separation of crafts from farming was the second great division of labor» [ibid, p. 31].

One more major technological innovation of that period should be noted: cooperation of large masses of labor to maintain the irrigation economy in the valleys of great historic rivers: construction of palaces, temples and pyramids: «The application of organized labor of many workers on a large scale who act according to a single plan is one of the major achievements which were presented to mankind by the first civilizations» [ibid, p. 37].

Consequently, the technological mode of production of an early class civilization rested on the five greatest innovations of the technological revolution of that period: mastering of metals and a wide range of reproducible tools of labor and weapons; completion of man's muscular force with energy of tame animals; development of a highly efficient irrigation husbandry in the fertile valleys of great historic rivers; a separation of various crafts from husbandry and animal husbandry — a germ of future industry; the application of an orderly organization of large masses of labor (both free and slaves) in construction and operation of irrigation systems, and then in construction of temples, palaces and pyramids.

The next epoch — period of *the ancient world civilization* — was not marked off by such richness in epochal technological innovations; but it was characterized by a wave of base innovations, the basis of which became mastering and application of a cheaper and widespread metal — *iron*. «The Iron Age did not generate the same large technological achievements as marked the beginning of the Bronze Age, but its achievements were based on the application of a cheaper metal available in quantities, they were widespread not only geographically, but also among social classes... The peoples of the Iron Age, becoming settled, turned out to be able to establish flourishing agricultural and craft-based communities on once infertile land. The result was such reduction of political and economic superiority of early natural and valley civilizations that they did not stand as the main centers of mankind's cultural achievements, although many cultural, material, spiritual achievements were transmitted to the next generations» [ibid, p. 88, 90].

The assimilation of iron, production of carbon iron that may be quenched (a distant predecessor of the latest cast-steel) fostered the diffusion of the belt of local civilizations of the second generation to the north, lands of the Eurasian continent, expansion of the dialogue and technological exchange among civilizations, which was noted by **I.M. Diakonov**: «From the beginning of the 1st millennium B.C., with the downfall of Hittites, nobody prevented the import of iron, “the iron route” was created — from deposits of metal to the Greek cities of the southern areas near the Black Sea and through the valley of the Euphrates to the Near East. But the secret of iron extraction from ores was soon disclosed in a number of other countries... In the 9th—7th cc. B.C. in Europe and Near East the production of carbon iron was launched, such iron could be quenched — steel. Only with mass assimilation of steel production

we may speak about the coming-in of the Iron Age. Steel tools enabled to till lands more efficiently, cutting woods for ploughlands, running of irrigation canals in the solid soil, creation of improved irrigation facilities; they revolutionized smithcraft, joinery, shipbuilding and first of all weapon craft... Shipbuilding contributed to the establishment of the seaboard colonies of Phoenicians and Greeks, permitted to conduct a regular war on the sea. Tame horses trained for accompanying the herds and for military purposes first only in Eastern Europe and behind the Urals spread throughout the civilized countries now where the chariots first, and then cavalry were introduced» [62, p. 46, 47].

A technological revolution of the Iron Age was accompanied by radical innovations in the organization of production. The number of states grew – centers of craftworks – which supported with various products of its labor not only surrounding agricultural and stock-raising communities, but also other countries and civilizations. A serious division of labor – division of mental labor from physical – took place in cities. Formation of social sections oriented at the mental labor as priests, penmen, scientists, teachers, musicians, sculptors, architects began. There were formed the thoroughfares of the dialogue among civilizations and first of all the Great Silk Road – from China to Western Europe. «Throughout the history of the ancient world China remained the only country really mastering the culture of silkworm. Silk was the main goods of Han export, in Rome it was literally worth its weight in gold. The Parthian controlled the Han-Roman trade in silk, charged at least 25% of its sale price as a duty for their intermediation. The Han silk acting as goods of goods and often in the function of money played a significant role in the development of international cultural contacts between ancient peoples of Europe and Asia» [74, p. 480].

In the period of the Iron Age the next energy revolution began – the use of force of wind and water as the sources of power. In the sea voyages sail boats and vessels began to be used, which made possible distant voyages, establishing new colonies in distant seaboard areas. The Phoenician colonies of the 9th–7th centuries A.D. on Cyprus, in North Africa (Carthage), in Sicily, on the coast of southern Spain may serve as an example. The Phoenicians led active trade in copper and silver from Cyprus and Spain, iron ore from Spain, tin from Britain. Another example is Great Greek colonization of the 8th–6th c. B.C. with the establishment of Greek colonies along all the coast of the Mediterranean, Black and Azov Seas. Thus about 90 colonies

were established by Miletus. They removed from colonies grains, fish, salt, construction timber, wine, slaves in exchange of ceramics, items of metal, fabrics, oils.

A technological mode of production of the medieval civilization was characterized to a great extent by basic than epochal technological innovations. In Europe this period began from the rollback (after the developed technological systems of the Roman Empire) under the influence of destructive flows of nomadic civilizations, a wave by wave running through from the East to the West. The epicenter of a technological progress moved to the East for the time being, to China where there was invented powder, compass and book-printing.

In this period a transition from the hoe tillage of land to plough farming using the improved plough completed. The three-field system became widespread; along with the application of organic fertilizers it contributed to the maintenance of land fertility, more stable yields. «The three-field system promoted the progress of a small household and increased the efficiency of farming: while the labor inputs decreased in three times per 1 ha, two times more people could feed from it. From the 14th century the three-field system prevailed on the vastitude of the Russian valley as well» [ibid, p. 41]. The advance of the agricultural practices gave more surplus labor which served as a source of the development of cities. It in its turn made people build more powerful fortresses and castles, fortification skills improved.

A fast growing demand for farming, military, construction equipment led to the breakthrough in mining industry, metallurgy, manufacturing of tools of labor. Mining of copper, iron ore and then pit coal was done using shaft practices (sometimes the shafts were 500 m deep). The practices for making pig iron, steel, copper, getting necessary alloys, production of Damascus steel improved. In the 11th c. there were applied forge welding, hot forging, heat treatment, art forging, inlaid work and bell casting. The development of trade and long-distance anabases gave an impetus to the production of carts, coaches for the gentlefolk, construction of paved roads and bridges across the rivers. Sail deckers equipped with cannons were built. The use of compass made long-distance sea and ocean voyages safer.

The base of the energy revolution of that period became the mass application of water and wind mills, their design constantly improved; they were applied in various productions as the sources

of power. Europe, especially its North part, was set with windmills. The peak of the technological advance of that epoch was mechanical watch — from tower to pocket.

Fernand Braudel evaluates the period of the 11th–13th cc. as the first industrial revolution of Europe. It comprised the farming revolution (three-field system, use of a horse with a shoulder collar); energy revolution; the city revolution connected with the demographic boost [23, p. 563]. Successes of that time machinery impelled **Roger Bacon** in 1260, long before Leonardo da Vinci, «to forecast a great future of the machine: “It could be so that machines will be built due to which the largest vessels managed by the only man will be moving faster as if there were a lot of rowers on them; the carts will be built that will be moving with unimaginable fastness without animals; that flying machines will be built... Machines will permit to penetrate into the depths of seas and rivers”» [cited by 23, p. 195].

A widespread of shops, which united family craft workshops, promoted the advance in crafts. The shops promoted the specialization of craft tools of labor, standardization of technologies and articles manufactured where the art of craftsmen was embodied, expansion of labor cooperation. However, a tough regulation and technological conservatism resulted in balking progress of equipment by the shops in the 15th c. and gave place to the emerged manufactories, the advantages of which was the application of a division of labor within the production.

During the first one and a half millennium A.D. a gap in the level of technological and economic development per capita was minor. No technological gap existed yet between local civilizations. The exchange between civilizations not only in commodities, but in technological knowledge developed through numerous trade thoroughfares — both from East to West and from North to South (Great Silk Road, Great Volga Route, route from the Varangians to the Greeks and from the Varangians to the Persians etc.)

A technological mode of production of the early industrial world civilization reached its peak in the 16th c. and was built on the achievements of the universal technological (manufactory) revolution.

The great geographical discoveries, development of international trade gave an impetus to a swift rise in shipbuilding which fostered the revolutionary changes in the allied industries. The assimilation of the blast-furnace process and the use of coal ensured the abun-

dance of cheaper metal. The inflow of new sources of raw materials from overseas colonies, assimilation of more efficient technological practices of their processing determined a tremendous upgrowth of woolen, cotton, glass, porcelain and other manufactories. Book-printing advanced rapidly. The book became one of the instruments for speedup of a technological progress, application of new scientific knowledge in practice.

The manufactory production of fire-arms, especially artillery, various guns and pistols was built on a new technological base. Armories, arsenals were established. The Navy equipped with powerful artillery on board was set up. The *manufactory* based on the division of labor and specialized production tools became the main form of organization of production. It prevailed in Europe from the middle of the 16th c. to the end of the 17th c. and determined a leap in the growth of labor efficiency, organization of mass production, accumulation of capital, opened space for an innovative transformation of production.

The Western-European civilization became the leader of the technological overturn of the early industrial society, although Chinese and Indian prevailed quantitatively in the industrial production. A share of Western Europe in the world's GDP grew from 17.8% in 1500 to 21.9% in 1700 (including in Great Britain from 1.1 to 2.9%); a share of China fell (from 24.9 to 22.3%), it remained unchanged for India (24.4%). A share of Eastern Europe increased (from 2.7 to 3.1%), as well as that of the former USSR (from 3.4% to 4.4%) and Japan (from 3.1% to 4.1%). As a result of the destructive colonial conquest, a clash between the Western European and American civilizations, a share of the USA in the world's GDP reduced two times (from 0.3% to 0.1%), as well as that of Latin America (from 2.9% to 1.7%).

At the same time, a gap in the level of technological and economic development of local civilizations considerably increased (*table 7.3.*).

For two centuries Great Britain gained the lead, became the world leader in the level of GDP per capita, exceeding the level of Western Europe by 25% and two times — the average world level. A lag of China, India, Japan and Africa, former USSR, the USA and Latin America from Western Europe remained at the previous level. One could make a conclusion about the increase in the unevenness in technological and economic dynamics of civilizations in the early industrial period in comparison with the previous periods.

Fernand Braudel notes that by the middle of the 17th c. England had become the first industrial country in Europe; borrowing the great innovations of that time (blast furnaces, equipment for underground mining operations, ventilation systems, pumps for removal of water, hoisting machines, glass industry, wool and silk weaving etc.) from other European countries, Britain gave these innovations an unprecedented scale, completing them by the use of coal that became the main characteristic of the English economy [23, p. 569–570]. «In technical regard through the enlargement of its enterprises, through an increasing consumption of coal England introduced innovations in the industrial field. But what moved the industry forward and probably generated an innovation was a strong growth of domestic market» [ibid, p. 571]. Similar processes were observed in other countries of Western Europe determining the leading role of the western European civilization in the technological overturn of that time.

England became the epicenter of the origin and diffusion of *the industrial revolution* of the last third of the 18th—beginning

Table 7.3

**A Ratio of an Average GDP per capita
by Civilizations and Leading Countries ***

Civilization and countries	1500	1700	1820	1913	1950	1973	2001
Western Europe including Great Britain	100	100	100	100	100	100	100
Eastern Europe	64	61	57	49	46	44	31
Former USSR	64	63	37	43	79	53	24
Japan	65	57	56	40	42	100	107
China	78	60	50	16	10	7	19
India	71	55	44	20	14	7	10
USA	52	53	104	153	209	146	145
Latin America	54	53	57	43	55	39	30
Africa	54	43	35	18	20	12	8
World in general	73	62	55	46	46	36	31

*[264, p. 262]

¹in prices of 1900; Western Europe = 100

of the 19th cc., which revolutionized a technological base of the society and became the base of a multi-time speedup of economic growth rates. While in 1500–1820 the average annual increase in the world's GDP made 0.05% per capita, then in 1820–1870 it already increased 11 times – up to 0.54%, in 1870–1913 – up to 1.3%, and in 1913–1973 it reached a record level for all economic history – 1.92% – 38.4 times higher than in the pre-industrial period of 1500–1820. Even higher GDP growth indicators were for the Western European civilization (from 0.14% in 1500–1820 up to 4.05% in 1913–1972) and Japan (from 0.09 to 8.06%).

Such impressive achievements were the result of periodically repeating technological overturns when the very economy got an innovative nature in the vanguard countries, the waves of base and improving innovations rolling one after another, the prevailing generation of equipment (approximately once in a decade) and technological orders (once in a semi-century) changed each other with the increasing rate.

The industrial world civilization with a technological mode of production inherent to it originates from the *industrial revolution* which developed in the 60s years of the 18th c. in England. First, the technological overturn occurred in the textile industry as a result of the invention of spinning machine, mules and a mechanical loom. It enabled to increase sharply the efficiency of labor while reducing the cost of yarn and fabrics. From 1785 to 1850 the production of fabrics grew 50.6 times in England, while the prices dropped 5.5 times; fabrics made a half of the British exports. Craft items could not compete with the industrial production, thousands of craftsmen got bankrupt. Millions of Indian weavers died, not sustaining the competition on the part of machinery production.

A wide use of textile machines required a new and comparatively cheap source of power, engine machine. In 1784 **James Watt**, a mechanic, invented a steam engine with a flywheel –automatic controller which could actuate the textile machines with a constant speed. The ground for such an innovation matured, it spread with a fantastic speed.

The creation of machines opened a prospect for mastering of new production practices of pig iron and steel (using coke), expansion of coal mining, emergence of rail road transport and shipbuilding (with the invention of a steam-engine and steamship). Mechanical engineering emerged and began to develop vigorously, the industrial technology got its own base, which made the technological structure

of the industry more homogeneous and furthered its rapid growth. In England, a machine factory appeared as an adequate form to apply the machines replacing the manufactory.

Thus, England became the epicenter of a technical revolution that transformed radically the technological base of all spheres of economy, and then it spread swiftly in North America and Western Europe. This increased a gap in the technological level between the leading countries and many countries of Asia, Latin America, Africa, where the pre-industrial technological modes of production prevailed. While in 1700 the gap in the GDP production per capita made 2.9 times between Great Britain and Africa, then by 1820 it grew up to 4.7 times, and by 1913 — up to 7.9 times.

The next technological overturn of the industrial period developed in the middle of the 19th c., it became a logical continuation of the industrial revolution. Heavy engineering was its nucleus, production of steam-engines, construction of rail roads and navigable channels, steamboats developed with high rates. Electromagnetism was discovered, telegraph and dynamo were invented. The chemical industry developed vigorously.

However, in this period there were no such revolutionary innovations as described the end of the 18th c., it was more likely a new stage of their assimilation and diffusion on the basis of the second technological order of the industrial technological mode of production. In many countries previous technological modes of production still prevailed.

A technical revolution of the end of the 19th — beginning of the 20th c. was much bigger in scale and depth, on its basis the third technological order prevailed in the vanguard countries. Power engineering became its core: a transition from steam and coal to electricity and liquid fuel. People mastered efficient methods of production and transmission of electric power to long distances, a vigorous development of electrical engineering began. As a result of the development of production and refinement of oil, getting a range of liquid oil products and their use in internal combustion engines made the carriage of cargoes and passengers considerably cheaper, new kinds of transport (car, plane) came into existence. Electrification of production processes and everyday life opened new opportunities for transmission of energy, improvement of labor conditions and life of millions of people.

The car and plane revolutionized transport, gave an impetus to the transformation of a number of allied branches — metallurgy,

mechanical engineering, chemistry. It was needed to increase the production of cheaper steel, production of various types of quality steels and rolled products, develop non-ferrous metallurgy. In its turn, this promoted prospecting, production, treatment and processing of various types of mineral raw materials.

The progress in the chemical industry permitted to arrange a mass production of dyes, catalysts, drugs, mineral fertilizers, whose application in the agriculture together with tractors, a set of more advanced agricultural machinery and agricultural practices became the basis of a technological breakthrough in the farming, enabled to increase the yield of major agricultural crops and livestock yield.

The achievements of science and technology became the foundation of the next techno-military revolution. The emergence of military aviation and tanks, formation of powerful Navy, new types of blasting agents, toxic gases, use of radio facilities, all the said promoted the escalation of the arms race, determined heavy losses during the First World War.

What are the main results of ***technological revolutions of the period of formation and maturity of the industrial civilization?***

First, *the role of science increased* in the transformation of the technological base of production as compared to the technological overturns of the previous civilizations. New, fast developing industries (electrical engineering, motor industry, aviation, oil refining, production of mineral fertilizers etc.) were formed directly based on scientific discoveries and major inventions. The production became more and more a technological application of science. In its turn, a technological advance opened new additional opportunities for cognition.

Second, *the technological revolutions of the industrial epoch evolved based on the machinofacture*, step by step expanding the range of goods and services, increasing the depth of transformation of various fields of their application. The system of machines enabled to overcome a narrow framework of manual labor, opened space for a saltatory increase of its efficiency.

Third, *new natural production forces were made to serve man*. The sources of power became coal and steam power, then oil products and electricity. A set of products manufactured from mineral and forest raw materials expanded, and the scale of their involvement in production. The mining industry and farming got the second wind.

Fourth, *radical changes took place in the forms of organization of social labor and capital*. The giants of industry closely connected

with each other occupied the place of craftworks and manufactories. Large scale of technological innovations required the establishment of joint-stock companies, and at the end of the 19th c. — monopolies, first of all in the industries representing new technological orders.

Fifth, a technological advance and manufacture required *qualitative changes in the structure and level of skills of manpower*. The number of scientists, engineers, technicians directly involved in the process of development of production and use of sophisticated equipment in the innovative renovation of economy grew sharply. The requirements for workers' skills increased.

Sixth, as a result of technological overturns *the efficiency of labor improved, many goods became cheaper*, their range expanded sharply and the quality improved. The overall (although not equal) increase in the efficiency of reproduction, level of life of most population in the developed countries took place.

Seventh, *the unevenness in the technological dynamics of local civilizations*, their technological (and, consequently, economic) polarization *increased*. If towards the beginning of the industrial period, middle of the 18th c. a gap in the level of technological development and efficiency of labor of the major civilizations made tens of percent, towards the beginning of the 20th c. it was five times more. ([table 7.3](#)). The western civilization, using its superiority for exploitation of backward civilizations, accumulation of technological quasi-rent on a large scale arrogated the fruits of technological revolutions of the industrial period to themselves.

All this meant a quite new stage in the development of a technological base of the global civilization. But it took place against the background of a many time increase of the load on the environment, growing ecological imbalances.

7.3. Innovative Waves of the 20th Century

The technological overturns of the 20th c. are characterized by close interlacing of two main driving forces of an innovative renovation of the material-technical base of civilization — a scientific intellect and its materialization in new generations of technology. This gave ground to speak about a *scientific-technological progress* and its embodiment in the periodic waves of innovative transformations.

Any essential advance of technology is practically impossible now without new scientific ideas and their technological detailing. But also a scientific advance is unreal without latest instruments, means for information processing. The tendency of mutual penetration, merging of science and production, their integration is overruling. At the same time the regularities of cyclical dynamics of science and technology, of changing of generations of machinery, technological orders have become more apparent. The phase of the birth and technological development of a new scientific idea (scientific discovery, major invention) underlying the base innovation, new generation or direction of technology has organically joint the structure of a single scientific-technological cycle — middle-term and long-term.

The tendency of transformation of science into a direct production force, its organic merging with technological innovations generated a new form of technological overturns — ***scientific-technological revolutions*** — in the 20th century.

The first scientific-technological revolution evolved in the developed countries of the world in the 40s–50s of the 20th c., while its original scientific base was formed as a result of a series of major scientific discoveries and inventions a few decades earlier. It determined the contents of the forth technological order, whose period, when it prevailed in the vanguard countries, embraced the 50s–70s of the 20th c. Its source was the major discoveries in physics (structure and fission of atomic nucleus, quantum theory), chemistry, biology, engineering sciences. The first scientific-technological revolution was based on three scientific-technological directions: mastering the energy of atom; quantum electronics, creation of laser technology, electronic energy converters; cybernetics and computer engineering, creation of the generations of computers.

However, this is only the top of the iceberg of a scientific-technological overturn. Drastic alterations of the life of the society were required to implement it. There were created computers, machine-tools with the programmed numerical control and processing centers, automatic lines and automated control systems of production and businesses, nuclear power.

Synthetic materials — artificial resins, plastics, man-made fibre — developed vigorously. Jet engines were mastered, which resulted in the breakthrough in aviation. Technologies of continuous steel casting were invented. Exploration of space by man as a result of the synthesis of a number of scientific-technological directions: mathematics and astronautics, theory of management and computers, metallurgy

and instrument engineering, rocketry and optic technologies became the top scientific-technological achievements of the 20th c. Technological advance started to penetrate into everyday life, changing the life conditions of tens of millions families.

The creation of atomic weapon and thermonuclear weapon, missile delivery facilities to any point on the Earth, works performed in secrecy on chemical and bacteriological weapons, manufacturing of new generations of aircrafts, helicopters, tanks, artillery, automatic small arms, improved classes of warships, atomic submarines — all these achievements of the techno-military revolution in the middle of 20th c. put mankind on the brink of self-destruction.

The diffusion of the fourth technological order on the basis of the first scientific-technological revolution resulted in the record economic growth rates for all the history of civilizations. In the world in general the average GDP growth rates made 4.9% in 1950–1973, in Western Europe — 4.79%, USA — 3.93, Japan — 9.29%, Eastern Europe — 4.86%, USSR — 4.84%, China — 5.02 %, India — 3.5%, Latin America — 5.38%, Africa — 4.43% [264, p. 260]. The scientific-technological revolution served as a locomotive for an unprecedented economic growth. Expectations arose that a civilization anticipates the prosperity soon. However, “air technological castles” were soon destroyed by an inexorable rhythm of change of technological and economic orders.

Vertiginous success of the first scientific-technological revolution had its other sides. The involvement of natural (first of all mineral) resources unheard of before in the production so speeded up their depletion and increased the pollution of the environment that an ecological catastrophe began to threaten a number of mining and metallurgical regions.

All this served as a cause for the clusters of crises, which hit the world in the 70s: technological, energy, ecological, economic and social. ***The second scientific-technological revolution*** that evolved in the last quarter of the 20th c. marked the formation of the fifth technological order.

The triad of base scientific-technological directions became its nucleus: microelectronics, biotechnology and informatics. They reflect the fundamental achievements of quantum physics, molecular biology, cybernetics and the theory of information. The creation of large-scale and super large-scale integrations opened the way to microprocessor engineering, change of generations of personal computers, mobile communications, miniaturization and improvement

of the non-interaction of engineering systems in all sectors of national economy, resource-conserving. The opportunity to decipher and change the structure of hereditary matter using the methods of gene engineering enabled to build the strains of bacteria with the features beneficial to man, affect heredity and create fundamentally new processes and substances. New information technologies, perfect facilities for gathering, processing, transmission, use of information open horizons for cognition of complex processes in the nature and society and their regulation, computerization of production, management and everyday life of people.

The base directions of the second scientific-technological revolution are foundational for all the spheres of manufacturing technologies. The development of intelligent productions, robotics technology, flexible production systems, systems of computer-aided designs open the way to all-round automation.

The depletion of traditional energy resources and their high environmental hazard force to seek and master non-conventional, nearly inexhaustible sources of energy (solar, wind, ebbs and floods, etc.), apply microprocessor technology, saving energy. But a real energy revolution is still ahead.

The age of iron that has dominated as the major constructional material within nearly three millennia is coming to an end. The priority is given to the materials with tailor-made properties — composites, ceramics, plastics and synthetic resins.

Fundamentally new technologies — geobiotechnologies in extraction of raw materials, low-waste and non-waste technologies in their processing, membrane, plasma, laser, electrical pulse etc. are being mastered. This enables to get the end product at less cost and in shorter time, omitting a series of intermediate operations and processes.

Radical changes take place in communication technology and transport. Fiber-optic communication links, space, facsimile, cellular communications cause a real breakthrough in this field. A number of landmark novelties are under way in transport (air-cushion vessels, airfoil boats, railroad transport on maglev suspension, electric cars etc.). However, these novelties are being slowly assimilated; a transport revolution is lagging behind, which entails (along with growing prices for oil fuel) a relative rise in prices for transport services. The density of metropolises with cars has exceeded reasonable limits.

The second «green revolution» following the first one will meet these problems. The production of ecologically clean food using the

biotechnological practices is coming to the forefront in it, reducing the pollution of the environment with herbicides and pesticides, mineral fertilizers, application of the microprocessor-based agricultural technology and intensive technologies ensuring the programmed yields.

If a scientific and military exploration of space was typical of the first scientific-technological revolution, then it is commercial exploration of the second one. Time of scientific deeds and competition of priorities regardless of costs has mainly passed. Commercial launches of satellites are performed, present-day communication is impossible without them.

The application of personal computers and information technologies enabled to computerize refined and complex processes of management of production, economy and social processes, enhance the validity of decisions taken, exercise control over the quality of production and implementation of decisions taken. The illusions of ousting of man from the management sphere evaporated, but it became apparent that it is extremely inefficient to take strategic and tactical decisions without adequate information support, by trial and error method. The computerization level of management labor, its capital-labor ratio came close to the similar indicators in the field of material production.

There are developed fundamentally new facilities of medical technology and drugs produced with biotechnological methods, improved diagnostic and treatment tools. The computerization and informatization of education help to intensify the educational process and stimulate attention of the students.

However, it should be noted that the efficiency of the second scientific-technological revolution and the fifth technological order based on it has turned to be lower than at the previous stages of the scientific-technological progress. The average annual GDP growth rates fell from 4.90% in 1950–1973 to 3.05% in 1973–2001 in the world including Western Europe – from 4.79% to 2.21%, the USA – from 3.93% to 2.94%, Japan – from 9.29% to 2.71%, Latin America – from 5.38% to 2.89%, Africa – from 4.43% to 2.89%; Eastern Europe – from 4.86% to 1.81%; in the former USSR an absolute fall occurred – from 4.84% in 1950–1973 up to 0.42% in 1973–2001 [264, p. 260].

Against the background of the overall speedup of the labor efficiency growth rates in all civilizations as a result of technological overturns in the 20th c. there were observed two tendencies: uneven-

ness of this growth by cyclical phases and increase in a technological gap between local civilizations. One could judge about this by the figures of *table 7.4*.

What conclusions could be made based on this summary table?

1. The average annual growth rates of labor efficiency (mainly based on a scientific-technological advance) ranged from 0.4% in 1929–1938 for the world in general (influenced by the largest world economic crisis and a fall in the efficiency of the third technological order) to 3% in 1951–1960 and 2.7% in 1961–1971 in the period of the buoyant wave of the fifth Kondratieff's cycle, based on the accelerated diffusion of the fourth technological order. The mastering of the fifth technological order completing the industrial technological mode of production did not give such leap yet in the increase of the labor efficiency: average annual growth rates made 1.6% in the 80s and 1.1% in the 90s in the world in general. In general the second half of the century turned to be appreciably higher than first in terms of the labor efficiency growth rates (2.1% to 1.1%), although the rates fell by the end of the century reaching the level of the first half of the century.

2. Developed, richer countries arrogated the major fruits of the scientific-technological advance of the 20th c. to themselves: the labor efficiency grew 6.3 times for a century here, while 5.9 times for developing countries. A gap between civilizations in the level of labor efficiency grew 17 times in 1900 up to 45.8 times in 1980. However, during the last two decades it reduced up to 15.9 times, mainly due to the priority growth rates of labor efficiency in the Chinese and Indian civilizations, which strongly lagged behind and were degrading at previous time. Africa to the south of the Sahara occupied the position of the closing civilization by this indicator, where the growth rates did not exceed 1% in the second semi-century.

3. While the leadership in the level of labor efficiency was with the North American civilization (the USA) throughout the century, then the leadership changed in terms of growth rates: at the beginning of the century the USA gained the lead (2% to 1.4% average in the world, 0.9% in Western Europe, 1.8% in Japan and former USSR); in 1929–1938 North Africa, Middle East (4.1%), Japan (2.6%), the USSR (2.1%) and Western Europe (1.6%) gained the lead, while the USA (–0.6%) and India dropped (–0.7%).

In the 50s–60s Japan became an unconditional leader in growth rates of labor efficiency (and consequently, in the innovative devel-

Table 7.4

Dynamics of Labor Efficiency by Civilizations and Leading Countries in the 20th Century *

Regions		1900	1913	1929	1938	1950	1960	1970	1980	1990	2000	1950 to 1900, %	2000 to 1950, %
		World in general	a ¹	3.9	4.7	5.7	5.9	6.9	9.3	12.1	14.4	16.8	18.7
	b ²	-	1.4	0.4	1.3	1.3	3.7	2.7	1.8	1.6	1.1	1.1	2.1
Western Europe	a	9.9	11.1	15.2	14.5	14.5	20.9	31.1	38.6	46.7	53.9	146	372
	b	-	-0.9	1.6	0.0	-0.4	3.7	4.0	2.0	1.9	1.3	0.7	2.0
USA	a	17.0	21.9	29.0	35.3	35.3	38.2	49.6	59.6	69.5	72.1	208	204
	b	-	2.0	-0.6	1.6	1.6	0.8	2.6	1.9	1.5	0.5	1.4	1.4
Japan	a	3.1	3.9	7.8	6.2	6.2	12.0	27.6	37.8	53.3	54.9	200	885
	b	-	1.8	2.6	-1.9	0.0	6.8	7.9	3.2	3.6	0.2	1.4	4.5
Australia	a	14.0	17.0	18.2	23.1	23.1	27.0	35.4	43.7	51.4	58.8	165	254
	b	-	1.5		2.0	0.0	1.6	2.7	2.1	1.6	1.4	1.0	3.5
Eastern Europe	a	5.3	5.5	6.1	6.4	12.2	30.8	27.8	31.4	30.6	33.6	230	275
	b	-	0.3	0.6	0.5	5.5	5.5	2.3	1.2	0.2	0.9	1.7	2.0
Former USSR	a	4.1	5.2	5.4	6.5	9.9	18.7	24.2	28.9	26.6	14.6	241	147
	b	-	1.8	0.2	2.1	3.6	6.6	2.1	1.8	-1.0	-5.8	1.8	0.8
Russia	a	5.2	5.9	7.1	8.0	10.7	10.8	26.8	29.5	27.9	15.0	206	141
	b	-	1.0	1.2	1.3	2.5	6.9	2.6	1.0	-0.5	-5.8	1.5	0.7
China	a	1.0	1.0	1.1	1.1	0.9	1.2	1.1	1.3	3.1	7.0	90	778
	b	-	0.0	0.6	0.0	-1.7	2.9	-0.9	1.7	9.1	8.5	-0.2	-
India	a	1.7	1.8	1.8	1.7	1.6	1.8	2.0	2.5	3.4	5.9	94	369
	b	-	0.4	0.0	-0.7	-0.5	1.2	1.0	2.3	3.2	5.7	-0.1	2.6
Thailand	a	2.0	1.9	2.0	2.0	2.5	3.5	5.6	9.2	17.0	19.4	125	776
	b	-	-0.4	0.3	0.0	1.9	3.7	4.8	5.1	6.3	1.3	0.4	4.2
Indonesia	a	2.3	2.3	3.0	3.4	2.7	2.9	3.5	6.5	9.8	10.0	117	370
	b	-	0.0	1.9	0.9	-1.9	0.7	1.9	6.4	4.2	0.2	0.3	2.7
North Africa, Middle East	a	1.7	2.0	2.3	3.2	5.0	8.4	13.4	19.5	19.0	20.9	209	418
	b	-	1.3	0.9	4.1	3.5	5.3	4.8	3.8	-0.3	1.0	2.2	2.7
Africa to the south of the Sahara	a	2.0	2.2	2.3	2.4	3.0	3.5	3.7	4.0	4.3	4.6	150	153
	b	-	0.7	0.3	0.5	1.9	1.6	0.5	0.8	0.7	0.6	0.8	1.0
Gap between upper and lower level, times	a	17.0	21.9	26.3	32.1	39.2	31.8	45.1	45.8	22.4	15.6	32.6	57.8

*[133, p. 539–541]

¹ *a* – GDP output per one employed in prices and PPP of the 2000, USD thous.;² *b* – average annual efficiency growth rates for the preceding period

opment) — 6.8% and 7.9% respective average annual increase. Western Europe speeded up the growth rates (3.7% and 4%). The USA indicators became more modest (0.8% and 2.6%).

4. High growth rates of labor efficiency based on the assimilation of the fourth technological order were observed in the socialist countries in the 50s — the USSR (6.6% average annual), Eastern European countries (5.5%) and China (2.9%). However, during further decades the potential of a centrally-controlled planned mobilization model of a scientific-technological advance began to be exhausted, the labor efficiency growth rates dropped sharply — in the USSR up to 2.1% in the 60s and 1.7% in the 70s, in Eastern Europe up to 2.3% and 1.2% respectively, and in China a drop of 0.9% in the 60s and a growth of 1.7% in the 70s.

5. The picture changed drastically by the end of the 20th c. on a global technological space that was caused by a world technological crisis connected with a transition from the industrial to the post-industrial technological mode of production. In general, the labor efficiency growth rates fell considerably in the world — up to 1.6% in the 80s and 1.1% in the 90s. New leaders appeared in growth rates — China (9.1% and 8.5% of an average annual growth respectively), India caught up with it (3.2% and 5.7%). Japan where the labor efficiency growth rates fell up to 0.2% in the 90s left the ranks of the leaders. The labor efficiency rates dropped considerably in the USA (0.5% in the 90s), Western Europe (1.3%), and Australia (1.4%). The labor efficiency growth rates slowed down in the Buddhist and Moslem civilizations.

In the Eurasian civilization the most paradoxical situation formed on the territory of the former USSR where as a result of neoliberal market reforms the social labor efficiency fell by 8% in the 80s and 45% in the 90s — two times for two decades. It was an unprecedented regress, a result of a technological degradation of economy. For five years only (1991–1995), according to our estimates, a share of the fifth technological order fell three times in Russia's economy, while a share of the third and relict orders grew sharply. This entailed a fall in the competitiveness and ousting of the Russian products from both foreign and national markets.

The same new tendencies indicate that by the end of the 20th century the precondition for the next scientific-technological revolution matured, and a transition — in the scale of a global civilization — to the post-industrial technological mode of production and its first stage — sixth technological order — will become the contents of it.

7.4. Innovative Breakthrough to Technological Future of Civilizations

How will a technological base of the society change in the 21st century? Certainly, it is impossible to give a univocal answer with a high degree of accuracy to this question — too many factors determine technological dynamics, even our knowledge about future of radical scientific discoveries, major inventions and epochal innovations, which will undoubtedly change the face of the planet and fate of mankind, are quite limited.

And, nevertheless, the situation is not hopeless. We may rest on cognized regularities and tendencies in the development of science, equipment and technology, on the rhythm of changes of technological modes of production and technological orders formed in the past in the civilizational dynamics, assuming that these regularities and tendencies will mainly continue also in future provided that external factors (clash among civilizations, global technological or environmental catastrophe etc.) do not change the general trajectory of the development of the society and lead to self-destruction.

Proceeding from this assumption we'll try to ***outline a technological future of civilizations*** — global, world and local — in the most general form.

1. As it has already been stated above, **a global civilization will enter a qualitatively new stage of its development and evolvment in the third millennium — the third historic super-cycle**, which will embrace at least the first half of the present millennium and will include three world civilizations changing each other, but resting on the general fundamentals (with a reducing time of their life cycles).

Let's try to outline in large distinctive features a ***technological base of a new historic super-cycle*** as compared with the previous one, which embraced nearly a millennium and a half and included three world civilizations — medieval, early industrial and industrial coming to an end.

First, a leading, determining role of science is establishing itself and is embodied in technologies of scientific discoveries and technical inventions in the functioning and development of society, in satisfaction of increased demands of the society. In the previous historic super-cycle a significance of science grew from step to step. But inventions made by engineers-practitioners, technicians, workers,

managers were often the starting point of technological breakthroughs. At the new stage, it is nearly excluded, which is explained both by multiplicate tasks to be solved using equipment and technologies in production and everyday life and greater complexity of technologies themselves where a scientific and inventive thought of many professions and generations is embodied and remote effect of the application which is often hard to forecast and house a lot of surprises.

Now it becomes generally recognized that *the world enters the society of knowledge*. And this is for a long time, forever while mankind, global civilization exists. A scientific element becomes an essential component of the enriched genotype of a civilization – both global and regular world and a wider and wider circle of local ones (it would be prematurely to extent such evaluation to all local civilizations now). Entering the society of knowledge means that no significant technological (and even economic, ecological, social etc.) decision can be taken without resting on sciences, without all-round account for regularities, factors, tendencies of cyclical dynamics of this or that object in a total flow of scientific-technological and social-economic development. A person making this or that decision should have adequate education and world outlook, wish and be able to involve scientists of various specialization to the substantiation of such decision. A sad experience of brave transformations, but ignoring a scientific approach, in Russia of the 90s and in the ensuing years demonstrate how destructive for the country and distressing for people decisions may be without a scientific validity.

A continuous lifelong education should enable all members of the society to constantly replenish and update the bulk of knowledge, scientific toolkit, part with outdated scientific paradigms and theories modern way and master new, modern. This is the main, creative function of education, which zealous reformers pursuing quite different objectives – standardization, commercialization, informatization of this sphere at all costs – forget about. This may result in a loss of a considerable part of a scientific heritage in change of generations, so that people will be at a loss, unable of a creative decision-making in non-standard situations and solving puzzles that life offers in plenty.

Finally, the society of knowledge means new requirements to scholars, men of science, their high responsibility to the past, present and future generations for quality, completeness, accuracy and updates of knowledge being acquired, replenished and devolved for

a practical use. The scalpel of practice becomes more accurate and ruthless for scientists. The community of scientists (rather than officials) should decide the issues of support and fates of new or outdated scientific schools, establish conditions for young talents. Mankind doesn't need officials in the scientific mantle, it needs devoted researchers who give the force of their intellect and soul to search and establishment of new, who feel a moral responsibility of the after-effect of application of proposed technologies.

Second, *the relation between technologies and nature* is changing. The greatest achievements of the previous historic super-cycle were built on the involvement of new forces of nature in production (power of water and wind, powder and dynamite, electricity and oil fuel etc.), which enabled to increase the labor efficiency many times, multiply the quantity and quality of end-products manufactured and consumed, but at the same time it was accompanied by a direct and indirect environmental damage — depletion of fertile lands and best mineral deposits, deforestation, pollution of air and sources of water, etc. The activity of one of species created by nature has begun to threaten to the very existence of the biosphere.

For the present historic super-cycle, a new stage in the development of a global civilization a fundamentally different — *noospheric relation of the society and nature*, man and biosphere is typical. And this is also for a long time, and it should also become an essential element of the genotype of a global civilization, its technological base. **N.N. Moissejev** had good reasons to stress: «Civilizations, more precisely, modern civilizations, have to go along the razor blade — resting on the achievements of a scientific-technological advance, developing technology, to save mankind from dangerous effect violating the logic of nature» [136, p. 81]. This suggests a radical change not only in technologies, but in thinking, in the character of civilizations: «We've come up not only to the turning point of millennia, but to the turning point of civilizations, which requires the establishment of a new pattern of thoughts and a new system of values from people... The society is verging to the catastrophe requiring a rebuilding of all the foundations of the planetary being. I even think that we are on the threshold of a change in the nature of the evolution itself of *Homo sapiens* biological species. In other words, we are on the threshold of a new whorl of anthropogenesis» [ibid, p. 19,21].

The noospheric nature of a technological base of the third whorl in the dynamics of the global civilization will find its expression in:

➡ narrowing of natural base of social reproduction — first relative and then an absolute reduction of the volume of non-renewable natural resources involved in production — with each next technological mode of production and technological order;

➡ a sharp reduction of hazardous emissions into the environment and its refinement based on non-waste, ecologically clean technologies that will serve as a priority of an innovative development;

➡ the formation of a new system of sciences — along with natural, engineering and social sciences — *ecological sciences* that will ensure the formation of the noosphere, rational co-evolution of nature and society, reduce the probability of a global ecocatastrophe.

Third, the very technological base of civilizations will assume an *innovative nature*. It means that the changes of models of machinery and modifications of technologies, generations of machinery (technologies), technological orders and technological modes of production will be implemented consciously and in a timely manner in a flexible rhythm. It doesn't mean that the changes will occur continuously and non-stop; each technological system should implement its potential in full. However, the field, niches will reduce for a technological stagnation, use of obsolete technologies. It doesn't mean that the society, all industries of production will become technologically homogeneous and will pass from one step to another in well-knit ranks upon command. A technological heterogeneity will survive as well as market niches for efficient functioning of various technological orders. But that technological backwardness that keeps the billions of people on the brink or below the brink of a worthy existence will be removed.

Fourth, the processes of *globalization* penetrating the technological sphere *will promote the convergence of technological development of various countries and civilizations*, overcoming «technological preserves» where pre-industrial or early industrial technologies still prevail, causing damages both to man and nature. The accelerated diffusion of efficient epochal and base innovations on the planet will contribute to bringing closer now backward countries and civilizations. But in order to do so it would be necessary to overcome the resistance of TNC feeling all-powerful and unpunished in the global space.

Fifth, *demilitarization of a scientific-technological base* of the society will be evolving. During two preceding historic super-cycles a share of social labor, production and product intended for military purposes — creation and production of weapons, construction of

defensive works, maintenance of the army was built up, losses increased (although unequal in time) caused by wars. Beginning from the third millennium this historic tendency of dynamics of civilizations could be reversed. A force of human genius and labor aimed at the creation and application of the destruction means of man by man will be used for production of goods and services that are necessary for the improvement of the level and quality of life, refining the environment. The formation of this tendency will take not one decade in the 21st c. The recurrence of militarization of the society's technological base (and it is observed in recent years) is possible, but the general movement of civilizations in the direction of disarmament appears quite probable. This will contribute to the enhancement of the humanistically-noospheric direction of civilizations – global, world, local.

Such are, as we see them, some distinctive features of technological development of global civilizations at its third whorl (of course, under a favorable *optimistic scenario* of its future). Under an extremely unfavorable scenario its existence may be terminated at all, including as a result of an active manifestation of destructive effect brought by a scientific-technological advance. This is our vision of a technological future of global civilizations for the coming half of millennium.

2. Let's reduce the horizon of the foresight and try to picture distinctive features of time which is closer to us – **a life cycle of the post-industrial technological mode of production** that has begun to establish itself on the planet and is likely to reach its apogee in the period of prevalence of the eighth technological order.

In the period of the post-industrial technological mode of production the distinctive features of transformation of a technological genotype of a global civilization inherent to the third whorl of a spiral of its life cycle and referred to above will be formed and will evolve.

At the same time during the first half of the 21st c. the remainders of the industrial technological mode of production will keep gradually reducing in scale and the sphere of action. Furthermore, its carriers and adherents will seek to extend its existence under the slogans of information, biotechnological, hydrogen etc. civilization – putting to the forefront not man and his relations with nature, but this or that side of a technological advance and trying to keep a technocratic nature of civilization. Monopolies and TNC that represent this or that direction of a scientific-technological overturn are extremely

interested in it and interested in generating maximum super-profits (technological quasi-rent) from the priority direction of a scientific-technological revolution. A recent experience of the first world information crisis in 2001–2002 when many global information giants got bankrupt or suffered heavy losses has demonstrated a danger of this tendency toward highlighting and overestimating the role of an individual direction of a technological overturn. It is not still realized in full what effects such overestimation brings to man. **N.N. Moissejev** cautioned about that: «Let's imagine that all tremendous information system which has already been created on our planet and the might of which grows exponentially with each decade will once find itself in the hands of a small group of people pursuing their own mercenary interests. The effect is not difficult to foresee — this is a gradual learning by billions of people some new standards of thinking, evaluation of what's going and perception of the reality which are advantageous to this self-serving group of people. In such situation a global zombing of the planetary mankind will occur. This will be a sophisticated information totalitarianism which is more terrible than any forms of totalitarianism known to mankind, although it will bear a quite “civilized nature”» [136, p. 85].

A life cycle of the post-industrial technological mode of production will include several prevailing *technological orders (TO)* changing each other:

➡ *the sixth TO* when the basic distinctive features of the post-industrial technological mode of production (20s–60s of the 21st c.) will be implemented in the vanguard countries and on the world market;

➡ *the seventh TO* — a planetary spread of this mode of production when it brings the most social-economic and ecological effect and establishes itself in many civilizations (70s of the 21st c. — beginning of the 22nd c.);

➡ *the eighth TO* reflecting the phase of maturity of the post-industrial technological mode of production when its efficiency falls (10-40s years of the 22nd c.);

➡ *the ninth TO* — the period of decline of the post-industrial technological mode of production and appearing of the technological mode of production next to it in the vanguard countries — a next world civilization (the 60s–90s of the 22nd c.).

Certainly, this is only a preliminary and optimistic global technological forecast that proceeds from two main preconditions — that the rhythm of cyclical technological dynamics will not be violated by

external disturbances and that an average period of the TO dominance will reduce from about 50 years in the 19th–20th c. to about 40 years in the 21st–22nd c.

It should also be taken into account that the rhythm of TO change is determined by time of their prevalence in vanguard countries, on the globalized world market. However, a technological base of each country and civilization will remain mixed combining the prevailing, ending and coming TO, each of which will occupy market-technological niches most appropriate to it in this or that proportion. Also, a global technological space will include countries and civilizations with the prevalence of various technological orders where a periodical change of leaders in a technological breakthrough is possible (even unavoidable).

The **structure of TO** will also change. Now the structure of the sixth TO could be more or less vividly seen, its major scientific-technological directions may be distributed by four levels (fig. 7.3). These are base direction; manufacturing technologies; technologies closely connected with reproduction and functioning of human capital; technologies of military sphere, state administration and law and order.

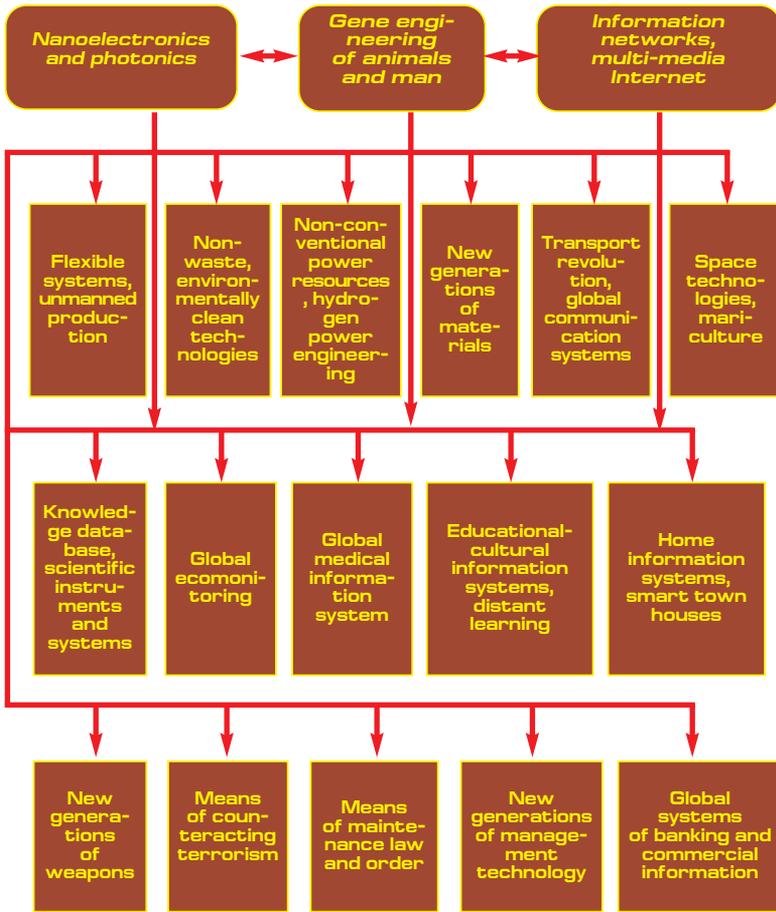
The base directions of the sixth technological order will become nanoelectronics and photonics (optoelectronics), gene engineering of plants and animals (and further also of man) and high efficient biotechnology; global information networks including a multi-language internet (that will enable to include most population in the information systems, while keeping civilizational specifics and values).

The sphere of *manufacturing technologies* will change radically: there will be widespread flexible systems fast to readjust and directly oriented at a changing demand, CALS-technologies; non-waste, environmentally clean technologies. Fossil fuel as a major energy resource will be gradually replaced with renewable, environmentally clean sources of energy and first of all hydrogen power. New highly efficient generations of materials including composites and intellectual materials will be widely applied. The revolution in the field of communications will be completed with evolving transport revolution, mastering of new transport environmentally friendly systems. A large-scale mastering of space and maricultures of technologies will begin.

A technological environment of *life activities and habitat of man* will change radically. There will be created and spread new highly

Figure 7.3

The Structure of the Sixth Technological Order



efficient generations in the field of science, education, culture, medicine ensuring reproduction and efficient functioning of man's force, home information systems, smart housing, which was already predicted in 1970 by **Alvin Toffler** [194]. All this will enable to do a considerable part of a creative labor activity at home, improve living conditions and rationalize the use of free time.

Major changes are also anticipated in the *sphere of defense, law and order and management*. A new generation of precision weapons

and dual technologies that could be attributed to the sixth technological order, are already under way. The aggravation of the international terrorism problem brings the creation of technological means to counteract them to the foreground. An innovative renewal is embracing the sphere of the maintenance of law and order. Finally, there are formed and spreading wide new generations of equipment and technology in the field of state and commercial management (an «electronic government» idea etc.).

Each of the directions referred to above will include several generations of equipment (technologies) changing each other, interrelated by horizontal and vertical with allied technological systems and with similar systems in other countries and civilizations. A peculiar three-dimensional global technological system evolving by branches and directions, countries and civilizations and in time is being formed, moving on from stage to stage more or less synchronized in all three dimensions.

3. On this basis, approaches to the *technological future of local civilizations* may be determined.

Local civilizations entered the 21st century with quite a various technological level. We've made an expert evaluation of dynamics of a technological level of civilizations in retrospect for the 2nd half of the 20th c. and for an outlook up to 2050 (*table 7.5*). The integral technological level is taken as a basis by local civilizations with the following coefficients: relict pre-industrial orders = 1, early industrial (1st and 2nd TO) = 2; further orders — from the 3rd to the 7th — according to their number.

By the beginning of the 21st c. local civilizations may be broken into three groups by a technological level of economy:

➡ *vanguard civilizations* (North American, Western European, Japanese, Oceanic — in part of Australia and New Zealand) where the fifth technological order prevails and a coefficient of a technological level makes from 4.4 to 4.7;

➡ *civilizations of an average technological level* where the fourth technological order prevails, but there are considerable inclusions of both the fifth and the third technological orders (Eastern European, Eurasian, Latin American, Chinese, Indian, Buddhist) and where the coefficient ranges from 3.1 to 3.7;

➡ *technologically backward civilizations* where the third and pre-industrial orders prevail (African, Moslem; the latter has inclusions of the fourth and fifth technological orders); an average technological level from 2.4 to 2.7.

Table 7.5

Analysis and Forecast of Dynamics of a Technological Level of Local Civilizations for 1950–2050

Civilizations of the 5th generation	1950	1960	1970	1980	2010	2020	2030	2040	2050
World in general	2.1	2.4	2.7	2.9	3.7	3.8 ^a 3.9 ^b	4.3	4.7	4.9
North American	3.0	3.3	3.7	3.9	4.7	4.9	5.2	5.5	5.7
Western European	2.6	2.9	3.4	3.7	4.4	4.5	4.9	5.2	5.4
Eastern European	2.2	2.5	2.9	3.2	3.7	3.9	4.2	4.5	4.8
Eurasian	2.3	2.7	3.1	3.4	3.5	3.7	4.1	4.4	4.6
Japanese	2.4	3.0	3.5	3.8	4.5	4.7	5.0	5.3	5.7
Chinese	1.8	2.2	2.5	2.3	3.3	3.5	3.8	4.1	4.2
Indian	1.6	1.9	2.2	2.5	3.1	3.3	3.6	3.9	4.1
Buddhist	1.5	1.8	2.2	2.5	3.5	3.7	4.1	4.4	4.7
Moslem	1.4	1.6	1.9	2.3	2.7	2.9	3.3	3.6	3.8
Latin American	2.1	2.5	2.7	2.9	3.5	3.7	4.0	4.3	4.5
African	1.3	1.7	1.9	2.1	2.4	2.6	2.9	3.2	3.4
Oceanic	2.5	2.7	3.0	3.3	4.7	4.3	4.6	4.9	5.1
Civilizations with high income	2.6	3.7	4.1	4.2	4.5	4.7	5.1	5.3	5.5
Civilizations with low income	1.7	2.5	2.8	2.9	3.4	3.7	4.1	4.5	4.8
Gap between civilizations with the highest and lowest technological level, times	2.0	2.1	1.9	1.7	1.7	1.8	1.9	1.7	1.5

Forecast: *a* – scenario of an innovative-technological breakthrough;
b – inertia-based scenario; expert evaluation

What shifts could be anticipated on a global civilizational technological space in the first half of the 21st c. in the period of the formation of the post-industrial technological mode of production?

Within this period the leadership will remain with the North American civilization which has the most powerful scientific-technological and economic potential. However, the excess of the average world level will somewhat reduce as the Chinese and Indian civilizations will speed up their run. The Western European civilization will come very close to North American using the advantage of a technological integration and bringing the Eastern European civilizations to its level, and also Japanese and Oceanic.

In the group with an average technological level the Buddhist, Eurasian, Latin American and Indian civilizations will continue to be. Under a favorable scenario they will somewhat exceed the average world level and come closer to the group of leaders, under an unfavorable scenario a lagging will increase. The African and Moslem civilizations will remain bringing up the rear. Under a favorable scenario a real assistance on the part of the vanguard civilizations their lagging will somewhat reduce, which will establish a technological base for a global sustainable development. Under an unfavorable scenario a gap will not only keep, but even somewhat increase. The unfavorable scenario will be implemented in the case if the present prevailing neoliberal model of globalizations continues in the interests of TNC and rich civilizations. In order to reverse this tendency and bridge the gap it is necessary to change the model of globalization.

Under the pursuance of an innovative breakthrough strategy oriented at the diffusion of the fifth and priority assimilation of a number of directions of the sixth technological order the Russian civilization has a chance to increase considerably a technological level and come closer to the leading group. However, if an inertia-based market strategy prevailing now continues, Russia will find itself lower than the world technological level (4.1 against 4.5), will loose a considerable part of its scientific-technological potential and becomes an object to exploit on the part of high-tech civilizations and TNC.

Consequently, in the outlook for the 21st c. under a favorable scenario a technological polarization of local civilizations will be replaced with its convergence against the background of the growth of a general technological level on the planet as a result of an innovative assimilation of the achievements of a regular (third by number) scientific-technological revolution. However, if the current prevailing tendencies continue, the gulf between vanguard and technologically backward civilizations may even increase with all negative socio-economic and geopolitical effect resultant from it.

Chapter 8

CYCLICITY OF ECONOMIC DYNAMICS OF CIVILIZATIONS



The cyclical fluctuations of economic activity, crises that periodically shock the economy (declines, recessions) are the most investigated field of cyclical dynamics. Hundreds if not thousands of books are dedicated to it in many countries of the world. Nevertheless, a civilizational aspect of such dynamics, cyclical fluctuations and crisis upheavals in the dynamics of economy of local, world and global civilizations, outlooks for changes in this aspect in the post-industrial society remain poorly investigated and require a special consideration, which is the subject-matter of this chapter.

8.1. The Gamut of Economic Cycles and Crises



The cyclical fluctuations and crisis upheavals in economic activity are extremely varied, they cover all types, spheres and levels of such activity, rule the destinies of all its subjects. Let's make an attempt to classify economic cycles and crises in a civilizational aspect.

1. By hierarchical levels of economy and its subjects it is possible to outline the following cycles and crises:

➔ *Cyclical fluctuations in a life cycle of an individual*, daily, weekly, yearly, stage (by periods of life) rhythm of their labor activity, its absence at the beginning and at the end of a life cycle, ups and downs in the labor activity and labor efficiency that follow each other;

➔ *cycles and crises in the development of family economy*, household and subsidiary household in economic activity associated with the birth and upbringing of children, maintenance of family;

➔ *cyclical ups and downs on the micro level, in economy of enterprises and organizations* (both market and non-market sectors of economy);

➔ *unevenness in the development of local economy* within a village, city, and municipality;

➔ *cyclical fluctuations and periodic crises in the dynamics of regional economy* embracing a considerable

part of national economy and reflecting the specifics of natural-climatic, technological, socio-economic development of each specific region;

➡ *cycles and crises in the development of national economy* that makes the object of regulation by the state regardless of its size — from a tiny Monaco existing through gambling to the states covering a considerable part of the territory and population on the Earth (Russia, China) and world empires (Roman, British etc.);

➡ *cyclical dynamics and periodic crises in economy of local civilizations* represented by a group of interrelated national economies (although sometimes as in case of a contemporary Japan or India — the borders of national and local-civilizational economy coincide);

➡ *cyclical dynamics of economy of world civilizations* in the periods of their emergence, diffusion, maturity, crisis and passing into the relict state, leaving the historical arena;

➡ *mega trends and fluctuations in the development of global economy* covering the period from the emergence of reproductive economy as a result of the Neolithic revolution and up to the completion of a life cycle of Homo sapiens in a quite distant (or may be not so distant?) future.

The objects of our further consideration are economic cycles and crises in three dimensions — with respect to the dynamics of local, world and global civilizations.

2. By economic activity and its spheres, it is possible to outline the following cycles and crises:

➡ in the field of *production* on all its levels connected with lifetime and periodic renewal of fixed capital, models of products and modifications of technologies, generations of equipment and technologies, technological orders and modes of production, forms of industrial engineering and management etc.;

➡ in the field of *circulation* — trade, financial, credit, currency-monetary, stock exchange etc. cycles and crises;

➡ in the field of *distribution and consumption* — in the dynamics of incomes and consumption of various groups engaged in production and outside it, in the maintenance of not yet employed or already unemployed, in economic stratification;

➡ in the field of *management* — both on the level of enterprises and organizations and on the state and interstate (including civilizational) levels.

We will consider cyclical fluctuation of all types of economic activity on the civilizational level — in the dynamics of local, world and global civilizations.

3. By length, period of duration, economic cycles are divided into:

➔ *short-term* cycles which are daily, weekly, monthly, seasonal, yearly determined mainly by the rhythms of natural cycles; life cycles of goods and economic fluctuations in 3–4 years (**Kitchener cycles**) are included here;

➔ *medium-term* cycles of 8–12 years which are determined by change of generations of equipment and technologies, known as **economic cycles or Juglar cycles**; they are best investigated as well as economic crises occurring when they change;

➔ *long-term* cycles which are 20-year investment **Kuznets** cycles and semi-century **Kondratieff big cycles of conjuncture** associated with a change in the prevailing technological and economic orders;

➔ *super long*, century (many-century) cycles which are connected with the dynamics of world civilizations and generations of local civilizations;

➔ *millennial* cycles which make up a part of historical super cycles covering the triad of kindred world civilizations;

➔ *life cycle of economy of the global civilization* which began about ten thousand years ago and will be completed with the end of the human kind and going through certain stages as century and millennial cycles.

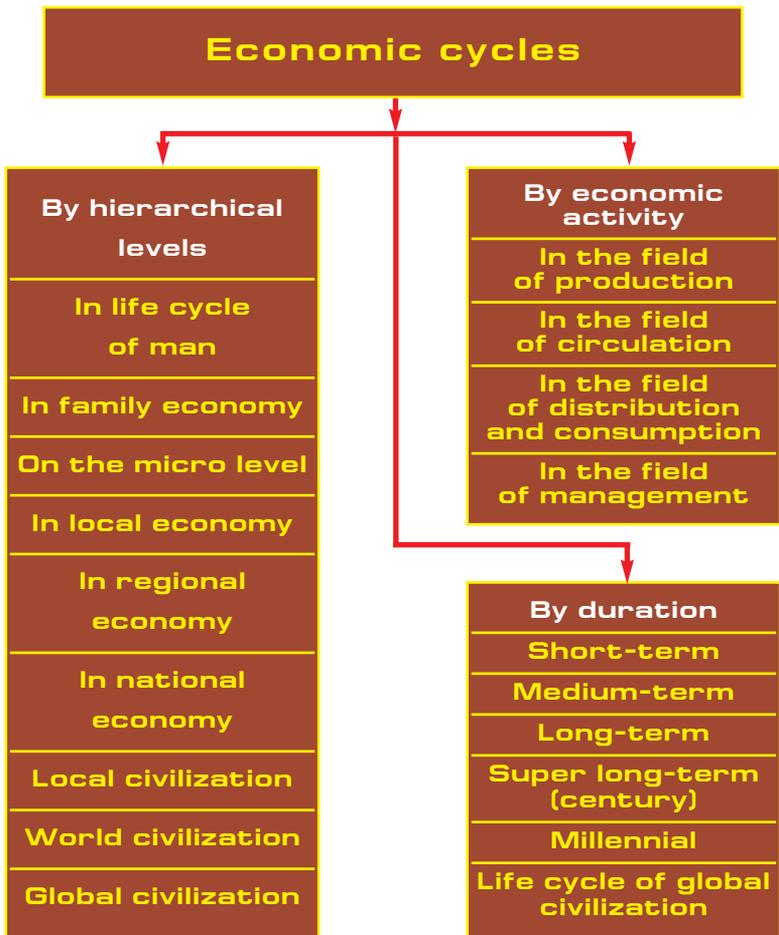
Further we will mainly investigate long-term, super long and millennial cycles and crises in the dynamics of civilizations.

The classification of cycles suggested by us is given in *fig. 8.1*. Economic crises usually develop when the cycles shown in the figure change.

8.2. Economic Cycles and Crises in the Dynamics of Civilizations

The deepest and longest *economic crisis of the end of the Mesolithic* (9–10 thousand years ago) preceded the emergence of reproductive economy. The invention and use of throwing tools (bow and arrows, spears, lances and harpoons) increased greatly the labor efficiency in hunting – in the primary activity and source for the subsistence of primitive communities – as a consequence, the herds of large animals were considerably destroyed, the increased population numbers on the Earth constantly starve and a considerable part of primi-

Figure 8.1

Classification of Economic Cycles

tive communities became extinct. The worsening of the climate contributed to this, too.

This crisis was overcome by the *largest epochal innovation: mastering of artificial reproduction* – farming and animal husbandry, and then crafts and construction. The public division of labor increased its efficiency many times, reducing the dependence on the variation of natural conditions, and became the beginning of the first big economic cycle of the period of the Neolithic civi-

lization and, simultaneously, the first ultra super historical cycle. The regions north to the equator with favorable conditions for farming and animal husbandry became its epicenter – Near and Middle East, North Africa, India and China. In the other part of the territory of the oecumene the tribes were still hunting, fishing and gathering. The peak of this cycle fell on the in 6th–5th millennia B.C. At the same time the first cities emerged. However, already in the 6th millennium B.C. it is possible to speak about ***the economic crisis of the first world civilization*** as the increased demands of the population, which had grown during the Neolithic, were more and more difficult to meet with a set of stone tools requiring more efforts for their making and unreliable in use. The labor efficiency growth rates and economic growth rates slowed down.

The way-out was found at the end of the 4th – beginning of the 3rd millennia B.C. on the basis of a technological overturn, its distinctive features were learning to melt iron making and to manufacture of a wide set of labor tools and tools of copper and bronze as well as golden decorations; creation of large irrigation systems in the valleys of great historical rivers that ensured high crop yield; concentration of population in the cities where various crafts developed, palaces and castles were built. *The second economic civilizational cycle* was characterized by the overturn in economic relations: private, public and clerical property replaced the communal one; servile labor became economically sound; there emerged medium and large households that used such labor; trade developed further (the beginnings of exchange were laid already in the Neolithic), money, prices, usury, taxes and other categories of money economy appeared. It is possible to say using the terminology of **Karl Jaspers** that it was the *axial age for economy* when there were laid its foundations that have survived in the modified form until now.

At the same period *economy of local civilizations of the first generation* was also formed. Although it had amazingly a lot in common for civilizations scattered far away from each other in the southern part of Eurasia, North Africa and in the civilizations of the New World developing in isolation (north of South America and Central America), it was remarkable for its originality depending on the natural-climatic conditions, demographic and historical characteristics. These were mainly agricultural-craft civilizations, animal husbandry was auxiliary, and a part of its

products was received as a result of exchange with the neighboring stock-raising tribes that were at the pre-civilizational stage of development. The peculiarity of economy of the first generation of local civilizations was that wars organically joined the reproduction process of manpower and became the source for replenishment of slaves deprived of families.

At the beginning of the 1st millennium B.C. ***broke out an economic crisis of the early class of the world civilization and the first generation of local civilizations.*** The fertile valleys of great historical rivers had already been developed; irrigation systems were exposed to salinization not giving considerable increase in the yield. The reserves of copper and tin were limited, bronze tools were not durable and short-life. War entailed the destruction of cities, crop failures, the whole tribes perished. It became more and more difficult to satisfy the increased demands of population in food. According to the available estimations while in 5th millennium B.C. the population increases on the Earth made 0.09% per annum with the total number of 30 mln. people, then by 2000 B.C. average annual population growth rates fell up to 0.02% with the population number of 50 mln. people.

These contradictions were solved for the time being by a transfer to an economic cycle of *the ancient world civilization and local civilizations of the second generation* in the second third of the 1st millennium B.C. The use of iron tools gave a new impetus to the growth of labor efficiency, permitted to master dry lands economically efficiently, considerably increased the range of local civilizations. «The nations of the Iron Age, — wrote **John Bernal**, — becoming settled, turned out to be able to establish prosperous agricultural and craft-based communities on the once unfertile lands. The result was such lessening of political and economic dominance of early streamside-valley civilizations that they did not act as the main center of cultural achievements of humankind, while many of their cultural, material and spiritual achievements were handed down to next generations... The centers of progress moved to the outskirts of ancient civilizations, to the settlements of nearby barbarians who devastated the old centers of civilization. As a result of abundance of iron farming should have spread throughout the continents — it became possible to cut forest, dewater marshes, and the fields got as a result of it could be ploughed... Nearly from the very beginning the city of the Iron Age turned into the center of crafts and trade that was able to get raw

materials and even manpower from outside — slaves in exchange of trading in its commodities»[16, p. 90, 92].

The most striking achievement of the Greek period of the ancient civilization was economy of the poleis cities, which rested on the developed crafts and trade, commodity exchange with other states and barbarian tribes. In the Roman period there were established large agricultural latifundia and craft-based ergasteria, money economy and international trade developed. However, in this period there were much fewer basic and more so epochal innovations than in the previous one.

In the first centuries of our era the economy of the ancient civilization and the majority of local civilizations of the second generation found itself in the state of a protracted crisis again. The slave labor became less and less lucrative, its replenishment due to war unreliable. The invasions of barbarians ruined the centers of the ancient civilizations, discontinued trade routes. During the first millennium A.D. the world GDP growth rates, according to **A. Maddison**, were close to zero — made only 0.01%. For a millennium the world GDP grew by 14% only, even decreased by 2% per capita (*table 8.1–8.3*). In the middle of the first millennium on the height of the crisis the GDP output and population numbers reduced considerably.

In this period the economy of the global civilization was in the state of stagnation, although the periods of rises and recessions in the dynamics of local civilizations were observed within the millennial period (for instance, the rise of the Moslem civilization in the times of the Arabic Caliphate), and a gap between civilizations in GDP per capita turned out to be quite inconsiderable (in the 1st year A.D. from USD 400 to 450, in the year 1000 — the same gap). A higher level was in China, India and the rest of Asia to which a share of 65% of the world GDP fell in the year 1000.

In the next semi-millennium by the year 1500 in the period of *the medieval world civilization* and the beginning of the Renaissance the GDP growth rates increased up to 0.15% (per capita — 0.05%) with higher growth rates of development in Western Europe (0.29% GDP increase rate), next included the former USSR (0.22%), Eastern Europe (0.19%), Japan (0.18) and China (0.17). Africa closed the row with its considerable GDP increase (0.07%) and its decrease per capita (–0.01%). The gap between civilizations increased considerably by the level of economic development: from USD 771 for Western Europe (and Italy

Table 8.1

Dynamics of GDP by Civilizations and Leading Countries *

Countries		1	1000	1500	1600	1700	1820	1870	1913	1950	1973	2001
World	a ¹	1026	1168	2483	3310	3713	6953	11127	27321	53297	16023	37194
	b ²	100	100	100	100	100	100	100	100	100	100	100
Western Europe	a	111	102	442	656	813	161.1	367.6	902.3	1396.2	4096	7550
	b	10.8	8.7	17.8	19.8	21.9	23.0	33.0	33.0	26.2	25.6	20.3
Great Britain	a			2.8	6.0	10.7	16.2	100.2	224.6	147.8	675.9	120.2
	b			1.1	1.8	2.9	5.2	9.0	8.2	6.5	4.2	3.2
Germany	a			8.3	12.7	13.6	26.8	72.1	237.3	265.4	944.8	153.7
	b			3.3	3.8	3.7	3.9	6.5	8.7	5.0	5.9	4.1
France	a			10.9	15.6	19.5	35.5	72.1	144.5	220.5	684.0	125.8
	b			4.4	4.7	5.3	5.1	6.5	5.3	4.1	4.3	3.4
Italy	a			11.6	14.4	14.6	22.5	41.8	95.5	165.0	582.7	1101.4
	b			4.7	4.4	3.9	3.2	3.8	3.5	3.1	3.6	3.0
Eastern Europe	a	1.9	2.6	6.7	9.3	11.4	24.9	50.2	134.8	185.0	550.8	728.8
	b	1.9	2.2	2.7	2.8	3.1	3.6	4.5	4.9	3.5	3.4	2.0
Former USSR	a	1.6	2.8	8.5	11.4	16.2	37.7	83.6	232.4	510.2	153.1	134.3
	b	1.5	2.4	3.4	3.5	4.4	5.4	7.5	8.5	9.6	9.4	3.6
USA	a			0.8	0.6	0.5	1.25	98.4	517.4	1455.9	3536.6	7965.8
	b			0.3	0.2	0.1	1.8	8.8	18.9	27.3	22.1	21.4
Latin America	a	2.2	4.6	7.3	3.8	6.3	15.0	27.5	119.9	415.9	1389.9	308.7
	b	2.2	3.9	2.9	1.1	1.7	2.2	2.5	4.4	7.8	8.7	8.3
Japan	a	1.2	3.2	7.7	9.6	15.4	20.7	25.4	71.7	161.0	1242.9	2624.5
	b	1.2	2.7	3.1	2.9	4.0	3.0	2.3	2.6	3.0	7.8	7.1
China	a	26.8	26.5	61.8	96.0	82.8	228.6	189.7	241.3	339.9	740.0	4569.8
	b	26.1	22.7	24.9	29.0	22.3	32.9	17.1	8.8	4.5	4.6	12.3
India	a	33.8	33.8	60.5	74.2	90.8	111.4	134.9	204.2	222.2	494.8	200.3
	b	32.9	28.9	24.4	22.4	24.5	16.0	12.1	7.5	4.2	3.1	5.4
Rest of Asia	a	16.5	18.6	31.3	36.7	40.6	52.2	78.0	163.1	363.0	1388.1	4908.2
	b	16.0	16.0	12.6	11.1	10.9	7.5	6.9	6.0	6.8	8.7	13.2
Africa	a	7.1	13.7	19.3	23.3	25.7	31.2	45.2	79.5	203.1	550.0	1227.6
	b	6.9	11.7	7.8	7.1	6.9	4.5	4.1	2.9	3.8	3.4	3.3

*[264, p. 252, 260]

¹a – GDP in prices of 1990, USD bln.²b – share in the world GDP, %

1,100 US dollars) up to USD 400 in the USA, 414 in Africa and 416 in Latin America.

In the period of the *early industrial world civilization* the economic growth rates accelerated considerably – up to 0.32%; however as the number of the world population grew faster in this period, the GDP increase rates per capita remained the same as in the previous period (0.05%). In this period the signs of growing polarization of the levels of economic development began to manifest themselves

Table 8.2

Dynamics of GDP per Capita by Civilizations and Leading Countries *

Countries		1	1000	1500	1600	1700	1820	1870	1913	1950	1973	2001
World	a ¹	445	436	566	595	615	667	875	1525	2111	4090	6049
	b ²	100	100	100	100	100	100	100	100	100	100	100
Western Europe	a	450	400	771	890	998	1004	1960	358	4579	11416	19256
	b	101	92	136	150	162	150	224	235	217	279	318
Great Britain	a			714	974	1250	1706	3190	4921	6439	12025	20127
	b			126	164	203	256	365	323	305	294	333
Germany	a			688	791	910	1077	1839	3648	3881	11966	18677
	b			121	133	148	161	210	239	184	292	309
France	a			727	841	910	1135	1876	3485	5271	13114	21092
	b			128	141	148	170	214	228	250	321	349
Italy	a			1100	1100	1100	1117	1499	2564	3502	10634	19040
	b			194	185	179	167	171	168	166	260	315
Eastern Europe	a	400	400	496	548	605	683	937	1695	2111	4988	6027
	b	90	92	88	92	99	102	107	111	100	122	100
Former USSR	a	400	400	499	552	610	688	943	1488	2841	6059	4626
	b	90	92	88	92	99	103	108	98	135	148	76
USA	a			400	406	527	1257	2445	5301	9561	16689	27948
	b			71	68	86	188	279	348	453	408	462
Latin America	a	400	400	416	438	527	692	681	1481	2506	4501	5811
	b	90	92	73	74	86	104	78	97	119	110	96
Japan	a	450	425	500	520	570	669	737	1387	1921	11434	20683
	b	101	97	88	87	93	100	84	91	91	279	342
China	a	450	450	600	600	600	600	530	552	439	839	3583
	b	101	103	106	101	98	90	61	36	205	205	59
India	a	450	450	550	550	550	533	533	673	619	853	1957
	b	101	103	97	92	89	80	61	44	29	21	32
Rest of Asia	a	450	450	565	656	565	584	643	882	926	2049	3980
	b	101	103	100	110	92	87	73	58	44	50	66
Africa	a	430	425	414	422	421	420	500	637	894	1410	1489
	b	97	97	73	71	68	63	57	42	42	34	25

*[264, p. 262]

¹a — USD, 1990;²b — in % to the world

clearly: a gap in the GDP level per capita by civilizations increased from 1.93 times in 1500 and 2.22 times in 1600 (Western Europe and the USA) up to 2.37 in 1700 and 2.89 times in 1820 (Western Europe and Africa). Western Europe was more and more confident in its taking the role of the world economic leader. Its share in the world GDP increased from 8.7% in 1000 up to 17.8% in 1500

Table 8.3

GDP Growth Rates by Countries and Civilizations *

Countries		1-1000	1000-1501	1500-1820	1820-1870	1870-1913	1913-1950	1950-1973	1973-2001
World	a ¹	0.01	0.15	0.32	0.93	2.11	1.82	4.90	3.05
	b ²	0.00	0.05	0.05	0.54	1.30	0.88	2.92	1.41
Western Europe	a	-0.01	0.29	0.40	1.68	2.11	1.19	4.79	2.21
	b	-0.01	0.14	0.14	0.98	1.33	0.76	4.05	1.88
Great Britain	a			0.80	2.05	1.90	1.19	2.93	2.08
	b			0.27	1.26	1.01	0.93	2.42	1.86
Germany	a			0.37	2.00	2.81	0.30	5.68	1.75
	b			0.14	1.08	1.61	0.17	5.01	1.60
France	a			0.37	1.43	1.63	1.15	5.05	2.20
	b			0.17	0.76	1.44	1.91	4.25	2.19
Italy	a			0.21	1.24	1.94	1.49	5.64	2.30
	b			0.00	0.59	1.26	0.85	4.95	2.10
Eastern Europe	a	0.03	0.19	0.41	1.41	2.33	0.86	4.86	1.01
	b	0.10	0.04	0.10	0.63	1.39	0.60	3.81	0.68
Former USSR	a	0.06	0.22	0.47	1.61	2.40	2.15	4.84	-0.4
	b	0.00	0.04	0.10	0.63	1.06	1.76	3.35	-0.96
USA	a			0.86	4.20	3.94	2.84	3.93	2.94
	b			0.36	1.34	1.82	1.61	2.45	1.86
Latin America	a	0.10	0.09	0.23	1.22	3.48	3.42	5.38	2.89
	b	0.00	0.01	0.16	-0.03	1.82	1.43	7.58	1.86
Japan	a	0.07	0.18	0.31	0.41	2.44	2.21	9.29	2.71
	b	0.01	0.03	0.09	0.19	1.48	0.88	8.06	0.91
China	a	0.00	0.17	0.41	-0.37	0.56	-0.02	5.02	6.72
	b	0.00	0.06	0.00	-0.25	1.10	-0.62	2.86	2.14
India	a	0.00	0.12	0.19	0.35	0.97	0.23	3.54	5.12
	b	0.00	0.04	-0.01	0.00	0.54	-0.22	1.40	5.32
Rest of Asia	a	0.01	0.10	0.16	0.78	1.76	2.19	6.00	4.61
	b	0.00	0.05	0.01	0.19	0.74	0.13	3.51	3.01
Africa	a	0.07	0.07	0.15	0.75	1.32	2.57	4.43	2.89
	b	0.00	-0.01	0.00	0.35	0.57	0.92	2.00	2.42

*[264, p. 262]

¹*a* – average annual GDP growth rates;²*b* – the same per capita

and 23% in 1820 and the excess of the world GDP output per capita increased from 36% in 1500 up to 81% in 1820 (in Great Britain – from 26% to 156%). The accelerated development of manufactory production, river and sea transport, colonization of America contributed to it. The development rates of Eastern Europe and former USSR were higher than the world ones: their share in the world

GDP grew in this period from 2.7 to 3.6 and 3.4 and 5.4% respectively. China with a share of 24.9% of the world GDP in 1500 and 29% in 1600 suffered heavy losses and decreased its share up to 22.3 of the world GDP by 1700, but with the priority growth rates it reached the maximum for all its history – 32.9% by 1820. However, it lagged behind not only from Western Europe, but also from the world average level by GDP per capita. The tendency was even more traceable for India, which produced nearly one fourth (24.4) of the world GDP in 1500, and in 1820 – 16%, 2.3 times lagging behind from the European average level and 3.1 times from Great Britain in terms of GDP per capita. Africa developed at the lowest rates, its share in the world GDP decreased from 7.8% in 1500 to 4.1% in 1820, and its lagging from the world average level per capita increased – from 27% to 47%. This was the period when capitalism started its victorious pace throughout the planet.

The turn in economic dynamics occurred in the period of the *industrial civilizational cycle*, in the 19th–20th centuries. It manifested itself in a sharp speedup of economic growth rates – from 0.32% in 1500–1820 to 0.93% in 1820–1870; 2.11% in 1870–1913 and after a fall in 1913–1950 up to 1.82% (because of two world wars and the strongest economic crisis of 1929–1923) – up to 4.90% for 1950–1973 (per capita 2.92%). This was the world-historical record of the economic growth, a golden period of the industrial civilization, after which the growth rates declined (3.05 in 1973–2001, per capita 1.4% in the last quarter of the 20th century).

The leadership in economy passed to the western civilization for a long time – first to Western Europe, and then the USA. A share of Western Europe in the world GDP increased from 21.9% in 1700 and 23% in 1820 up to 33% in 1870 and 1913 (including Great Britain – from 1.8% in 1600 up to 9% in 1870, the USA – from 0.1% in 1700 up to 18.9% in 1913 and 27.3% in 1950).

The Chinese and Indian civilizations that used to be leaders were ousted to the background and were in the state of a protracted crisis; a share of China reduced in the world GDP from 32.9% in 1820 up to 4.5% in 1950, India – from 24.4% in 1700 and 16% in 1820 up to 3.1% in 1973. Only in the last quarter of the 20th century they began to take revenge through increasing their share: China up to 12.3% by 2001 and India up to 5.4%. Africa found itself in the state of a protracted economic stagnation being the last in the row by the level of economic development – GDP output per capita. Latin America is on the world average level; its share in the world GDP increased

from 2.2% in 1820 and 2.5% in 1870 up to 7.8% in 1950 and 8.35% in 2001, and the relation to the GDP average output per capita decreased from 104% in 1820 to 78% in 1870, then it increased up to 119% in 1950, but dropped down to 96% by the end of the 20th.

The Japanese civilization developed at the world average rates for a long period of time: its share in the world GDP made up 3% in 1820 and reduced up to 2.3% in 1870, and then it increased up to 2.6% in 1913 and 3% in 1950. However, then the «Japanese Economic Miracle» occurred and its share increased up to 7.8% by 1973, admittedly reduced up to 7.1% by 2001. In the next quarter of the century the palm of the increase rates passed to China (6.72%), India was next (5.12%).

The Eurasian civilization (the former USSR) developed economy at the priority rates, increasing its share in the world economy from 5.4% in 1820 up to 9.6% in 1950, however in the 90s the leap back was made dropping up to 3.6%.

In the period of the industrial economic cycle the system of money relations and market institutions reached the top level of development, the world economy formed. The polarization of economic development increased sharply (GDP level per capita): from 3 times in 1820 (the USA and Africa) up to 9.8 times in 1913 (the USA and China), 19.9 in 1973 (the USA and China) and 18.8 times in 2001 (the USA and Africa).

In the 20th century monopolization of the market got going, the interference of the state in economy increased considerably – in the forms of state-monopolistic capitalism and socialist planned economy. The basis of such interference was militarization of economy. Nearly the whole 20th century passed under this flag: Russian-Japanese and Balkan wars, First and Second World Wars, «Cold War» with the nuclear arms race, Korean and Vietnamese wars etc. These wars were not accidental: they expressed the tendencies of transformation of the late industrial society according to the action of the social law of fluctuation of totalitarianism and freedom, which was formulated by **Pitirim Sorokin**. In many countries, both capitalistic and socialistic, there was formed the *totalitarian system of economy* as Pitirim Sorokin put it: this system appeared long ago and occurred not once in the history of humankind under various governmental regimes and ideologies – in certain periods of Ancient Egypt, Ancient Sparta and Roman Empire, in the Byzantine Empire, China and India [181, p. 122]. «The types of economies, systems of administration and ideologies

are not something permanent in all the countries; they continuously fluctuate between the poles of totalitarian and absolutely free regimes... During the extreme period the governmental control may increase, and the relevant systems of economy, administration and ideologies are subjected to totalitarian conversion to this or that extent; in another period in the same society, the scale and rigidity of the governmental regulatory activity may lessen, and its economy, administration, ideology and way of life are converted toward free economy, administration, ideology and way of life» [ibid, p. 123–124]. Totalirization of economy is intensified «each time when a heavy crisis breaks out in a certain society in the form of war or a threat of war, famine, great economic depression or devastating epidemic, earthquake or flood, anarchy, disorders and revolution» [ibid, p. 124]. And the stronger the crisis the more considerable is the transformation.

In the 20th century there were observed *four waves of totalitization of economy* in many countries in the periods of heavy crisis upheavals of the industrial society entered the stage of decline: during the First World War and a wave of revolutions and civil wars, which rolled after it; during the world economic crisis of 1929–1933 when according to **N.P. Fedorenko** the world industrial production reduced by 46%, real income of population – by 58%, unemployment reached 26 mln. people – one fourth of the total manpower [265, p. 65], in the years of preparations for and conduct of the Second World War, which embraced nearly the whole globe; in the period of development of the «Cold War», confrontation of two military blocs and nuclear arms race. The periods of return to «free» economy were short and weak respites against the general tendency towards intensification of totalitarianism and state regulation of economy.

However, approximately from the 80s of the 20th century the situation began to change. It became more and more obvious that the world thermonuclear war lacks prospects, where there could be no winner and according to **Pitirim Sorokin** «self-cremation of humankind» would be inevitable. Meanwhile the tendency towards detotalitarization of economy and administration increased as well as military cut, which found its expression in the economic reforms of Reagan, Thatcher, Gorbachev, in Chinese and then Vietnamese «market socialism». This opened space for action of market forces, and under conditions of globalization – for strengthening control of transnational corporations (TNC) over

economy of the states (with a simultaneous expansion of a share of small and medium business.) The collapse of centrally planned economies in the USSR and the countries of Central and Eastern Europe was accompanied by an extraordinary protracted and deep-seated economic crisis. The field for competition increased under slackening the governmental control both in national economies and on the world market, which was immediately used by powerful TNC. However, such respite was not long: from the first years of the new century the pendulum of fluctuations of totalitarianism and freedom swung again towards the totalitarian system of economy. This tendency has begun to manifest itself, although still in a weak form, in many countries. A deep **global economic crisis** associated with a transition to the post-industrial economy underlies this, with contradictions of the neoliberal model of globalization prevailing now.

8.3. Structural Dynamics of Economy of Civilizations

The structural shifts in economy of civilizations — both world and local, and global — are a momentous direction and result of cyclical-genetic dynamics of civilizations. They finally determine the efficiency of reproduction, economic growth rates, level of life of population. The rates of structural shifts are not similar at various stages of economic cycles. They speed up noticeably at the stages of revival and rise of economy.

Each local civilization is characterized by its structure changing with the stages of its life cycle. A distinctive feature of each world civilization is the proportion of reproductive, technological, sectional, institutional, value, hierarchical structure of economy inherent to it. One may judge the general tendencies in the dynamics of the structure of global economy by super historical cycles — prevalence of agricultural economy in the period of the first cycle, growing of industrial economy during the second cycle, sphere of services and high-tech products with a transition to the third cycle. The *structural cycles and crises* in the dynamics of local, world and global civilizations should be accentuated as the prime variants and elements of economic dynamics of civilizations. The *law of proportional development* underlies this dynamics. Any economic system — from a family household to world economy — functions efficiently and develops

only under an optimal proportion between its elements and in a timely change of proportions in the context of exogenous and endogenous factors of its existence. **Karl Marx** spoke about «the iron law of strictly defined proportions» in distribution of workers and means of production within the capitalistic enterprise (manufactory, plant). The same law is valid for regional, national, world economy, economy of local and world civilizations, although it is implemented spontaneously, through a continuous violation of proportion, in competitive struggle on the markets under a greater or lesser influence of the structural policy of the state.

The structure of economy of civilizations is many-sided. We suggest measuring this many-sidedness using the *multi-dimensional reproductive-cyclical macro model*. The theoretical bases for such model building and experience of its application for revealing the tendencies of structural dynamics of economy with respect to the world civilizations, for analysis and forecast of structural shifts in the economy of Russia and its external ties are set forth in some of our treatises [242, 249, 276, 103].

The elements of such multi-dimensional model are given in [fig. 8.3](#). The model permits to investigate the structure of economy of civilizations and its dynamics from the six various, but interconnected sides:

➡ *reproductive structure* — distribution of social product by reproductive sectors;

➡ *sectoral structure* — distribution of social reproduction by intersectoral complexes;

➡ *hierarchical structure* — distribution of product by hierarchical levels of reproduction;

➡ *technological structure* — distribution of produced product by technological modes of production, and internal — by technological orders;

➡ *economic structure* — distribution of the means of production and product of social reproduction by forms of ownership (economic orders);

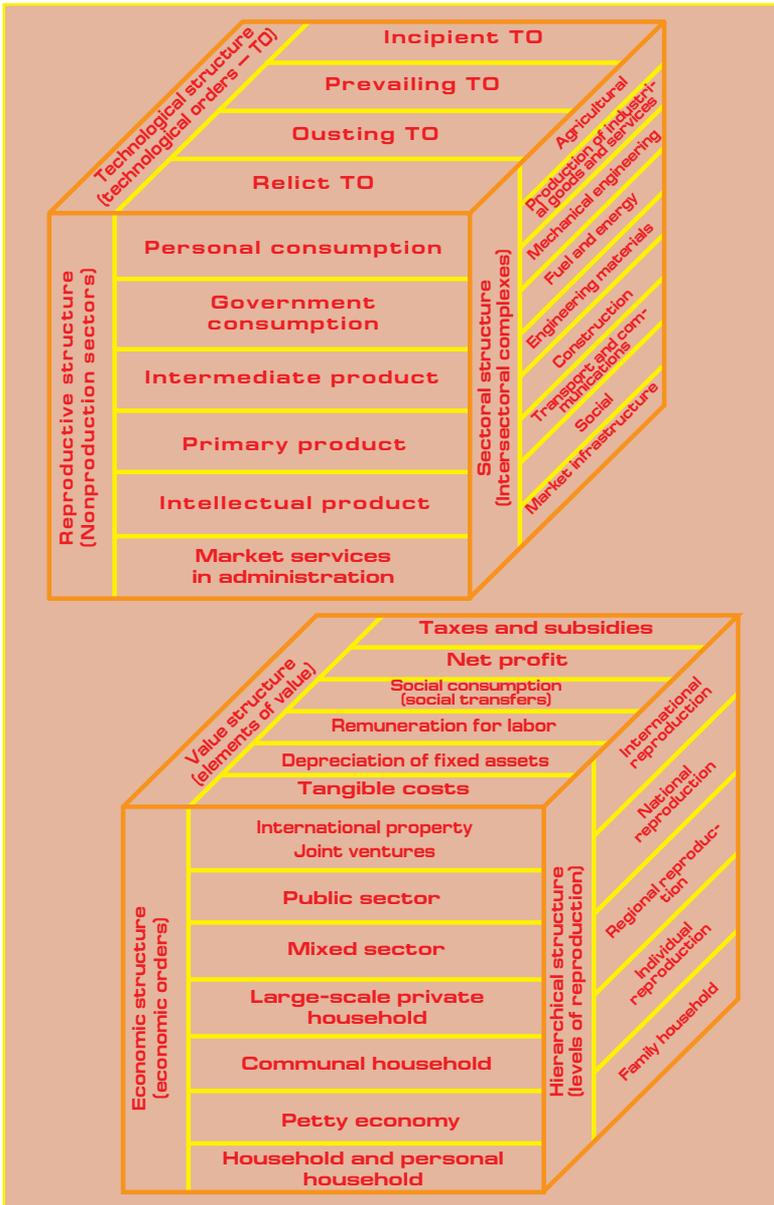
➡ *value structure* of the product of social reproduction shows the relation of the elements of value of the produced product.

The suggested macro model permits to represent economy in its multi-dimensional volumetric elements, in the complex and interconnection of various elements making it up.

The tendencies of structural shifts during the change of world civilizations based on the expert estimate are shown in [Table 8.4](#).

Figure 8.3

Multi-dimensional Reproductive-cyclical Macro Model



The period of efflorescence of each civilization by its epicenter — a vanguard civilization — is taken as the basis for such approach. The measurements are made in the form of a share in the structure of gross output.

In the period of the Neolithic civilization the sector of personal consumption absolutely prevailed, it was followed by the sectors of raw material mining and manufacturing of tools from stone, bones and wood. A respective sectoral structure characterized agricultural economy with a minor share of crafts and construction. The natural-patriarchal order based on family and communal households dominated. Nearly all products manufactured were directed to personal and public consumption; a share of accumulation was minor (about 4%).

With a transition to the *early class civilization* and emergence of private property and state, the sector of government consumption as well as petty and large-scale private orders appeared, a share of production of means of production increased (while economy remained basically agricultural), a share of tangible costs and depreciation increased in the cost of products, the national economy split-off in the hierarchical structure of economy. These tendencies established themselves during the prevalence of the *ancient world civilization*.

In the periods of the *early industrial and industrial world civilizations* a share of intermediate and intellectual sectors, market infrastructure, government consumption through a decline in the share of the primary product and personal consumption grew considerably. The same is true for production of tools and weapons, fuel and energy, goods of personal consumption, transport, carts due to agriculture; large-scale capitalist, petty and state sector due to family and public economy increased considerably. In the value structure a share of depreciation increased, unproductive consumption and accumulation under a considerable fall in the share of remuneration for labor, a specific weight of enterprises and national economy increased and the international level appeared (TNC, joint and interstate enterprises) under decline in a specific weight of family and personal natural economy.

What structural shifts in economy of the *post-industrial civilization* could be anticipated? Certain tendencies have already taken shape based on the structural shifts in economy of the end of the 20th — beginning of the 21st centuries. A share of intellectual sector (associated with a transition to a knowledge-based society)

Table 8.4

Structure of Economy of World Civilizations*

Data	N	EC	AC	M	EI	I	PI
Reproductive structure (reproductive sectors)	100	100	100	100	100	100	100
Personal consumption	69	50	40	42	37	35	40
Government consumption	-	8	12	11	12	15	12
Primary product	20	18	15	15	13	8	5
Intermediate product	8	15	17	18	20	18	16
Intellectual product	3	6	10	6	8	10	15
Market infrastructure	-	3	6	8	10	14	12
Technological structure (technological mode of productions)	100	100	100	100	100	100	100
Mesolithic	30	5	-	-	-	-	-
Neolithic	70	35	5	-	-	-	-
Early class	-	60	25	10	-	-	-
Ancient	-	-	70	20	10	-	-
Medieval	-	-	-	70	25	10	-
Early industrial	-	-	-	-	65	25	10
Industrial	-	-	-	-	-	65	30
Post-industrial	-	-	-	-	-	-	60
Sectoral structure (intersectoral complexes)	100	100	100	100	100	100	100
Hunting, fishing, gathering	26	12	5	1	-	-	-
Agro-industrial	35	30	25	30	27	12	10
Goods of personal consumption and services	8	12	13	14	15	16	19
Tools and weapons	12	15	18	16	20	22	20
Fuel and energy	6	7	8	10	11	13	14
Raw materials and materials	6	11	12	10	12	13	11
Construction	7	10	12	12	12	13	12
Transport and communications	-	3	5	7	9	11	14
Institutional structure (economic orders)	100	100	100	100	100	100	100
Family household	55	40	35	40	30	20	18
Petty economy	10	17	25	20	28	22	32
Large-scale private household	-	8	15	14	20	33	27
State sector of economy	-	15	10	14	12	17	14
Public economy	35	20	15	12	10	8	9
Value structure (elements of value)	100	100	100	100	100	100	100
Tangible costs	16	20	25	26	27	25	22
Depreciation	4	7	10	8	9	11	10
Remuneration for labor	50	42	37	38	30	25	27
Public consumption	23	15	10	7	9	11	14
Accumulation	4	7	8	9	11	13	13
Unproductive consumption	3	9	10	12	14	15	14
Hierarchical structure (levels of reproduction)	100	100	100	100	100	100	100
Household and personal household	67	50	43	45	35	22	20
Family household (enterprises)	8	14	22	33	38	45	50
Regional economy	4	6	8	12	12	11	12
National reproduction	-	10	12	10	12	14	13
International reproduction	-	-	-	-	3	7	15

* In % of gross output

Civilizations:

N – Neolithic; *EC* – early class; *AC* – ancient; *M* – medieval;*EI* – early industrial; *I* – industrial; *PI* – post-industrial

and sector of personal consumption (that reflects the tendencies towards humanization of economy) are likely the increase, while a share of primary and intermediate product and state consumption (as the tendency towards demilitarization of economy persists) may decrease. The post-industrial technological mode of production will become prevailing, but the niches for the post-industrial and even early industrial modes of production will remain (especially in the family and small-scale private household). A share of the agricultural complex and raw materials branches will continue falling, while a share of commodity goods and especially services for population, transport and communications will grow.

The turn is evolving in the institutional structure of economy: a share of a petty economy order will considerably increase due to a reduction of a share of large-scale capitalist (monopolized) and state economy. Household and personal subsidiary husbandry will mainly keep its positions. The globalization will find its expression in a considerable increase of a share of the international level of reproduction, while a share of individual enterprises will fall.

Of course, the given estimations and forecasts are mainly conditional and of an expert nature; using them, the authors express quantitatively the opinions on the shifts that have already occurred and are likely to come in the structure of economy of vanguard local civilizations at the stage of maturity of the world civilizations changing each other.

8.4. Cycles and Crises in the Economy of Civilizations of the 21st Century

Setting to make a long-range economic forecast with a century horizon in a geocivilizational aspect, one should try to answer *three main questions*:

➡ will the rhythm of cyclical dynamics of economy, which most clearly manifested itself in the period of the industrial world civilization, remain in the post-industrial period? And if so, what modifications in cyclical-genetic regularities of economic dynamics may be anticipated in the outlook for the 21st century?

➡ what are the possible outlines of medium-term, long-term (Kondratieff) and super long-term (civilizational) business cycles in the 21st century?

➡ what will be the depth and length of economic crises in the global economy and economy of local civilizations in the century already in and when approximately should they be anticipated?

Answering these cardinal questions, we are examining the economic dynamics proper and abstract it from external, exogenous factors (possibility of natural-ecological catastrophes, clash among civilizations etc.), which may render a material effect on the trajectory of economic dynamics.

1. Preservation and modifications of the regularities of cyclical dynamics of economy. In the 21st century there has appeared a number of new factors not existent in the previous centuries: formation of global, supra-national economy as a result of the intensively evolving processes of globalization; possibility (under favorable conditions) of a transition to the global directed development; a decrease in the growth rates, and then stabilization of the population numbers on the Earth with the simultaneous process of depopulation in many countries and local civilizations, which decreases the demographic load on the economic growth, but undermines its bases. How will these new tendencies influence the cyclical dynamics of economy? Would they finally entail a comparatively even trajectory of dynamics with fewer fluctuations and a slowdown in the growth rates?

There are no reasons to think that the regularities of cyclical dynamics will pass, and hope for an even, orderly sustainable development of economy with respect of global, world and local civilizations. Such illusions, if there were any with the adherents of the planned socialistic and sustainable world economy, are gone in the recent decades. The cyclicity is a general law of development; it can't but manifest itself in the economic sphere because it comprises objective preconditions and conditions of cycles: a regular change of generations of equipment, technological orders and technological modes with the fluctuations of efficiency during different phases of cycles; change of generations of people with changing demands, abilities, knowledge, skills, efficiency of activity at the various stages of life cycle; persistence of market economy with disproportions and spontaneity inherent in it, including periodic fluctuations in balance and imbalance. Cyclical unevenness of natural-ecological processes and socio-cultural factors can be considered a part of this objective basis. Economy can't develop linearly (or exponentially) according to strict mathematical laws if everything around is in the state of ongoing cyclical fluctuations.

However, it doesn't follow from the said above that the regularities and tendencies of cyclical dynamics of economics that were identified in the past centuries will be automatically transferred on the present century. On the contrary, these regularities are certain to suffer essential modification. It complies with the peculiarities of social laws and laws of development of nature that have been discovered by **N.D. Kondratieff**: «The regularity of social-economic phenomena changes with the change of structural signs of social system and nature of man... Regularities of socio-economic life are basically of a historical nature» [90, p. 220. 221].

What modifications of economic cycles could be anticipated in the present century?

First, globalization of economy, its formation as a single sophisticated system changing in the single pace, the increase of dependence between its separate branches will lead to the *synchronization of cyclical fluctuations in the scale of the global economic system*. This tendency manifested itself vividly during the first in the new millennium economic crisis of 2001–2002, especially in the investment and information spheres. Let's illustrate it by an example of direct foreign investments — the most sensible barometer of the world business conditions (*table 8.5*).

In 1986–1990 the increase rates of the world influx of direct foreign investments made up 23.1% of average annual ones. At the end of the next medium-term cycle they grew up to 40.2%, including in 1999 — 57.3%. It was investments overheat of the world economy that preceded the crisis. Already in 2000 the increase rates dropped to 29.1%, and then the crisis collapse occurred: in 2001 — a decrease by 40.9%, in 2002 — by 21%, that is by 53% in two years. This is an obvious *world investment crisis*. It evolved relatively synchronously. The leaders are the USA (a fall by 10.4 times with a preceding growth by 1.8 times), Germany (a fall by 5.3 times with the preceding growth by 8.2 times) and Great Britain (a fall by 5.2 times with the preceding growth by 1.8 times). However, exceptions could also be observed: in France direct foreign investments even grew in 2001–2002 against the previous period.

The developing countries were also involved in the orbit of the investment crisis, although not in such acute form: a fall of direct foreign investments made up 34% for 2001–2002 against a growth of 29% for 1999–2000. However, this picture is also pretentious. In Latin America a fall made up 41% (against 1997 with 48%), in Asia in general — 33%. However, in China the influx of foreign

Table 8.5

Influx of Direct Foreign Investments *

Countries		1990-1996	1997	1998	1999	2000	2001	2002
All countries	a ¹	254.3	481.9	686.0	1079.1	1393.0	823.8	651.1
	b ²		190	142	157	129	59	79
<i>Developed countries</i>	a	154.6	269.7	473.3	824.6	1120.5	589.4	460.3
	b		174	175	175	136	53	78
Western Europe	a	91.0	139.3	263.0	496.2	709.9	400.8	384.4
	b		153	189	189	143	56	96
including Great Britain	a	16.5	33.2	74.3	84.2	130.4	62.0	24.9
	b		201	224	113	155	48	40
Germany	a	4.8	12.2	24.6	55.8	203.1	33.9	38.0
	b		254	202	227	364	17	112
France	a	18.4	23.2	31.0	46.5	43.2	55.2	51.5
	b		126	134	150	93	128	93
<i>North America</i>	a	53.4	114	197.2	308.1	380.7	172.8	50.6
	b		215	172	156	102.4	45	29
including the USA	a	46.8	103.4	174.4	283.4	304.0	144.0	30.0
	b		221	169	162	111	46	21
Japan	a	0.9	3.2	3.2	12.7	8.3	6.2	9.3
	b		356	100	397	65	75	150
<i>Developing countries</i>	a	91.5	193.2	191.3	229.3	246.1	209.4	162.1
	b		211	99	120	107	85	77
Africa	a	4.6	10.7	8.9	12.2	8.5	18.8	11.0
	b		233	83	137	70	221	59
Latin America	a	27.1	73.3	82.0	108.3	95.4	83.7	56.0
	b		270	112	132	88	88	67
Asia	a	59.4	109.1	100.0	108.5	142.1	106.8	95.0
	b		184	92	108	131	75	89
China	a	25.5	44.3	43.8	40.3	40.8	46.8	52.7
	b		173	99	92	101	115	113
India	a	1.1	3.6	2.6	2.2	2.3	3.4	3.4
	b		327	72	85	105	198	100
Russia	a	1.45	4.86	2.76	3.31	2.71	12.47	2.42
	b		335	57	120	82	91	98

*[148, p. 258–260]

¹a – USD bln.;²b – in % of the previous period

investments continued: it grew by 29.1% in two years, in India they grew by 48% in 2001. In Russia, the peak of the growth of direct foreign investments fell to 1997 (335% against an average annual indicator of 1991–1996). However, in 1998 they fell by 43% as a result of default; they somewhat increased by 1999, and then they decreased from year to year and made 73% of the 1999 level in 2002 and 0.37% of the world direct investments. The

major influx of direct investment goes to the developed countries (in 2000 – 80%, in 2002 – 71%), Latin America (6.9% and 8.6% respectively) and China (2.9 and 8.8%). It is interesting to note that in 2002 8.8% of direct foreign investments came to China – the country with planned economy, and only 0.5% to India with market economy. In Russia the market reforms according to the neoliberal reform failed to lead to the desired and promised influx of direct foreign investments in economy, in 2002 their amount as 23 times less than in economy of a socialist China.

It is clear from table 8.5 that, on the one hand, there is a clearly-expressed rhythm of cycles and crises in the world economy forming a single whole as a result of globalization; on the other hand, each civilization has an individual trajectory of cyclical dynamics, which sometimes finds itself in the anti-phase to the world cycle. But this is more likely an exception than a rule.

In the second half of the 20th century the cycles of economic dynamics of local civilizations were often in the anti-phases: crises of the 70s and 80s in the western civilizations took place on the background of the prosperity phases in the Chinese civilization and maturity in the Eurasian and Eastern European civilizations. In the 90s the phases of revival and prosperity in western civilization were combined with stagnation in the Japanese economy and a deep-seated economic crisis of the Eurasian and Eastern European civilizations. In the outlook for the 21st century it can be expected that the rhythm of economic cycles will become more and more synchronized for various civilizations, although the peculiarities will certainly remain in the rhythm of each civilization.

Second, the *movement vector of polarization* in the world economy depends on the prevailing model of globalization (neoliberal or humanistically noospheric) – whether an extreme gap formed between rich and poor countries and civilizations will increase or be bridged. At the end of the 70s the UN already set a task to reduce almost a double gap by GDP per capita between the developed and developing countries by 2000 – from 12 to 7 times; such opportunity was validated by the UN group of experts headed by the Nobel Prize winner **V.V. Leontieff** [24]. However, the outcome was the opposite. The gap between civilizations with the highest and lowest level of economic development continued to increase throughout the 20th century (*table 8.6*).

Although during the last quarter of the century the lagging of India from Western Europe and the USA reduced considerably,

Table 8.6

A Gap in GDP per capita between Civilizations with the Highest and the Lowest Income *

Civilizations and leading countries	1820	1870	1913	1950	1973	2001	2001 of 1913, %
<i>GDP per capita, US dollars in 1990</i>							
Western Europe	1204	1960	3458	4579	11 416	19 256	557
USA	1257	2445	5301	9561	16 689	27 948	527
India	533	533	673	619	853	1 957	291
Africa	420	500	637	894	1 410	1 489	234
<i>Lagging of the lowest income from highest, times</i>							
India from Western Europe	2.3	3.7	5.1	7.4	13.4	9.8	192
from the USA	2.4	4.6	7.9	15.4	19.6	14.3	181
Africa from Western Europe	2.9	3.9	5.4	5.1	8.1	12.9	239
from the USA	3.0	4.9	8.3	10.7	11.8	18.8	227

*[264, p. 262]

however, in general it grew by 1.9 times during the 20th century with respect to Western Europe and by 1.8 times with respect to the USA, and remained by 2001 on the level of 9.8 and 14.3 times, respectively. The lagging of Africa increased in each period, in general during the century it increased by 2.4 times with respect to Western Europe and by 2.3 times with respect to the USA and it reached 12.9 and 18.8 times, respectively, by 2001. Let's remark that in 2001 the population in India was 1.7 times larger than in Western Europe and the USA taken together, and in Africa — 1.35 times larger [263, p. 256].

If we take into account that the developed countries will assimilate the more efficient sixth technological order rapidly in the near decades, and the lagging civilizations have no necessary resources for that, then with a today's neoliberal model of globalization prevails, the polarization in the world economy will still increase in the long term. Only the replacement of this model with the humanistically-noospheric one and the solution of the problem of global sustainable development under the priority growth of the countries lagging behind now may reverse the tendency, gradually softening up the polarization of countries and civilizations by the level of economic development.

Third, in the outlook for the 21st century the *reduction of an average duration of economic cycles* may be expected: medium-term cycles — from today's 9–11 to 7–9 years by the end of the century (speedup of the renewal rates of generations of equipment and technologies); long-term Kondratieff cycles — from 45–55 to 40–45 years (and, consequently, the frequency in the change of technological orders); super long-term (civilizational) cycles — from 2.3–2.5 centuries for the industrial economic mode of production — for approximately up to 2 centuries for integral post-industrial one.

The essence of the coming mode of integral production was first grounded by **Pitirim Sorokin** [181, p. 115–116]. This idea was further developed by **L.I. Abalkin** based on his *theory of historical synthesis*: «The logic of historical progress... may be described using the theory of historical synthesis. Its gist is in the viewing of socio-economic changes against the wide historical background as a result of combination and network of the development tendencies of personal rights and freedoms, socialization of national life and social structure» [1, p. 48]. The change in the nature of globalization will foster it: «The trouble is not in globalization itself, but in political and economic mechanisms it is regulated by. The humankind is powerless in the face of the threats of globalization; it is able — on the planetary scale — to direct its pace most reasonably and successfully. Potentially, globalization will allow to increase sharply the efficiency of production, to soften up environmental effect of growth, to distribute more evenly the wealth between the rich and the poor» [ibid, p. 125]. The use of the resources offered by the historical synthesis and a positive model of globalization will ease the tension and contradictions in the global economic system, and thus it will foster the speedup of a civilizational progress, reducing of an average duration of economic and technological cycles.

Hence, the answer to the first question is unambiguous: ***the cyclicity of economic dynamics will remain in the post-industrial world civilization, but will be essentially modified.***

2. The outlines of the cycles of the 21st century. Now let's give an answer to the second question: what are the outlines of anticipated economic cycles of various duration within the present century?

We'll begin with a simpler, obvious and regular form of cyclical dynamics — from the ***medium-term economic cycles***. As it has

already been said above, they will remain in a new century as well as the cycles of change of generations of equipment (technologies) determining them. It was **K. Marx** who noted that the periodicity of crises is determined by the periods of renewal of the fixed capital (it is worth adding that of its active part). The periodicity of renewal of generations of equipment (technologies) is likely to be reducing, especially in the phases of revival and prosperity of long-term (Kondratieff) and super long-term (civilizational) economic cycles. Therefore (if one abstracts from the influence of external factors) 11–12 medium-term economic cycles instead of 10 might change during the century.

The first of the cycles of the 21st century has already begun its way since the world economic crisis of 2001–2002. This has resulted in a sharp slowdown of the GDP growth rates, especially in the countries with a high level of income (*table 8.7*) and a fall of production in Latin America.

At the same time in a number of countries with low and medium income (China, India and Russia) the GDP growth rates increase was observed. This fact reflects the peculiarity of their economic cycle being in the anti-phase to the general world cycle.

Next crises will occur approximately at the beginning of each decade, and may be more often in the long term. If the regularity of mutual influence of medium-term and long-term cycles [86, p. 339, 379–380] identified by **N.D. Kondratieff** is taken into account, then one could expect that on the down waves of big (Kondratieff) cycles the crises of medium-term cycles will be deeper, and their upturns smaller. On the up waves – the picture is opposite. As since the beginning of the 21st century according to our approach the down wave of the fifth Kondratieff cycle has taken shape, then the nearest two medium-term cycles will be characterized by deeper recessions and smaller upturns, and a reverse tendency will overrule for a couple of cycles after the 30s. In the second half of the century such change of tendencies will likely to repeat, if non-economic factors do not interfere in the course of economic dynamics.

As for *long-term economic cycles*, according to our estimates, a transition from the up wave to the down wave of the fifth Kondratieff cycle has occurred since the beginning of the century. It might be anticipated that approximately in the 20s the up wave of the sixth Kondratieff cycle will begin (as well as the technological order adequate to it). It is germinating in the depths of the

Table 8.7

Average Annual GDP Growth Rates, % *

Civilizations and leading countries	GDP			GDP per capita		
	1999- 2000	2001- 2002	2002- 2003	1999- 2000	2001- 2002	2002- 2003
<i>World</i>	3.9	1.9	2.8	2.5	0.7	1.6
Countries with high income	3.5	1.6	2.2	2.8	1.0	1.7
including the USA	4.2	2.4	3.1	3.0	1.4	2.2
Great Britain	3.1	1.8	2.2	2.7	1.5	2.0
Germany	3.0	0.2	-0.1	2.9	0.0	-0.1
France	3.1	1.2	0.5	2.6	0.7	0.0
Japanese	2.4	0.3	2.7	2.2	0.2	2.5
Countries with low income	4.2	4.0	6.9	2.2	2.1	5.7
Countries with low and medium income	5.4	3.3	5.2	3.9	2.0	3.9
including China	7.9	8.0	9.3	7.2	7.3	8.6
India	3.9	4.0	8.6	2.0	3.0	7.1
Russia	8.3	4.3	7.3	8.9	4.8	7.8
Latin America	3.8	-0.8	1.6	2.3	-2.2	0.1
Africa south to the Sahara	3.1	2.8	2.2	0.6	0.5	1.7
Middle East and North Africa	4.0	3.0	5.7	2.0	1.0	3.7

*[271, p. 22–24]

passing cycle and will determine the competitiveness of goods and services on the world market (and consequently, in the internal one) in the 20s–40s. Considering a certain reduction of long-term cycle duration, the sixth cycle will prevail approximately within four decades, and it will give place to the next seventh Kondratieff cycle thereafter and it will be prevailing from the end of the 21st century. However, we take «pure logic» of economic dynamics here, excluding possible perturbing factors in the allied spheres.

Apparently, *by the middle of 21st century the formation of the post-industrial economic mode of production (super long-term economic civilizational cycle) will have mainly been completed in the group of vanguard countries.* In the second half of the century this mode of production will be expanding embracing more and more new countries and civilizations, and it will become prevailing in the global economic space by the end of the century.

3. Economic crises of the 21st century. It is difficult to forecast economic upheavals in the «bright future» of the post-industrial world, nevertheless, it is necessary to do so to get ready in advance

for future crises, diagnose them soundly and choose reliable means for passing through a crisis phase in the shortest possible term and with fewer losses. What shall we expect?

First, to anticipate that a transition to the so-called «sustainable development» will permit to part with economic crises (they could be called a decline, recession, etc. — it does not change their essence) — is a dangerous utopia, delusive hopes. **N.N. Moissejev** has shown that the notion «sustainable development» translated into Russian — contains a controversy in itself: ***development can't be sustainable***; it follows from the instability in the dynamics of the system and gives rise to a new instability [136]. Crisis phases in the cyclical dynamics of economic systems will persist as long as such systems exist and develop. Moreover, in this dynamics crises are necessary and beneficial cleaning the economic space from outdated elements, opening space for the formation and development of new elements of its hereditary genotype. Attempting to «clean» the economic system from crises means to doom it to stagnation and finally to the death.

Second, the rhythm of repetition — approximately each decade — of crisis phases of medium-term economic cycles will remain. On the other hand, they can essentially differ in various countries and civilizations. Being synchronized in the leading countries of the given civilization, they differ considerably in civilizations and countries distant from the epicenter. For instance, when the western civilizations went through the revival and prosperity in the 90s, the Eurasian civilization was in the state of a deep crisis. In the period of world economic crisis of 2001–2002 the economy of Russia and other countries of the Eurasian civilization was in the anti-phase, in the period of revival. However, globalization of economy is likely to reduce the possibility of such deviations from the general rhythm.

Third, the transition from the fifth to the sixth Kondratieff cycle will give rise as it might be expected, to a deeper and more protracted crisis at the beginning of the 20s, and the easing of the depth of crises may be observed on the up wave of the sixth cycle thereafter. The reverse tendency may be observed since the 60s, with a transition to the down wave of the sixth cycle. The next deep crisis may be observed in the 80s of the 21st century.

Fourth, a long crisis phase of the civilizational cycle associated with the transition from industrial to the post-industrial world civilization is likely to last from the 90s of the 20th century till the

20s–30s of the 21st century, and even longer on the periphery. A civilizational crisis will lead to a deep transformation of the structure of economy and mechanism of its functioning; not all parameters of such transformation are clear yet.

However, it should be taken into account that economic cycles and crises of the 21st century will be evolving against new tendencies being germinated by globalization: «In the years to come, — as **Alvin Toffler** forecasts, — we'll become witnesses of a titanic fight for power between the adherents of global and national concepts of economy, fight for the regulation on the world market of capital. This struggle will reflect the contradiction between the dying industrial order and the new global system of creating material values replacing it» [193, p. 85]. In a knowledge-based society the innovator becomes the prime mover: «A new hero is already not a non-skilled worker, not a financier and manager, but the innovator (inside or outside a large entity) who combines imagination and knowledge with action» [ibid, p. 288]. Knowledge becomes the basis of power: «Knowledge gives power of top quality» [ibid, p. 575].

8.5. Reproduction and Innovative Renovation Mechanisms of Resources

The 21st century introduces *new elements to the process of reproduction and innovative renewal of primary reproductive resources of the real economy of civilizations*:

➡ *fixed capital* — its passive (buildings, structures, transportation routes etc.), and especially active (machines, equipment, instruments etc.) constituents;

➡ *natural resources* involved in the reproduction process (land, mineral, forest, water etc.) and the part of social capital that is directed at conservation and improvement of environment (waste disposal plants etc.);

➡ *human capital* — manpower used in the reproduction process, its recovery, replenishment, training, retraining and renewal;

➡ *intellectual capital* — accumulated, continuously replenished and updated bulk of knowledge, discoveries and technologies underlying the flow of innovations.

What new moments in reproduction, combination and innovative renewal of these resources may be expected in the present period during the transition to the post-industrial civilization?

First, the relations and significance of resources appearing in a single flow of reproduction changes. If the role of the first violin was played by the fixed capital in the industrial society, and its periodical renewal determined the rhythm of economic dynamics, while efficiency of reproduction determined a technological level, then in the post-industrial world civilization, in the knowledge-based society, the *intellectual capital* comes to the forefront. The level of cognition with respect to the regularities of nature and society, ways to apply such regularities to the practical activity underlies the competitiveness and efficiency of individual enterprises, branches, regions, national economies, economies of local civilizations and even the very system of management, state power. According to **Alvin Toffler's** definition, the previous systems of «power of force» and «power of money» are giving place to «the power of knowledge»: «Control over knowledge is the essence of the future world fight for power in all institutions of humankind; knowledge becomes the main source of development of economy» [193, p. 572].

The *human capital* — an aggregate of the employees of all levels (from workers to the state leaders) manufacturing goods, fee-based and free services — occupies the second position in terms of significance. This index takes into account the level of knowledge and skills of such workers, skill to replenish and update knowledge on a continuous basis mastering the intellectual capital and calling it forth, their innovative activity, their motivation, level and quality of life, optimality in the distribution of workers by professions, branches, regions, countries and local civilizations. The gap between the level of knowledge and skills of the employees and complexity of tasks they need to solve in the process of innovative renewal of technologies and economy is becoming a braking factor in the period of radical changes.

Natural resources occupy the third place in the hierarchy of resources, which are the natural basis for reproduction and life of people and at the same time they act more and more clearly as limiters in a boundless aspiration for an economic growth and expansion of consumption, dictating the need for investing more and more funds in reproduction, efficient use and saving of natural resources and conservation of environment, ensuring the efficient co-evolution of nature and society, formation of the noospheric civilization.

The *fixed capital* intended for ensuring the efficient functioning and innovative renewal of the mentioned above resources, reproduction and competitiveness of the vast range of goods and services that are necessary for satisfaction of human demands constantly growing and becoming complicated, social and industrial consumption closes this hierarchical staircase. The fixed capital stops being an independent force, it is being quickly depreciated and requires a timely renewal, ages economically, technically (morally), ecologically and socially. If not renewed in proper time in the periods of technological overturns, it hangs as a stone on the neck leading to the fall in competitiveness and efficiency of economy.

The relation of primary reproduction resources turns out to be specific for each civilization determining the level of competitiveness of its economy. The methods for reproduction of resources are also specific in many ways.

Second, under conditions of active globalization processes, formation of global economy, *the very reproduction process of primary resources assumes a global nature*. It is most obvious with respect to intellectual resources — new knowledge does not know national-state boundaries (although in the form of patents for inventions clothes themselves in national uniforms). It is not less obvious a global nature of natural capital as power, land, water, forest resources. They are localized within individual states and civilizations, but they perform the function of satisfaction of demands of the whole humankind in power, food, fresh water, regeneration of oxygen etc. The human capital is more and more free in its migration over the planet — within local civilizations and cross-civilizational moving (a powerful «migration pump» in the USA). The same could be said about the fixed capital and its external financial source — direct foreign investments that increased in general in the world from USD 254 bln. dollars in 1982 to USD 1 393 bln. in 2000, but then reduced spasmodically up to USD 651 bln. in 2002 [147, p. 258], and then restored their scud.

If one looks at the civilizational structure of the flow of direct foreign investments, it will turn out that in 2000 51% fell to the western European civilization, 27% to North American, 7.4% to China with Hong-Kong, 6.8% to Latin America and less than 0.2% to India and Russia [ibid, p. 258–260].

It might be anticipated that the tendency for globalization of reproduction, use and renewal of primary reproduction resources will increase in the next decades, thus forming a single reproduction

basis on the planetary scale for the whole global civilization, contributing to the convergence of the level of economic development of local civilizations.

Third, the process of reproduction and innovative renewal of primary resources assumes more and more civilizational nature.

It finds its expression not only in the transition from industrial to the post-industrial world civilizations, which changes the very nature of reproduction and use of resources, their hierarchy, but also in formation of the supra-national, supra-state level of reproduction within framework of local civilizations considerably differing from each other. This tendency is most clearly traceable within the Western European (now assimilating Eastern European) and North American civilizations, but it begins taking shape in the Eurasian civilization; the framework of state and civilizational reproduction mainly coincides with respect to Japanese, Chinese and Indian civilizations. This process is less traceable in the African (south to the Sahara), Buddhist and Moslem civilizations. But the intensification of the integration tendency may also be anticipated here in the long term.

Fourth, the rhythm of cycles and crises is more and more clearly and synchronized traceable in the dynamics and innovative renewal of reproduction resources – especially in the periods of change of prevailing technological orders and Kondratieff cycles, as well as in a long period of the formation of the post-industrial technological, economic and ecological modes of production covering approximately a half of the 21st century.

Transformational processes occur unevenly in time and space. On the down wave of the fifth Kondratieff cycle beginning from the crisis of 2001–2002 the deepening of crisis upheavals of medium-term economic cycles is likely to be observed, especially by the 20s when a radical renewal of the fixed and human capital will be required under the implementation of a cluster of basic innovations of the sixth technological order, which will be adequate to the post-industrial technological mode of production. Further, on the up wave of the sixth Kondratieff cycle it is likely that the depth of upheavals and renewals will somewhat fade away and the center of gravity will be transferred to dissemination, diffusion of new technological, economic and ecological modes of production from the epicenter to the periphery. In this period it will become clear whether the leadership will remain with the North American and Western European civilizations in the transnational process

or the number of leaders will be replenished with the Chinese or any other civilization.

In any case it is obvious that in the first half of the present century we may expect radical changes in the hierarchy of reproductive resources being used, mechanisms of their use and renewal.

Let's now turn to the *financial flows of reproduction and renewal of each of primary resources* and the innovations we are in for in this field.

1. Reproduction and innovative renewal of the fixed capital.

The generally accepted form is *depreciation*, that is deductions from the value of fixed assets, included in the production costs and prices for goods and services manufactured using them and based on the life time of such assets. In doing either linear, even in years scale of depreciation deductions or regressive scale (accelerated depreciation), when the major part of value is depreciated during the first years and deductions are further reduced, are mainly applied. The accelerated depreciation mechanism is becoming more and more spread, however, it is fraught with considerable dangers, especially for fundamentally new products, the assimilation of which is connected with large starting costs and a good deal of risk. The inclusion of increased depreciation deductions in the costs and price of such product makes it essentially more expensive and limits the demand, reduces the scales of market and makes the payback period of original investments longer.

However, general directions in the dynamics of depreciation deductions are obvious. They should take into account the tendency towards reducing the duration of technological cycles, technical, ecological and social aging of fixed assets in use. The level of depreciation deductions should be sufficient so that they can become the major source of investments in the fixed capital and financing of small improving innovations (micro innovations), as it is impossible to make investments on the former technological base, it often happens so that there is no more equipment on the market that was manufactured before. It is especially important at the recovery stage of the economic cycle when mass renewal of the fixed capital is taking place. High inflation impedes this process when devaluation of the fixed capital occurs, and a share of depreciation falls in price.

Capitalization of profits (and especially super profit) on the market sector and *budgetary investments* in the non-market sector constitute other sources for the innovative renewal of the fixed

capital. A share and significance of these sources will be increasing in the long term, especially in the periods of recovering from crises.

2. Sources of reproduction of natural resources. The deposits of mineral resources, land and forest areas, sources of water supply etc. involved in the reproduction are similar to the fixed capital in many ways; they are localized by regions, countries and civilizations. Big monies are invested in prospecting and exploration of mineral deposits, land management and maintenance of fertility of soils, forest and water economy, protection of forests against fires etc. within a number of years. They should be returned through prices for products manufactured using these resources. Therefore a special item similar to depreciation of fixed assets is necessary in the cost of nature-intensive products of mining industry and agriculture, and the cost of reproduction of natural resources in use should be shown in the balance sheets of enterprises (and the country in general).

The Price Research Institute and All-Russian Research Institute of Mineral Resources Economics and Subsoil Use (VIEMS) took this into account when they suggested to include the rates for return of costs for exploration work into prices and the cost of mineral raw materials. These proposals were accepted by the government and implemented at the end of the 70s in practice. However, in the course of neoliberal market reforms the deductions for reproduction of mineral-raw material base were first included in the composition of taxes out of profits, and since 2001 they were absorbed by a single equalization tax on depletion of mineral resources, i.e. practically liquidated. As a result the volume of exploration work reduced sharply, the increase in explored reserves covers only about a half of output. According to the data of **E.A. Kozlovsky**, ex-USSR Minister of Geology, the size of expenses for exploration work with respect to oil and gas should make at least USD 3 bln. annually. In 2003 USD 1.3 bln. was spent including a total of 200 mln from the federal budget. The state appropriating a major part of mining rent tries to get off the responsibility for reproduction of the mineral-raw material base. The same picture is observed with respect to other natural resources.

Furthermore, penal payments for environmental abuse and above normative environmental pollution (removal of ecological anti-rent and directing a part of profit and budgetary expenses for such purposes) should become additional sources for expanded reproduction of natural resources and conservation of environment.

Reproduction (in economic sense of the word) of natural resources in use should be ensured at the expense of separate financial flows mainly formed out of charges (similar to depreciation) of enterprises that exploit these resources (mineral, forest, land, etc.) This is neither profit and nor rent, but an element of prime cost and production cost. A part of the received funds may be used by mining enterprises for a detailed exploration and additional exploration of the exploited deposits and a part may be directed centrally to finance general geologic work and prospecting in new provinces and other works beyond the competence of the existing enterprises.

3.Reproduction of the human capital. This notion was introduced in the scientific use by the Nobel Prize winner **Harry Baker** [11]. However, the contents of this notion has been known for a long time: already **Karl Marx** wrote about the wage as the cost and price used by a capital of manpower, which included not only costs for maintenance of a worker and his family, but the so-called historical and moral element — costs of a socio-cultural nature. The size of this element grows with time — expenses for general and special training of a worker, improvement of his skills, mass media, culture and entertainments, including expenses for medical care, sports and recreation increase. This results in the increase of mass of necessary labor, while its share in the total cost of product falls. Costs for reproduction of the human capital are differentiated by countries and civilizations; they are the highest in the northern American, Western European and Japanese civilizations; they are the lowest in the African and Moslem civilizations.

In Russia the level of expense for reproduction of manpower is lower than in the developed countries; it was increasing before the beginning of the 90s, and it fell sharply thereafter in the period of crisis, then it began to grow, but it has not reimbursed the suffered losses and depreciation of the human capital.

The manpower (the human capital) reproduction fund comprises several elements: wages of workers and their family members (including all possible allowances); social transfers — additional payments and free services provided on the account of federal, regional and municipal budgets and other sources; income from property; natural products of personal and family households. In any case, in the given country, region, civilization the total size of worker fund has an objective basis and should grow as the cost of reproduction of manpower increases, with the fluctuations in phases of economic cycles.

During market reforms in Russia this regularity was violated: real disposable money income of population made 46% in 1999 of 1990, real wage – 38%. Differentiation of income increased sharply so that considerable strata of population did not have an opportunity even to perform a simple reproduction of manpower, which became one of the factors for the increase in morbidity and reduction in an average expected lifespan of population. Only since 2000 this tendency has changed, the income of population has begun growing at priority rates, but the pre-crisis level has not been reached so far. A so-called «monetization of social benefits» and equalized distribution of resources earmarked for them may only worsen the conditions for reproduction of a major part of the human capital as specific demands of various people and families in need of such benefits are quite different and the equalized fee-basis does not take it into account. The budgetary investments in public health care, education, culture and social security, which are mainly included in the non-market sector of economy, play a significant role among the sources of expanded reproduction of the human capital. An absolute bulk and share of government expenditure for such purposes will increase in the post-industrial society.

A complicated problem is a *migration aspect of reproduction of the human capital*. A number of issues arise in this respect. One of them is migration of skilled manpower (scientists, software developers, figures of arts) from the former USSR and other countries to the USA and Western Europe. Not reimbursing large monies for training of such manpower, developed countries get basically a kind of «subsidy» from the donor countries of skilled manpower, which may be counted in tens of billions of USD annually. Another aspect constitutes low-skilled migrants who have arrived in developed countries and enjoy the developed system of social services not making any inputs in its creation. The third problem is that as a result of cross-civilizational migration a relatively homogeneous composition of population diffuses, enclaves of other civilizations emerge often resulting in cross-civilizations conflicts. The most demonstrative example is the Kosovo conflict, which ended (with support of western civilizations) with actual separation of Kosovo from Serbia. As the migration turnover will increase in the long term, these matters will require deep examination and weighted solution.

4. Reproduction of the intellectual capital. The intellectual capital of the country or civilization is formed during a long period of time and requires large costs. Its reproduction implies consider-

able investments of the state and entrepreneurial sector in education, formation of scientific and engineering schools, training of researchers, contents and development of scientific-research and design-engineering entities, patenting of inventions etc. These costs are mainly covered by the state, but the closer to innovations, the larger share of entrepreneurs becomes (while in the non-market sector of economy such costs still remain with the state). Under conditions of a newly-formed knowledge-based society, a new scientific paradigm, scientific-technological overturn costs for reproduction and replacement of intellectual capital should considerably increase, otherwise the country and civilization will find itself on the periphery of a global scientific-technological overturn, will lose its competitiveness.

Unfortunately, a similar tendency formed in Russia of the 90s when the government expenditure and expenditure of the entrepreneurial sector on science and inventions reduced many times. As a result in 1991–1995 average reduction rates of the number of researchers made 10.8%, expenditure for science – 23.9%, 12.1% of the number of inventions first applied. As a result the share of Russia in the world royalty and license payments made up 0.18% in 2001 (while a share of paid ones made up 0.5%), a share in the world export of high technologies made up 0.25% only, which are extremely small values. The aging of research personnel, termination of the activity of large numbers of scientific and many engineering schools are quite dangerous tendencies making the foundation for lagging in scientific and innovative-technological spheres for decades ahead.

The way-out may be found in the bridging of an artificial gap between science, higher school and innovatively active reproduction, in the establishment of research universities, training scientific and production unions, innovative-implementation areas, strategic scientific-technological alliances and other forms of integration. This could permit to involve the talented youth in the orbit of creative process and opening the opportunity to implement fundamentally new ideas in practice. A network of scientific, venture and other funds should be established for such purpose so that to ensure expanded reproduction of the intellectual capital as a basis for the competitiveness of the country under conditions of a scientific-technological overturn evolving in the world.

Similar tendencies can ensure reproduction and change in the proportion of primary reproduction resources and will also

be observed in the near decades in other civilizations adapting to the nature of the post-industrial knowledge-based society. This transformation is most intricate for civilizations lagging behind in technological and economic development, especially African. The pooling of efforts of the whole mankind, partnership among civilizations will be necessary for solution of cardinal problems pertaining to global sustainable development and bridging an extreme polarization that has formed during the industrial period, in the levels of economic development of local civilizations.

Chapter 9

CYCLICAL DYNAMICS OF THE SOCIO-POLITICAL SYSTEM, REVOLUTIONS AND WARFARE



Climbing from the base of the civilizational «pyramid» to its top, let's stop at the last but one «floor», which characterizes cycles and crises in the dynamics of socio-political and state-legal relations, revolutions and warfare. As in the previous chapters, the research is conducted in a civilizational aspect – according to the rhythm of pulsation and interaction of local, world and global civilizations in the historical past and for an outlook of the 21st century.

Deep changes in the environment and population, in the technology and economy find their reflections in the cyclical dynamics of a social-political system, in revolutions and warfare, which regularly shake any society. However, the diversity of changes on this «floor» is greater. Crucial aspirations of social masses, subjective approaches and even delusions of their leaders find their expression and solution in it.

9.1. Civilizational Dynamics of Social Stratification and Mobility



From the very moment of its emergence society is divided into certain, clearly distinguished sections – *strata* that are determined by both biologic specifics of man and its life cycle (division by sex, age and race) and acquired in the course of social development (class, economic, political, socio-cultural and civilizational stratification). Natural stratification is relatively stable; the opportunity to go from one stratum to another is limited, except for the change from one age group to the other by phases of a life cycle. Social stratification is more mobile, the processes of social mobility are observed – movement up or down the stairs of economic, political, socio-cultural civilizational stratification, and also a horizontal movement to other groups.

The theory of social stratification and mobility was developed by **Pitirim Sorokin** [184]. He introduced a number of new macro sociological categories into the scientific use:

➡ *social space* is the structure of the Earth's population: «Social space is a universe comprising the population on the Earth» [ibid, p. 298];

➡ *social coordinates* of this or that man or social stratum (group) in such space are a relation of man

to a certain group, a relation of these groups to each other and a relation of the given population to other populations making the humankind [ibid, p. 299];

➡ *social stratification* as a distribution of people and social groups (strata) by a certain classificatory feature (property, political, professional, religious), by horizontal and vertical parameters of the social universe [ibid, p. 300];

➡ *social mobility* is a movement of man by a vertical (up or down the hierarchical staircase) or by a horizontal — from one stratum to another on the same level [ibid, p. 301].

Pitirim Sorokin conducted detailed inquiries into the forms of social stratification (economic, political and professional), cyclical fluctuations, their heights and profiles, and also into the forms and fluctuations of social mobility — vertical and horizontal and deduced the regularities of vertical mobility [ibid, p. 379–382, 387]:

➡ intensity and generality of vertical social mobility change from society to society, i.e. in space;

➡ intensity and generality of vertical mobility — economic, political and professional — vary within the framework of one and the same society in various periods of its history, being intensified in the periods of social upheavals and revolutions;

➡ there is no constant direction in the vertical mobility either towards its intensification or weakening of its intensity and generality. In the context of our topic these regularities may be interpreted as the variety of cycles of social mobility in various civilizations and as cyclical fluctuations of mobility itself, as a change in the periods of its intensification and weakening.

Let's examine social stratification and mobility in a civilizational aspect: this problem was first looked into with respect to local civilizations in one of our publications [239, p. 360–276].

1. Stratification and mobility in the dynamics of world civilizations. Unlike natural (age-sex, race), social stratification and social mobility emerged together with the formation of a social division of labor in the period of the *Neolithic world civilization*. It was then that people began to be engaged (along with hunting, fishing, gathering) in agriculture, animal husbandry as well as craft and construction, which meant that a *professional stratification* appeared. By the end of the Neolithic conditions for a *property-based stratification* and mobility, economic inequality of social groups within a tribe, clan and community were formed on the basis of monogamous families and appearance of the private property.

A decisive step in the formation of social stratification and mobility, whose fundamentals still persist, was made in the period of the *early-class world civilization*, in the 3rd millennium B.C.; it was a real «axial age» from the viewpoint of the formation of a socio-political system, state and law. In this period a property-based stratification emerged; classes and large social groups were formed: slave-holders and slaves, small independent or semi-dependent peasants, craftsmen, merchants, civil servants and priests. Professional stratification was strengthened many times. It is known that in Ancient Egypt a lot of professions existed featuring husbandmen and cattlemen, fishermen and heaters, vegetable growers and gardeners, potters and masons, weavers and sandal-makers, carpenters and joiners, builders and shipbuilders, artists and sculptors, musicians and singers, dancers and haircutters, penmen and checkers, supervisors and managers. With the emergence of the state the ruling establishment appeared (pharaohs, tsars and their servitors), various state institutions (army, courts, prisons, fiscal services etc.). People established themselves in a certain structure and profession, moving along the vertical, and sometimes along the horizontal. This mobility was sharply intensified during the periods of wars and social upheavals, when freemen became slaves (and sometimes vice versa), people got fast promotions and change professions.

In this period one more type of social stratification emerged — **civilizational**. Large groups of people differed from each other in their belonging to this or that local civilization, in adherence to a certain system of socio-cultural values. Mobility was also observed here — movement from one civilization to other, especially in the periods of cross-civilizational wars, dissemination of world religions, and also due to the development of international trade.

In the *ancient period* the fundamentals of social stratification and mobility established in the period of an early-class civilization mainly survived with minor modifications. By the end of this period during the civilizational crisis called by **Karl Jaspers** the «axial age», when the world religion emerged, one more kind of stratification formed — **confessional** — by belonging to this or that religion and place among the adherents of such religion. Confessional (religious) mobility was also developing by horizontal (change of religious beliefs in dissemination of Buddhism, Christianity, Judaism, and from the 7th century A.D. — Islam) and by vertical (from simple believers to high priests). «As society of late antiquity evolves, everywhere traditional ideologies were already not enough to serve

the more complicated social communities... Ethic-dogmatic doctrines sprang up everywhere... Ethic doctrines assumed a non-religious form at times, but gradually they not only developed into dogmatic religions, but began to fix in writing the canon generally binding on believers (Zoroastrism, various forms of Brahmanism-Hinduism; doctrines originating from the Judaism and first of all Christianity, and much later — Islam; Confucianism; Taoism, Manichaeism etc.)» [73, vol. 1, p. 373].

Peculiar forms of social stratification fixed by the caste sprang up in the Indian civilization. In this case, the movement from caste to caste was actually impossible.

The formation of the *medieval civilization* since the middle of the 1st millennium A.D. resulted in elimination of social stratification of the ancient society and speeded up the mobility process. Feudalists (large landowners, state leaders and hierarchs of the church) and dependent peasants who paid a feudal rent in this or that form replaced two former polar classes — slave-holders and slaves. However, there were many other social groups, especially in free cities: craftsmen and merchants organized in crafts and guilds, artists and actors, architects and builders, moneylenders and publicans, civil servants of various professions and ranks, soldiers, officers and generals etc. The class restrictions on social mobility, a change-over from one group to another, survived. Civilizational and especially confessional stratification was intensified as religion occupied the key positions in the sphere of spiritual life and purported to the leadership in economic and political spheres.

In social stratification class barriers were eased in the period of the *early industrial world civilization* and broken in the bourgeois society in the period of the *industrial world civilization*. A market capitalist system of economy, bourgeois democracy, secularization of society created formally equal conditions for a free competition and movement of man in social strata by a horizontal and a vertical. However, the division into classes (with its antipodes — capitalists and wage workers, and also landowners, peasants, craftsmen, people of liberal professions), professional and political groups remained and differentiated, although social mobility was ensured by vertical and horizontal. The significance of civilizational and confessional stratification and mobility increased.

In the totalitarian states (both socialist and fascist type), in the late industrial society the role of party-state top echelons as a special stratum standing on the top of the pyramid of political and economic

(property-based) stratification extremely increased. New barriers based on affiliation with this or that political party were built on the way of social mobility. However, by the end of the 20th century a totalitarian system mainly passed from the historical scene.

The civilizational crisis of the end of the 20th – beginning of the 21st centuries, which will give rise to the formation of the *post-industrial world civilization*, has invoked a new explosion of social mobility, a deep transformation of the system of social and civilizational stratification. Its outlines have not taken shape yet, but certain tendencies may be observed. First of all, it is the increase in significance of civilizational and confessional stratification as a result of the formation of the fifth generation of local civilizations and intensification of struggle among them; a revival of religious influence (although not to such extent as it was observed in the medieval society). The efforts of civil society are aimed at easing property-based and political stratification of the society, although they are not always successful. In the transitional period the processes of social mobility are becoming more intensive, new property-based upper echelons are being formed (as it is the case in Russia and other post-Soviet countries), migration processes increase, an active movement by vertical of both property-based and political strata occurs. Only by the middle of the 21st century in the period of maturity of the post-industrial society the intensity of social mobility is likely to weaken, the social structure adequate to the conditions and content of the post-industrial humanistically-noospheric civilization will establish itself.

2. Stratification and mobility of local civilizations. All generations of local civilizations (3rd–2nd millennia B.C.) differed considerably from each other in their socio-political system, economical situation, system of values and by nature of stratification and mobility within civilization. With the change of generations of local civilizations (and this occurred synchronously with the change of world civilizations) the social structure, level and mechanisms of mobility also changed.

Civilizations of the first generation – Egyptian, Sumerian, Assyrian, Babylonian, Elamian, Minoian, Ancient Greek, Mesopotamian, Indian and Chinese – had a lot in common in their social structure and their social mobility was restricted. Civilizations of the first generation were, according to **L.I. Mechnikov**, civilizations of great rivers located in similar natural conditions, and highly efficient husbandry served the basis of their prosperity. Property-based and

political stratification within civilizations reached a considerable scale, but it was not that significant between civilizations. However, a share of servile labor was considerably smaller in densely-populated Indian and Chinese civilizations than in Ancient Egypt and Mesopotamia.

Civilizations of the second generation differed from civilizations of the first generation in their internal structure and social stratification. With expansion of civilizational space a gap in the level of economic development of civilizations (economic stratification) remained negligible. The figures on relation of average GDP per capita of population by the beginning of our era (*table 9.1*) indicate it: in the 1st millennium A.D. such gap made up only 12% (Western Europe and Africa). In the table civilizations with lowest income are underlined, and with highest level – double underlined.

In the course of the first millennium A.D. a gap increased considerably – from 12 to 18%, while Western Europe where a transition from the ancient to medieval world civilizations was most difficult and destructive, not only lost the leadership, but was brought up the rear (92% of the average world level). And Latin America was the leader with the efflorescence of Incan, Maya and Aztec civilizations.

However, in the period of the *third generation of local civilizations* the medieval world civilization, the leadership returned back to Western Europe, and a cross-civilizational gap increased up to 192% (in 1500). Then the leadership among *civilizations of the fourth generation* was assumed by a young North American civilization with the centre in the USA, and the level of economic stratification of civilizations began to increase rapidly reaching 967% by 1913 and 2,157% by 1950. China and India that were approximately on the average world level in the medieval and early industrial periods lost their positions: China was closing in 1870 (61%), 1913 (36%), 1950 and 1973 (21%), India in 1973 (21%).

Only at the end of the 20th century when the *fifth generation of local civilizations* began to form, their economic stratification began to reduce – from 2,157% in 1950 to 1,848% in 2001 (by 14%), mainly due to a speedup in the growth rates of Chinese and Indian civilizations. Africa found itself at the closing bottom step of the «staircase» and its situation continues to deteriorate (from 42% of the world level in 1950 up to 25% in 2001).

The Eurasian civilization that used to be a leader in the year 1000 (109% of the world GDP level), dropped up to 80% by 1500 as

Table 9.1

Dynamics of Relation of Average GDP per capita by Civilizations, in % of the World Level

Civilizations	1	1000	1500	1600	1700	1820	1870	1913	1950	1973	2001
World	100	100	100	100	100	100	100	100	100	100	100
Western Europe	101	92	136	150	162	181	224	227	217	279	318
Eastern Europe	90	109	88	92	99	102	107	129	100	122	100
Former USSR	90	109	88	93	99	103	108	98	135	148	76
USA			71	67	86	188	279	348	453	408	462
Latin America	90	109	73	74	86	104	78	97	119	110	96
Japan	100	97	88	87	93	100	84	91	91	279	342
China	100	103	106	101	98	90	61	36	21	21	59
India	100	103	97	92	89	80	61	44	29	21	32
Africa	97	97	73	71	68	63	57	42	42	34	25
Relation of upper level and lower level, %.	112	118	192	224	238	298	457	967	2157	1942	1848

[264, p. 262]

a result of feudal warfare and Mongolian invasion. In the following centuries it caught up with it, and in the 19th century even exceeded it (103% in 1820, 108% in 1870). At the beginning of the 20th century it found itself somewhat lower than this level (98% in 1913), but then despite heavy losses during the First World War and civil wars and the Second World War exceeded the world level in 1950 by 35% and by 48% in 1973. However, stagnation of the 80s and especially neoliberal market reforms of the 90s and disintegration of the USSR threw it back to 76% of the world level in 2001. The Eurasian civilization was not ranked on such low level throughout all the dates marked for two millennia (except previous national catastrophes – during the Mongolian invasion of the 13th century, time of troubles at the beginning of the 17th century and civil war at the beginning of the 20-ies of the 20th century).

Also, *geopolitical stratification* of local civilizations changed periodically. In their *first generation* the civilizations of Ancient Egypt, Mesopotamia, India and China were in the lead. In *the second generation* the leadership was taken by the Greek-Roman civilization; Chinese and Indian civilizations kept their positions. In the period of the formation of *the third generation* the Western European civilization was in the lead. In the early-industrial and

at the beginning of the industrial period the Western European civilization extended its political influence on a larger part of the firm land establishing enormous colonial empires. The Eurasian civilization had considerably smaller resources and weaker influence. After the Second World War the bipolar world established itself, the USSR reached the military-technological parity with the West.

Since the end of the 19th century the political leadership began to pass to the USA. In the 90s after disintegration of the USSR and the Soviet bloc it became the only super power, which dictates its terms to the rest of the world. The unstable equilibrium has established itself for the time being, which is unlikely to continue long due the growth of economic power and political influence of the Chinese civilization as well as Indian and Moslem.

As for the *mobility of local civilizations*, it also changed from period to period either growing or weakening. For instance, in the period of the Great Greek colonization of the 7th–6th centuries B.C. as a result of the clash between the Persian and Greek civilizations a powerful stream gravitated from the Ionian poleis cities to the coasts of the Mediterranean, Black and Asian Seas. In the first millennium A.D. during the so called «Great Migration of Peoples» the flows of Goths, Huns, Hungarians, Avars flooded from the East to Western Europe, while from the middle of the 7th century till the beginning of the 9th century the Arabs were moving to the West and the East and subjugated countries of the Near and Middle East, North Africa and the Peninsula of Europe to the young Islamic civilization. In the 13th–14th centuries the world witnessed the conquest of the East and the South of the Eurasian continent by the Mongolian civilization. In the periods of great geographic discoveries and colonial wars the flows of Europeans subdued North, Central and South America destroying local civilizations and streamed to Africa, Australia and Asia.

In the 19th–20th centuries the scale of civilizational mobility reduced increasing only during and after the First and Second World Wars, and also when Africa, India and Pakistan gained independence. Since the end of the 20th century the mobility began to increase mainly in the form of international migration. Western Europe and the USA became the centers of influx of migrants, while developing countries of Asia, Africa and Latin America were the sources. Migration flows were intensified during disintegrating of multi-national federations – the Soviet Union.

The more considerable economic stratification is, the greater are the flows of legal and illegal migrants, the stronger becomes a cross-civilizational mutual penetration and its contradictions. Many countries of Western Europe, the USA and Australia are turning into more and more mixed civilizational, multi-confessional formations.

3. Stratification and mobility on the global civilization scale.

Stratification of the global civilization expressing the unity of human kind at the various stage of its development dates back to the emergence of the system of local civilizations of the first generation and was modified mainly in the industrial period, especially by its end with the evolvement of intensive globalization. Period after period global ecological, technological, economic, socio-cultural space was forming, the tendency towards synchronization intensified in the dynamics of vanguard civilizations and the countries following them.

At the same time, as it has been demonstrated above, economic stratification of local civilizations increased, while mixed nature of the global civilization was becoming multi-dimensional. Within its framework technological, economic, ecological modes of production, political and socio-cultural systems inherent to various period coexisted and interacted. The development of these relations and interactions is subject to regularities of cyclical dynamics and socio-genetics. Social stratification and mobility increased at the crisis stages of civilizational historical cycles with the renewal and enhancement of a social genotype of the global civilization, determination the ways for its further development. The changes occurred in the three dimensional civilizational space with a change of world civilizations, generations of local civilizations and historical super cycles reflecting the change in the phases of the life cycle of the global civilization.

In the 21st century, in the period of the formation of the post-industrial humanistically-noospheric, integral society intensification of changes and radical shifts in social strata, intensification of cross-civilizational social mobility, reorganization of global civilizational space in all its dimensions should be anticipated. However, by the end of the century with the completion of the difficult transitional period (if it ends well, without a clash among civilizations and global catastrophes), the intensity of changes will weaken, a relative stability will be achieved and the next century will be characterized by the prosperity of the post-industrial world civilization and the third historical super cycle.

9.2. State-Legal Cycles, Crises and Transformations

Political power and institutes inherent to it – the state, ensuring the orderly functioning of the society, the system of legal rules worked out and maintained by the state and state machinery exercising the functions of the state and forcing the subjecting to these rules – emerged approximately five millennia ago, at the initial stage of the formation of the early-class world civilization together with the first generation of local civilizations. The formation of political power and its institutes is one of the key features of civilizational progress, a new stage in the establishment of the global civilization.

A much longer period of social order arrangement preceded the establishment of the state-political system when the major issues of life of a community, clan, or tribe were settled on the primitive-democratic (veche-based – «popular assembly») base by the heads of families, elected (or who proved their superiority by power), and patriarchs with the help of the established system of traditions and taboos (bans).

This social order was sufficient and efficient in the periods of the Paleolithic and the Mesolithic eras. However, in the Neolithic Age it stopped ensuring the survival and development of communities, which increased many times in their numbers and become more sophisticated in their structure, and began to conflict with the interests of more productive workers as well as clan and tribal upper crust, to invite the dominance of the right of the force and did not enable to arrange large masses of workers in construction and operation of irrigation systems. Furthermore, the cross-tribal and cross-communal encounters resulted in ruining and destroying of numerous communities.

At the end of the Neolithic era the mankind tried to settle these conflicts through the establishment of the so-called leadership, semi-state tribal and cross-tribal unions (chief houses). Their social structure consisted of the ruling upper circles, a group of community members, who attended to them, and professional warriors, who defended the community against the raids of neighboring tribes and made such raids themselves. However, this transitional form was unstable and completed with the emergence of the states at the turn of the 3rd millennium A.D. as a political form of local civilizations of the first generation.

At that time the major **functions of the state** were determined in the system of civilizational relations.

1. Legislative function is the creation of the system of rules governing the relations between people and whole social strata. It was not just ordering and fixing of relations formed under the primitive-communal system, but an overturn in the system of such relations. The place of public assembly-based democracy implying the equality of all members of community was taken by the system of power-based relations, which fixed the dominance of the ruler resting on the force of law and blessed as a representative of the God on the Earth. The ruler was in power to issue laws, judge, punish, collect taxes, declare and conduct wars etc. The division into classes of the society members who had an equal social status before, became fixed. The slaves were outlawed: they had no rights, could be sold and even murdered by any member of the community. At the same time the rules governed the relations between members of society, fix penalties for committed crimes. The historians know the laws of Shulgi, the king of Uruk (2093–2046 B.C.), of Hammurabi, the Babylonian tsar (1792–1750 B.C.). They determined the major principles of justice, comprised the rules for safeguarding the property of the tsar, temples and tsar people, official property, transactions with movable and immovable property, trade operations, punishments for bodily damages, non-payment of taxes etc.

2. The economic function. The state replaced the archaic law of communal property prevailed before with the law of private, especially of state and temple property, and introduced severe punishment for violation of the property law, it also regulated the relations of commodity exchange that did not exist in the primitive society. The state, as a form of social organization, was necessary for the mankind to fix the overturn in the system of economic relations.

3. The military function. The state assumed the responsibility for life and security of the given society, protecting it from encroachments of other states and arranging attacks on the latter to expand territories and seize riches. A professional army was created with this purpose, and at the critical moments nearly all adult male population of the country was drafted into the army.

4. The reproduction function. It was of utmost importance during the lifetime of the first generation of civilizations, because joint efforts were needed for construction and maintaining the irrigative systems in the basins of great rivers. Besides, it was necessary to foresee the periods of river floods, to ensure construction

of irrigation channels, to ensure the protection of cities and of fields under crop against floods. This required a rigid discipline and a strong state.

5. The fiscal function. The state collected taxes and other incomes and used them for exercising all the other functions. Moreover, the optimal level of taxes sufficient for satisfaction of daily wants of the state and at the same time for keeping with taxable households the possibility not only to survive, but to multiply their wealth was determined by the state in the person of its ruler or some representatives of the state machinery. If the appetite of the state was excessive, the population excited a rebellion, which could even result in the overthrow of the too greedy a ruler. Also, the sizes of customs duties were fixed in trade between states.

6. The socio-cultural function. In this or that way the state has always supported scientists, poets, artists, financed construction of palaces and public places, fostered the bolstering of the morals and dominance of a certain religious system — ideological base of the state power.

Consequently, it should be concluded that the adepts of Marxism were wrong in their attempt to reduce the functions of the state only to suppression of one class by another. This approach impoverishes the real diversity of its functions. In reality the state is a key institution of the civilizational structure of society, that's why it is not doomed to disappear, as the Marxists asserted. However, the role of the state and its functions are being constantly transformed, that is why they vary so in different world civilizations and local civilizations.

So, what were **the forms of political-legal system** in different civilizations?

In the *early-class civilization* the state was extremely centralized, formed as monolith **despotic kingdoms** (Egypt, Babylon). The supreme authorities punished very severely for the deviation from established rules, usually it was death-penalty of the guilty.

In the civilizations of the *ancient society* the rigidity of the state regulation was eased, especially in the Mediterranean. In Athens of the **Pericles** period (the 6th century B.C.) the notions of democracy, electivity and replacement of officials appeared. The Greek poleis — cities-states governed by elected power — became models of democratic power; however women and slaves were deprived of such rights. There were various forms of political power — **democracies, ochlocracies, tyrannies, oligarchies and aristocracies.**

Plato and Aristotle investigating these forms noted the cyclicity in their change.

In the ancient period emerged such form of political power as **world empires** assuming as a rule a cross-civilizational nature. The Persian Empire of Achaemenids (6th–4th centuries B.C.) may be mentioned as an example as well as **Alexander's the Great** Empire (4th century B.C.) and the Roman Empire served as a model for further several centuries and was divided into Western and Eastern (Byzantine) Empires since the end of the 6th century A.D.; the latter existed up to the year 1453. The Roman Empire created the most developed system of law underlying the present-day systems of law.

In the middle of the 1st millennium A.D. the ancient state system found itself in the state of a protracted crisis, which resulted in the formation of the third big state-political cycle of the period of the *medieval world civilization*. A multi-sectional class of feudalists became the politically dominant class with a ruler – the king, tsar, emperor – at the top of it. The church played a considerable role in the power hierarchy of **feudal monarchy**, sometimes competing with its ruler. Personally dependent peasants, unlike slaves of the preceding period, had certain rights and were united into communities where private and communal rights to property were combined. **Free cities** maintained special legal systems where there were certain democratic institutions of self-government of craft guilds and merchant guilds. It was in the free cities, where the changes began leading the *early industrial civilization* to the Netherlands and English bourgeois revolutions, to the birth of the **parliamentarian bourgeois republics** under the shadow of the **constitutional monarchy**. The model of establishment of a bourgeois political system adequate to the political system of the *industrial civilization* were the Great French Revolution, the War for Independence of the United States of America and establishment of the USA as a state with the most stable constitution, which in full embodied the principles of the political system of the industrial civilization. In the 19th–20th centuries this system became widespread.

The political-legal systems of local civilizations of the early industrial and industrial period were remarkable for their diversity. One could observe several types of such systems. In western civilizations of the 20th century the bourgeois-democracy system gradually established itself in the form of a **presidential or parliamentary republic**, sometimes with a light fleur of monarchy. In the eastern civilizations more or less open forms of **monarchy or dictatorship**

prevailed. **Totalitarian states** became the innovation of the 20th century in the form of fascist dictatorships in Germany and Italy or socialist «dictatorships of proletariat» under the absolute power of the party-state bureaucratic upper echelon in the USSR and other socialist countries.

During the 20th century radical changes occurred in the geopolitical space, distribution of territories and population on the Earth among local civilizations. It can be judged by the data adduced by **S. Huntington** (*table 9.2.*).

A share of the world population, which was under political control of the western civilization, reached its maximum in 1920. However, after the Second World War this share sharply reduced and continued to go down. The share of the Eurasian civilization is also going down. In the second half of the 20th century the Moslem, Indian, Latin American civilizations strengthened considerably their role on the geopolitical arena (due to accelerated population growth). The demographic stratification will intensify in the civilizational aspect of the 21st century.

By the end of the 20th century the majority of totalitarian states and world empires became the past and the bourgeois-democratic system spread nearly in all civilizations. This afforded ground for the US political scientist **Francis Fukuyama** to declare the «end of history» as a result of the final and global victory of bourgeois democracy.

However, in actual fact this gloomy monotonous conformity was only a precursor of a deep-seated **crisis of the political system of the industrial society**, which was predicted by **Alvin Toffler**: «Built in a wrong scale, unable to handle adequately transnational problems, unable to go level with the tendency of acceleration, unable to cope with high levels of variety, unloaded obsolete political technology of the industrial period is coming apart before our eyes» [10, p. 647–648].

One of the manifestations of this crisis at the turn of the millennia was a radical rearrangement of geopolitical space, increase in the instability of the global political system. With the disintegration of the USSR and world system of socialism the decades of the bipolar world ended. Its revival in the same composition is unreal at least in the outlook for the 21st century: so deep is the catastrophe, which struck the Eurasian civilization.

The geopolitical bipolar model is more real in the form of confrontation of two giants — the USA and China. The latter is gradual-

Table 9.2

A Share of World Population under Political Control of Civilizations *, %

Civilizations	1900	1920	1971	1990	1995	Forecast	
						2010	2025
Western (including USA)	44.3	48.1	14.4	14.7	13.1	11.5	10.1
Eurasian	8.3	13.9	10.0	6.5	6.1	5.4	4.9
Moslem	4.2	2.4	13.0	13.4	15.9	17.9	19.2
Chinese	19.3	17.3	22.5	24.3	24.0	22.3	21.0
Indian	0.3	0.3	15.2	16.3	16.0	17.1	16.9
Japanese	3.5	4.1	2.8	2.3	2.2	1.8	1.5
Latin American	3.2	4.6	8.4	9.2	9.3	10.8	9.2
African	0.4	0.7	5.6	8.2	9.5	11.7	14.4
Others	16.3	8.6	5.5	5.1	3.5	2.0	2.8

*[259, p. 41]

ly gaining economic momentum and political influence and has the ramified diaspora in many countries worldwide. According to the forecasts of the Chinese economists, the People’s Republic of China will outstrip the USA by 2030 by a total GDP output; its advantages will further increase. If Hong Kong and Taiwan are taken into account, then it will turn out that the Chinese civilization will become leading in the world since the second quarter of the 21st century, throwing down an open challenge to the North American civilization, the only super power – the USA. The confrontation of these two local civilizations will be increasing since the second half of the 21st century, and other civilizations will have to choose what center of the bipolar world to side with. The Western European and joining it Eastern European as well as Latin American and Oceanic (Australia, New Zealand) civilizations are likely to side with the pole headed by the USA and this group of countries will prevail in technological, economic and geopolitical respects until the end of the 21st century. However, in terms of the population numbers, growth potential, socio-cultural and political activity China will become prevailing, especially if joined by the Indian, Moslem and Buddhist civilizations.

The influence of the Eurasian (if it manages to revive) or Russian (if such revival does not occur) civilization may persist and even

increase in the geopolitical arena, if it does not join either pole and keep independence and the role of a peculiar bridge between them in a geopolitical space. As for the African civilization (south to the Sahara), it is politically disunited now and despite a growing share in the world population it is unlikely to play a considerable role in geopolitical space of the 21st century.

When determining a geopolitical future we should take into account such an alternative scenario as the ***possibility of the clash among civilizations*** and this is what **S. Huntington** warns about [7].

The contradictions and clash of interests of various civilizations are also unavoidable in future. The issue is in the forms of conflicts and methods of settlement of such contradictions. Let's name only the main forms of ***cross-civilizational conflicts***:

➤ *political discrepancies*;

➤ *commercial wars*;

➤ *armed conflicts*;

➤ civilizational conflicts and warfare *within one state* which result in a new compromise (Lebanon) or a disintegration of a state (Yugoslavia);

➤ warfare *between the states* belonging to various civilizations competing with each other (such warfare could be possible between India and Pakistan in 2003 — a clash between Indian and Moslem civilizations);

➤ pinpoint clashes in the form of *international terrorism* that have assumed the nature of a terrorist wave at the beginning of the 21st century. Extremist circles of the Moslem civilization have become the major source of it;

➤ a large-scale military clash *between local civilizations* with the use of mass destruction weapons. Such conflict may assume the scale of a new world war with a possible suicidal outcome for all the humankind. Possible results of such clash are shown in the scenario of a «nuclear winter» worked out by **N.N. Moissejev** [134,136].

The latter variant — clash between civilizations — is rather improbable in a present-day geopolitical situation at least in the first half of the 21st century. A ***wave of international terrorism*** is becoming most dangerous at the beginning of the century as an acute manifestation of geopolitical crises of a present-day transitional period. In order to overcome it one could understand the gravity of this social phenomenon, its causes, forms and consequences.

As a social phenomenon terrorism emerged simultaneously with the state. Its essence is expressed in murdering of people out of

court and investigation, outside legal framework. It has got *three major forms*:

➡ *state terrorism*, when the bodies of state power destroy their political adversaries beyond the scope of the law; it was the case in the ancient states, in times of Ivan the Terrible, in the periods of civil wars and revolutions and under the Hitler's fascism and Stalin's repressive regime;

➡ *political terrorism* proclaimed by political parties and movements and exercised by single-handed terrorists or groups against the state and its bodies or peaceful citizens. As its illustration one could adduce the murders of Emperor Alexander II and a number of the Ministers of the Tsar's government in Russia at the end of the 19th century – beginning of the 20th century and also terrorist attacks of the «red brigades» in France and Italy, the sect «Aum Senrike» in Japan;

➡ *international terrorism* has a civilizational nature and is unleashed by extremists of one civilizations against the state authorities and peaceful population of another civilization. The most recent examples include terrorist attacks against the USA of September 11, 2001, in Madrid in May 2004, in Beslan in September 2004, in London in July 2005, a series of terrorist attacks in other countries, the activity of a certain «terrorist International» – «al-Qaeda».

The dynamics of terrorist activity, as any other process, is of a cyclical nature. It flares up in the period of maturing and intensification of political crises when one of the opposing political forces resorts to the extreme measures for pursuance of their goals finding the performers among the extremist-minded youth, poorest sections of society. Anti-terror based on violence is not always an efficient means of fighting against a wave of terror. Many-year experience of combating terrorism in Israel, Spain, Northern Ireland, Chechnya, Dagestan indicates it. Measures of political and social nature targeted at the surmounting the social roots of terrorism, reducing its mass base, pooling the efforts of the state and society are necessary. Experience of Italy, Germany and Japan has demonstrated that such partnership has already given the results.

Deepening of economic and social stratification between the countries is becoming one of the reasons of pinpoint clashes among civilizations. Their social, economic and demographical roots must be identified and international efforts to overcome them must be made not only by the separate states and interstate organizations, but also by the global civil society. All the coun-

tries should also toughen the penalties up to the capital punishment for terrorists, their organizers and accomplices. It should be noted that the rampancy of the scenes of violence and murders on the negative role of TV, cinema and the Internet in contributing to the spread of terrorism should be noted: regular demonstration of violent scenes and murders on the screen has led to the devaluation of human life, breeding a tendency to violence with the younger generation.

It may be anticipated that as a socio-political crisis eases in the medium-term run, a wave of terrorism will be falling away in the 20s–30s of the 21st century. However, only an active policy of the whole global community, well-directed long-term measures for rooting out economic, socio-political and ideological roots of terrorism are required to make these forecasts come true.

What are the outlooks of civilizational cycles in the state-legal sphere? Two scenarios are possible. They are based on general tendencies, that in the first decades of the 21st century contradictions among civilizations will aggravate and transformation of the global civilization will reach its peak; while in the next decades stabilization of situation within the post-industrial socio-political system will be established. However, at the beginning of the second half of the century with intensification of transformational processes of the development of a bipolar world a new crisis becomes possible.

A pessimistic scenario is possible if the monopole world will persist, neoliberal reforms will continue and TNC will preserve the monopoly of defining the strategies of economic and political development of the planet.

Under **an optimistic scenario** if a globally-noospheric model of postindustrial civilization and globalization becomes prevailing, a global level of the geopolitical structure which will include two supra-national legal types will be formed in the 20s–30s:

➡ **a local-civilizational level** like the European Union, within which legislative, executive and judicial powers (within the powers delegated to national states) will be formed. There is no such problem for certain local civilizations (Japanese, Indian): the boundaries of the state ensure civilizational space. Chinese civilization can undergo some transformations: Taiwan may be included into the People's Republic of China on the basis of the Hong Kong tested principle — «one country, two systems». For the Eurasian civilization the matter in question may be the re-integration (but not to the degree characteristic of the former USSR) within CIS or even with-

in narrower boundaries. This outlook is more complicated and distant for the Buddhist civilization and African civilization, which are weakly integrated;

➡ a *Global-civilizational* level in the form of a stage by stage, long-term formation of state-legal institutions expressing common interests of all the mankind, all countries and civilizations, pursuing the general strategy for development, settling international conflicts arising and which are vested with necessary and sufficient powers and resources for exercising these functions.

Two scenarios for the development of a global-political system of the 21st century are taking shape: in the form of a global empire headed by the world government, global federation and in the form of a global community of countries and civilizations based on the transformation of the UNO and other existing inter-state institutions within a multipolar world.

The tendency towards the development of the *global empire* with the center in the only surviving super power clearly manifests itself in expansion policy of the USA that has pronounced a claim to the world leadership and the global lead. The US political scientist **Zbigniew Brzezinski** has formulated such claims quite forthrightly: «The US policy objective should, without any justifications, consist of two parts: a need to fix its own dominating position at least for the period of existence of one generation, but more desirably for a longer period, and a need to establish a geopolitical structure which will be able to ease imminent upheavals and tension caused by socio-political changes and at the same time forming the geopolitical core of mutual responsibility for the government of the world without wars» [17, p. 254]. Actually the matter in question is the establishment of a single global state (in the form of federation) with the systems of legislative, executive, judicial power and common legal system.

However, it should be said that the perspective of establishing of such state in the form of the world confederation for an outlook of the whole 21st century is unreal. Socio-political differences and contradictoriness of interest among national states are too deep; the aspiration for sovereign power of their political and economic elites is too strong to voluntarily give up their sovereignty in favour of the world state. Experience of the European Union shows that the integration process even within one civilization not even reaching the level of the confederation has required more than a half of a century and is still meeting new barriers. It

especially concerns the global civilization comprising of more than two hundred national states with a variety of forms of the state-political system and conflicts of interests. If such a scenario is possible in theory, it will take place outside the post-industrial civilization experiencing the period of establishment, somewhere in a temporal space of the 23rd century. The global civilization still has to live to see it.

Another scenario is more realistic: a gradual establishment of the *structures of power*, of legal and economic mechanisms for interaction of the states *on the global level* in the form of *global confederation of states and civilizations*. This scenario was formulated in the report at the Second World Congress on Global Civilization «Global Civilization: Structure, Cyclical Dynamics, Challenges and Responses of the XXIst century», held in New-York on November 14–16, 2005.

The content of this scenario is in formation of global confederation of states and civilizations and transformation of the existing inter-state bodies (the UNO and other organizations) with expansion of their powers (development of a global law) and vesting with resources enough for exercising these powers.

It is clear that the for implementation of this scenario the society will have to get rid off the existing stereotypes, to overcome the resistance of TNC and many political forces and will take at least 50 years.

9.3. Revolutions in Civilizational Dynamics

One of the central and most complicated problems in the cyclical dynamics of civilizations is revolutions occurring from time to time, a kind of bifurcation points marking the beginning of a new socio-political cycle.

Revolutionary upheavals leave nobody indifferent. Ones praise them, others curse. A duty of scientists is not ethical estimations, but impartial and as far as possible complete analysis of this social phenomenon. But here we observe a large diversity of approaches, views, opinions, appraisals and forecasts. Let's not classify them, but formulate our own understanding in terms of the role of revolution in the civilizational dynamics. Let's formulate major postulates of our theory.

1. Revolution expresses a qualitative impetus in the development of a world or local civilization or its elements, its change-over to a new state, a transfer (following a crisis) to a new phase of a life cycle or a new cycle. It is generated by a boiled up mass of contradictions in the development of a system or sub-system and is a way to settle these contradictions. In terms of *sociogenetics* a revolution is a period when the renewal and clearing of a genetic row (genotype) of the system occurs, the action of regularities of variation and selection declares itself in the acute form. In terms of the regularities of *cyclical dynamics*, a crisis of the system gives rise to a revolution and it is a method of settlement of contradictions caused by it. A revolution becomes an impulse to a transition of the mankind to a new stage in the development of civilizations or to a new civilization.

In the period of revolution the system becomes unstable, disorganized (according to **A.A. Bogdanov**), when many trajectories of its further dynamics are possible and sometimes even an accidental impetus is enough to radically change the trajectory. A revolution expresses the gist, the aspect of such change. After the revolution the selected trajectory of dynamics of civilization becomes stable again and also inertial, evolving its potential of a new phase of a life cycle with respect to the given civilization or its heir.

2. Revolutions appeared together with the emergence of civilizations, developed and altered together with them. The very emergence of civilizations was the result of two primary social revolutions: the Neolithic revolution that resulted about 10 millennia ago in the emergence of reproductive economy and social system based on it (the Neolithic world civilization) and the revolution of the Bronze Age (end of the 4th — beginning of the 3rd millennium B.C.), when local civilizations, classes, state, social strata, market with its major categories appeared. Each following step in the development of the global civilization — transition to the next world civilization or a major stage in its development, the establishment of a new generation of a local civilization or a radical turn in the trajectory of its dynamics — began from the revolutionary transformation. Therefore, it is logic to consider revolutions in the flow of dynamics of civilizations as a breakpoint, bifurcation. It is also obvious that revolutionary transformations are not painful deviations in the fates of civilizations initiated by tragic accidents, but a regular, inevitable element of their cyclical-genetic dynamics.

3. Revolutions are diversified in the scope, scale, depth and consequences of transformations of civilizations and their elements.

In a life cycle of the *global civilization* revolutionary waves find their expression in the transformation of the *world civilization* (either a change of phases of its life cycle, or the birth of the next, more progressive world civilization) and in transformations of *local civilizations* (formation of their new generation or a transition to a new phase of a life cycle of this or that local civilization).

Revolutions in the dynamics of the *elements of civilizations* cover all their six-dimensional structure — qualitative changes in the development of human population, natural-ecological state, technological, economic, social-political spheres and spiritual life of society (science, education, culture, system of ethic and religious values). All this finds its expression in the change of a socio-cultural system or stages in its development.

Consequently, the world of revolutions is many-sided. In researches and discussions it should first of all be determined what the object and scale of revolutionary transformations are, their depth and place in cyclical dynamics of a system or a sub-system.

4. The structure of revolution includes four stages:

➡ *latent period* when the preconditions for revolution accumulate, its ideology forms, social forces that are ready to implement a transformation brew, its opposing forces weaken;

➡ *first stage* when a revolutionary breakthrough occurs, a wave of radical transformations floods the country or the civilization, destroying a part of their genotype of the system, instability in the dynamics of the system and uncertainty of its trajectory increase;

➡ *second stage* when the anarchy and extremes of the previous stages are handled with, much of what was cast out unreasonably is being restored, a choice of a new trajectory for the civilizational dynamics is being made, illusions that fed the energy of masses during the overturn get shattered. Actually, the matter in question is a counter-revolution, but more often not a return to the cast out state, which exhausted its potential, but frustration of revolutionary illusions and establishment of a new cycle or phase in its development;

➡ *normal period* of a new cycle in the development of civilization, a phase of its life cycle when evolutionary development goes on a qualitatively new level. During this period inertia in the movement of the system along the chosen trajectory increases.

The length of the revolutionary transformations stage, their depth is unequal for various types of cycles.

5. Each revolution has its epicenter and its leaders; it gradually embraces the periphery, involving a wider circle of social strata and countries in its sphere. For instance, Great Britain became the epicenter for the industrial revolution, France – for bourgeois-democratic, Russia – for socialist revolutions. In each period of the history of civilizations epicenters and driving forces of revolutionary overturns may change. A kind of a «drag race» occurs. But sometimes it happens that a revolutionary overturn requires a considerable adjustment (as it was the case with a wave of socialist revolutions in the 20th century) or a vector of radical transformation has been chosen erroneously and leads back and not forward (a wave of neoliberal transformations in Russia and other post-Soviet countries). With time this historical zigzag will be adjusted, but the price for countries and civilizations is high.

6. Revolutions, as a rule, are accompanied by serious losses for society, a partial destruction of productive forces, breaking of traditions, a growth of disorderliness, death of people, but their final result is usually a transition to a new, higher state of civilization, a new coil in the civilizational spiral. Revolution is a price that society has to pay for the implementation of ripe transformations. This price may be minimal (in «velvet revolutions») or maximum (for instance, a many-year war follows after a relatively bloodless revolution as it was in Russia).

A theoretical comprehension of revolutions and their place in the transformation of society started already in the 18th–19th centuries related to a wave of bourgeois-democratic revolutions. **Karl Marx** and **Friedrich Engels** for whom a revolutionary violence was an indispensable element of historical materialism made a weighty contribution to the formulation of this theory.

At the beginning of the 20th century **V.I. Lenin** became a prominent theoretician and practitioner of socio-political revolutions who not only disclosed the preconditions, content, social forces and mechanism underlying a socialist revolution, but he managed an experiment of large dimensions to implement it in Russia – with a view that it would develop into the world revolution. Although at the first stage of the revolution a wave of transformations went considerably farther than it was thought, the final result, as usual, turned out to be quite far from the ideal, nevertheless, one should not underestimate the significance of the imple-

mented revolution. It has become a landmark at the completing stage of a life cycle of the industrial world civilization and reversed the trajectory of the local Russian civilization, although at an exorbitant price for Russia.

Probably, the deepest sociological foundation of the theory of revolutions was suggested by **Pitirim Sorokin** in the book written by hot scents of revolutions in Russia (where the author has had no small share in it) in 1922–1923, published in English in the USA in 1925, and in Russia based on the original Russian copy in 2005 [182]. The field of his inquiries is social-political revolutions evolving in various civilizations beginning from the ancient Egyptian and ending with Russian revolutions of 1905, February and October of 1917. A special focus is made on the Russian revolution: «It also deserves such focus of attention because in terms of its depth and scope it is one of the greatest revolutions and because I had an opportunity to study it directly and because it cast light upon many sides of previous revolutions» [ibid, p. 25]. Let's dwell on the fundamentals of the *theory of revolution* suggested by Pitirim Sorokin – moreover, it could help to grasp the essence and outlooks of deep transformations going on in the world and Russia at the end of the 20th – first half of the 21st century (bearing in mind that the matter in question is mainly social-political revolutions and their influence on the dynamics of civilizations).

1. Investigating the major causes of revolutions Pitirim Sorokin sees them in impossibility for the major part of society to satisfy their major and minimum required instincts [ibid, p. 219]. According to Pitirim Sorokin these major infringed instincts include [ibid, p. 219–220]:

- *food demand* (food reflex); hunger is one of the reasons for disturbances and revolutions;
- *reflexes of personal safety* (capital punishments of innocent people, massacres, bloody war can become a cause of riots);
- *reflexes of group safety* (people defend their family members, relatives, coreligionists against insults of objects of worship);
- *demands for habitat, clothes, heat* to minimum extent;
- *sex reflexes* (otherwise, raping of wives and daughters and forced marriages occur);
- *property instincts* (a social outbreak is inevitable if the majority of citizens live in poverty while a small group of people have enormous riches);

➡ *an instinct of self-expression and self-dignity* (discontent is caused by ignoring of merits and accomplishments of one group of people with simultaneous overestimation of less worthy people);

➡ *instincts of bellicosity, struggle and competition, creative work, diversity and adventures, reflex of freedom* [ibid, p. 219–220].

These infringements should embrace the absolute majority of people or at least a considerable part of society to lead to revolution. Pitirim Sorokin also observes such precondition for revolution as «a disability of the groups of order to balance through a fundamentally strengthened braking the increased pressure of infringed reflexes» [ibid, p. 221].

Such sociological explanation of the reasons of the revolution is basically correct. **V.I. Lenin** gave a similar characteristics of a revolutionary situation — when the lower classes do not want, and the upper classes are unable to keep the existing order. However, one should highlight also deeper causes for revolutions in their civilizational understanding, the causes of a more fundamental order. They comprise an exhaustion of the potential of existing technological, ecological and economic modes of production, established state-political and socio-cultural system, their inability to meet the increased demands of popular majority, increased polarization of the confronting social forces and the inability of the ruling section to settle such contradictions in a timely manner by peaceful, evolutionary way.

2. Pitirim Sorokin gives a profound ***sociological evaluation of changes in the behavior of people*** during revolutions. Revolution is first of all a certain change in the behavior of society members, their psychics and ideology, convictions and beliefs, morals and evaluations [ibid, p. 26]. Such changes are characterized by mass character, rapidity and sharpness, specific nature, intensive circulation, social re-grouping, instability and permanent fluctuations in the mood of society [ibid, p. 38–39]. A state-political revolution is characterized at the first stage by extinction of reaction to obey with a major part of citizens [ibid, p. 55]. Society either begins to die or a new obedience reflexes spring up [ibid, p. 56]. At the first stage labor reflexes are also gradually fading, at the second stage they are engrafted again [ibid, p. 65]. Deformation of property reflexes occurs, all efforts are aimed at takeover of other people's possessions, which has to be braked at the second stage [ibid, p.73–74]; avarice, greediness, grab hypertrophy [ibid, p. 83]; sexual reflexes deform, sexual breadth grows including sexual per-

versions [ibid, p. 83–84]. The first stage of revolution leads to demoralization, weakening of religious, moral-legal, esthetic restrictions, a number of crimes against people increase [ibid, p. 94–96]. The society is lashed with robberies, brigandage, thefts, frauds, bribery, cheating and other property crimes [ibid, p. 106]. The second period of revolution gives rise to the revival and a new inoculation of failed legal, moral and religious reflexes [ibid, p. 111]. Simplification of the mind activity occurs, thus increasing a number of psychic illnesses. It contributes to success of extreme (anarchic or, on the contrary, reactionary and chauvinistic) theories [ibid, p. 121].

3. *Revolution (if it is followed by a civil war) influences negatively the demographic processes:* it reduces the number of population; leads to a rise in a curve of mortality and a fall in a curve of birthrate; worsens a qualitative population composition: «Biologically most healthy, energetically able-bodied mainly die there; psychologically – most strong-willed, talented and mentally developed; morally – most well-conditioned with enduring moral reflexes» [ibid, p. 125]. At the same time genetic fund of positive features of people worsens, thus contributing to their degradation and degeneration; viability and health of surviving sections of population decline. The data confirms P. Sorokin's theory: thus the population of the Soviet republics reduced by 15–16 mln. people from 1917 to 1922 [ibid]. Similar processes were observed in other revolutions – English, French and Chinese.

4. *In the period of revolutions a social aggregate deteriorates,* radical changes occur in the structure of society, social mobility increases many times. In the second period of revolution a return to old, a reverse circulation and reduction in the amplitude of fluctuations of the sizes of groups, restoration of an old mechanism of selection and distribution of individuals are observed [ibid, p. 146]. Certain classes and social groups vanish from the historical arena, others emerge.

5. *Radical changes of social processes occur* during revolutions. At the first stage of revolutions the organization of society deforms towards the unregulated anarchic autonomy; however, it is quickly replaced by despotic etatism that begins to fall with the end of the revolution [ibid, p. 178–179]. At the second stage autonomy reduces, rights and liberties of citizens, interference, guardianship and regulatory functions of power increase; freedom of word, press,

associations, assemblies is brought bring to naught, freedom of teaching, upbringing, education and movement is restricted [ibid, p. 179, 182]. A decline in production is observed in the country, general impoverishment, economic inequality intensifies, economic life of society become disorganized [ibid, p. 186]. Growth of governmentalisation leads to the replacement of an initiative entrepreneur impelled by stimuli of benefits and risk by state officials devoid of such stimuli [ibid, p. 194]. Minuses of governmentalisation intensify ten times due to ill-selection and absolute non-professionalism of newly made leaders; a huge army of officialdom slows down the development of the country [ibid, p. 195].

6. *The influence of revolution on the spiritual life of society is controversial.* On the one hand, revolution acts as a reagent helping tell «pseudo-knowledge» and «pseudo-experience» from actual knowledge and experience; representing a colossal and direct not indirectly bookish «school-life» the revolution gives good lessons, «in some aspects leads to the enrichment of knowledge and experience» [ibid, p. 196]. Revolution fosters innovation and gives the society some new necessary experience, «excites interest, expands mental forecast» [ibid, p. 198].

At the completion stage of revolution its ideology of the first period declines and conservative theories, calling for destruction of the very conditions of the revolutionary development, become popular. [ibid, p. 204].

7. *In any revolution the law of social illusionism is operative.* The result of revolution always turns out to be quite different from the promised at first, contradictory to its slogans. What is more, the negative consequences of the revolution turn out to be most severe for the least defended classes [ibid, p. 217]. It is confirmed by experience of all great revolutions.

The book of Pitirim Sorokin written under his recent impressions of involvement — on the defeated side — in the Russian revolution, bears the stamp of such impressions and feelings and can't provide a complete and objective picture of revolutionary transformations in society, the more so — their civilizational aspect. Nevertheless, it provides a vivid sociological description of causes, mechanisms, stages and consequences of the revolution. And much from the said by P. Sorokin amazingly reminds the processes, which occurred in Russia and in certain other countries in the 90s. In his further books — «Social and Cultural Dynamics» [183], «The Major Tendencies

of Our Time» [181] – Pitirim Sorokin demonstrates a wider and more objective approach to revolutionary transformations in various civilizations and in various sides of life of society.

However, let's refer to another book specially dedicated to the role of revolution in terms of a comparative study of civilizations – treatise of **Sh. Eisenstadt** «The Revolution and Transformation of Society. A Comparative Study of Civilizations», which appeared in 1978 and was published in Russia only in 1999 [236].

A sociological approach to understanding of the contents, forms and consequences of revolutions and their role in the dynamics of traditional societies and civilizations of new time prevail in this treatise. The author evaluates revolutions as movements in society targeted at radical transformations, at the future: «The great revolutions may be viewed as most dramatic, and maybe most successful attempts in the history of mankind to implement ethnic ideas on the macro level... Orientation for the future was characteristic of revolutions as a central element in the cultural plan of the contemporaneity» [ibid, p. 30]. This predetermined the leading role of independent intellectuals in the revolutionary transformations, which are the most intensive form of social changes: «Revolutions are characterized as the most integral, violent and conscious process of all social movements. It shows the utmost expression of free will and deep feelings, demonstrates outstanding organizational abilities and highly developed ideology of a social protest» [ibid, p. 44]. From this viewpoint revolutions of New time are analyzed and compared as the stages of the worldwide spread of civilization which began to form in Western Europe and North America. [ibid, p. 234]. This also refers to a socialist type of revolutions of contemporary time that were generated by the Western European civilization: «The beginning of development of socialism in Western Europe was predetermined by specifics of the European civilization. The diffusion of socialism outside Europe was predetermined by the spread of civilization of the New time and was accompanied by the disclosing of fundamental contradictions inherent to it» [ibid, p. 239].

The crucial external factors of revolutions were warfare between the states. However, internal factors comprised economic changes, structural shifts associated with expansion of markets and technological novelties, establishment of a new mode of production and new ideological systems, struggle between elites, mass rising of the people, religious and ideological movements [ibid, p. 245].

It should be noted that socio-political revolutions accompanied the whole history of civilizations as the most vivid form of radical changes and followed both a change of cycles in their dynamics (and the birth of new local civilizations at times), a change of world civilizations and also a transition to new stages, phases of their life cycle.

Let's consider the theory and history of revolutions in the aspect of interest to us: revolutions in the dynamics of global, world and local civilizations.

The essence of revolutionary overturns in the dynamics of civilizations is in their radical transformation, which is completed with the emergence of a new civilization or a transition to a new major stage in its development, radical changes in its structure and acceleration of the transformation rates. Revolutions serve as the turning points in the development of civilization, change its genotype (hereditary nucleus), clearing it from obsolete, overage elements and enriches it with new elements permitting it to adapt to internal and external conditions of its development. This is a comparatively long-term and painful process, often accompanied by social catastrophes, but it is necessary for the improvement of viability and advance of this sophisticated social organism.

From the viewpoint of the civilizational dynamics the following **types of civilizational revolutions** may be defined (*fig. 9.1*):

➡ *revolutions in the dynamics of the global civilization* associated with its emergence (Neolithic Revolution), transition to a new historical super cycle and the next world civilization as a major stage of a life cycle of the global civilization. The industrial revolution that conditioned a transition to the industrial world civilization within the second historical super cycle may be taken as an example;

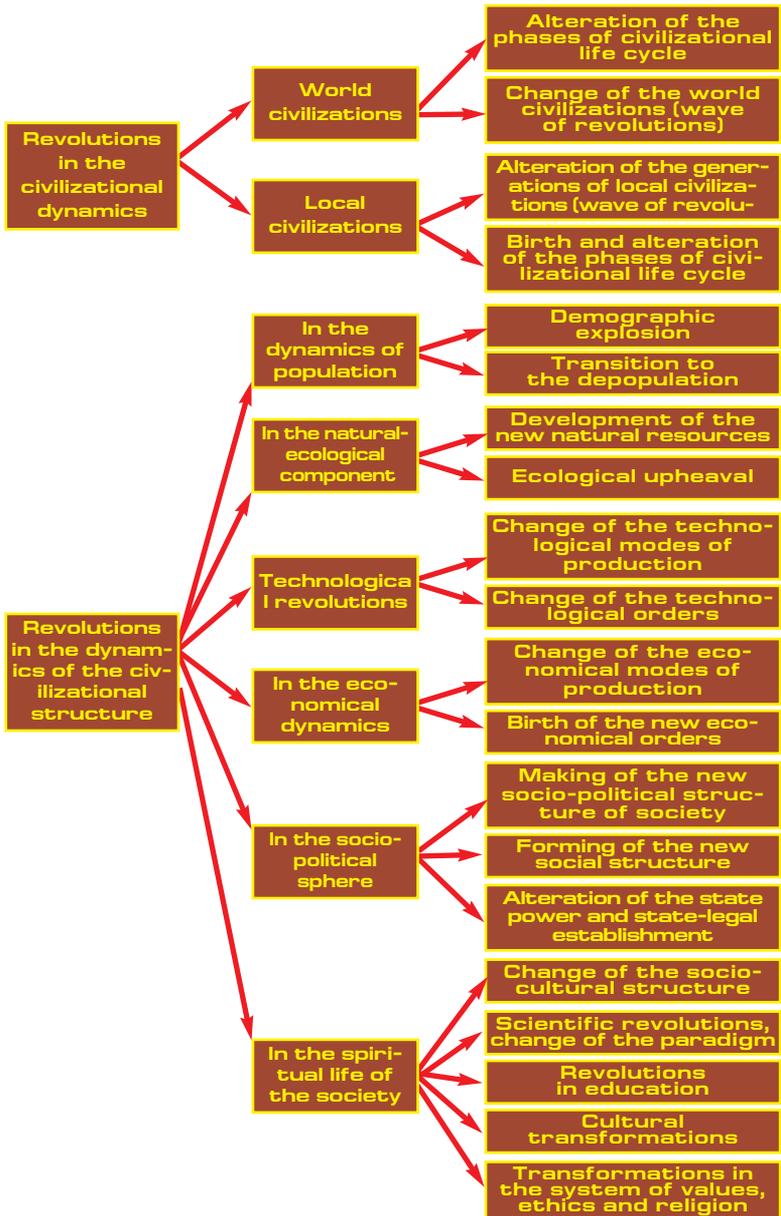
➡ *revolutions in the development of world civilizations* inaugurating their establishment (for instance, an overturn in the development of society in the establishment of the early class world civilization at the end of the 6th— beginning of the 3rd millennia B.C.) or a transition to a new major stage in its development;

➡ *revolutions in the dynamics of local civilizations* finding expression in the establishment of a new generation of local civilizations (which we observe at the end of the 20th — beginning of the 21st century) or a certain local civilization (for instance, Western European, Mongolian).

It is also possible to speak about a *counter-revolutionary overturn* in a life cycle of this or that local civilization — when it is

Figure 9.1

Classification of Revolutions in a Civilizational Aspect



making a historical zigzag, moving to the reverse direction of the general civilizational progress (thus the overturn of the beginning of the 90s may be evaluated in this way because it led to the disintegration of the Eurasian civilization and turned the Russian civilization back to the deformed system of spontaneous capitalism of the 19th century). In this case one could speak about an epochal anti-innovation.

The structure of civilizational revolution is inhomogeneous.

This or that driving element from the composition of the genotype separates itself causing qualitative transformations in other elements. In one case it may be a change of a socio-cultural system, in another — the development of new technological, economic and ecological modes of production, in the third — radical changes in the social structure and the state-political system of society (social or political revolutions).

In any case, a revolution is restricted in time, although it may last from a few weeks, months, years to a few decades, and even (as at the early development stages of society) a few centuries. During this time it usually passes, according to Pitirim Sorokin, two stages. At the stage of revolutionary breakthrough the ideals, driving motives of revolutions are implemented, and a part of the heritable nucleus is destroyed. At the stage of a partial counter-revolution radical adjustments are made into these ideals, driving forces are changed, unreasonable violations of the genotype are restored and a new system, a new civilization or its stage establishes itself. Thus the revolutionary breakthrough gives place to a relatively smooth, evolutionary development fixing the changes, which occurred in the revolutionary period (their major, historically reasonable part).

If a ***space aspect of civilizational revolution*** is taken, we can mark the epicenter, wherefrom it originates (for instance, Great Britain — for an industrial revolution), the area of development (for the same industrial revolution — leading countries of Western Europe and the USA), periphery, where the process of mastering the revolution occurs with lagging for one or two historical steps (for instance, Russia in the 19th century) and a «historical marsh», which remains long at the previous stages of development and obeys civilizations, which have shot ahead (India and Africa in the period of the colonial dominance may be taken as an example).

Now let's turn to the *history of revolutions in the dynamics of civilizations* (in brief as a more complete and specific description of such revolutions is provided in the next part of our book).

The *Neolithic revolution* is the starting point of this history, in the course and as a result of which technological, ecological and economic components of the hereditary genotype were formed (reproductive economy, social division of labor, transformation of natural resources, the beginnings of property stratification, social stratification, exchange of commodities and market). However, the tribal, prehistory system, primitive ideational socio-cultural order persisted, and local civilizations did not form yet. The foundation of the global and first world civilization was laid, the prehistory ended and the countdown of the history of society began.

The Civilizational revolution of the early class society (the end of the 6th – beginning of the 3rd millennium B.C.) completed the formation of the civilizational genotype, it laid the foundation of the second world civilization and the first generation of local civilizations. A socio-cultural system transformed – science, system of education, hierarchically organized religions as an institutional setting emerged. We may take Ancient Egypt as an example, where pharaoh **Ikhnaton** who ruled in 1419–1400 B.C. undertook the first, but failed attempt to introduce a monotheistic religion. In the period of early-class civilization an overturn occurred in technology, ecology and economy – with mastering of metal tools, establishment of irrigation systems in the valleys of great historical rivers, establishment of the network of cities, development of craft and construction, market institutions. A socio-political floor of the civilizational «pyramid» was built on: the states, classes, political systems, slavery, rigid political stratification emerged. The building of civilization established itself in the entirety of elements making it. The significance of such revolution is often underestimated, only paying a tribute to the «axial age» according to **Karl Jaspers**; meanwhile, the enormity of transformations in society, a total of epochal innovations surpassed by far what was reached by civilizational revolutions of later periods.

The Civilizational revolution of the ancient period (the first thirds of the 1st millennium B.C.) had as its asset not only the mastering of iron weapons and tools, but a considerable expansion of the civilizational area, development of the second generation of local civilizations and also the emergence of the world empires, nascence of democracy in the Greek cities –

poleis, an unprecedented efflorescence of sciences and arts and a short triumph of an integral socio-cultural system, which was followed by a sensual order.

The Revolution of the period of the formation of the medieval world civilization covered (in the epicenter) the period of the 5th–8th centuries and was of a long and deep nature, being associated with the formation of the second historical super cycle, the fourth world civilization, third generation of local civilizations, establishment of a feudal socio-political system and ideational socio-cultural system, dominance of world religions and ecclesiastical institutions representing them. The epicenter of revolutionary transformations shifted to the East, and then returned to Western Europe.

The Revolution of the period of the early industrial civilization (14th–15th centuries) was of a less radical nature. Its outstanding achievements included the efflorescence of science and arts in the Renaissance, establishment of manufactories, development of capitalism and formation of the «third class» (the driving force of the Netherlands and English bourgeois revolutions), formation of the fourth generation of local civilizations and diffusion of sensual socio-cultural system, great scientific revolution and the revolution in education. The elimination of local civilizations of the New World, of proto-civilizational or pre-civilizational societies of Africa and Australia were of the counter-revolutionary nature.

These tendencies were fixed by the *revolution of the period of the establishment of the industrial civilization* (the last third of the 18th – beginning of the 19th century), the main contents of which became the industrial revolution, political revolution in France, North America, consolidation of colonial empires, diffusion of a bourgeois-democratic system. The world wars of the 20th century, establishment of totalitarian regimes in the middle of the 20th century may be viewed as the counter-revolutions of the period of decline of the industrial civilization.

From the end of the 20th century came the time for the development of the *post-industrial civilizational revolution*. It has a deeper and more radical nature in comparison with the previous revolution as a transition to the third historical super cycle in the development of the global civilization underlies it; formation of the fifth generation of local civilizations, establishment of the integral socio-cultural system, humanistically noospheric society took place. The outlines of such revolution are just taking shape. But it is obvious that it will take the most part of the 21st century and will lead to a radical trans-

formation of all components making the genotype of civilization. At the same time the risk that a life cycle of the global civilization (humankind) will come to an end as a result of the clash among civilizations, global thermonuclear war, major technogenic catastrophe or environmental catastrophe increases.

Under the optimistic scenario the development of the global civilization will continue, and each major stage will begin with civilizational revolutions, which will be studied, cognized and foreseen by the thinkers of the future.

The contents of contemporary transitional in the dynamics of civilizations are viewed differently in the scientific community. Thus, **I.G. Yakovenko** proceeds from the assumption that as the «history of humankind goes through the history of civilizations, and a life cycle inherent to civilizations is birth, development, decaying, the universal history is cyclical. Both cycles of the evolvement of generation and a period of a relative timelessness or “dark centuries” separating the decaying of one generation of civilizations from the birth of the second could be traced in it. A transition from one generation of civilizations to another is always a change in a historical quality, in other words — revolution» [220, p. 107]. A similar civilizational revolution — a change in generations of civilizations — is going on nowadays: «We are inside the process of the change of historical periods... The logic of the world-historical process allows to assume that after completion of a transitional period a new generation of local civilizations will be formed» [ibid, p. 111]. One can agree with this position.

E.V. Saiko holds another view on the outcome of a contemporary overturn assuming that its result will be the disappearance of civilizations from the historical arena: «At present not only characteristics and structures inherent both to the European model civilizations and models of civilizations of new time are being disintegrated, but also many base foundations of functioning and *integrative rules of organization of society*, which operate actively and ensure objectively the directivity of historical development, as well as principles and forms of reproduction of society throughout a few millennia of *history* of civilizations in its phasic definition... The conditions are being created for the formation of elements, structures, system entities not inherent to the system of civilizations, falling out of the regularities of its functioning... All occurring changes permit to speak about the historical depletion of the system of societies of civilization as the emergence of the new, indicating its intensification, its further devel-

opment takes place alongside with the destruction of the basis foundation of the system» [ibid, p. 48].

It seems that there are no sufficient grounds for making a conclusion about such radical revolution (and more exactly – a counter-revolution as the elimination of civilizational diversity would be a step back in the dynamics of society). The basic foundations for both a periodic change of world civilizations and their implementation in the change of generations of local civilizations do not only persist, but also intensify in a new historical super cycle, with the formation of humanistically noospheric post-industrial society. It is prematurely to chant a requiem for local civilizations.

The theory of revolutions helps not only to evaluate correctly the reasons, essence and consequences of turning points in the cyclical dynamics of civilizations, but also to foresee such overturns in the future and to implement them in proper time and with few losses for society.

9.4. Warfare in the Structure and Dynamics of Civilizations

Warfare is a permanent companion of the history of civilizations and states. It acts in various aspects. This may be armed conflicts, (including civil wars) between various political and social forces within one state, often accompanying revolutions and resulting in the replacement of a socio-political system or the ruling establishment. The history of each state is full of such internal wars. The second type of warfare is armed conflicts, sometimes lasting for many years, between the states within one civilization (for instance, the Hundred Years' War and the Thirty Years' War in the history of the Western European civilization). The third type is a clash of states belonging to various civilizations (for instance, the crusade of Christian Western Europe against Moslem East, Crimean war of the middle of the 19th century). Finally, the invention of the 20th century is the world war in which many states of most civilizations of the world are involved as it was the case during World War II. A so-called «Cold War» of the second half of the 20th century was also of a global nature, the core of which was the confrontation between the Western and Eurasian civilizations and their supporters. Their political struggle sometimes turned into the armed conflicts (Korean and Vietnamese wars). Colonial wars,

which ended with the defeat and elimination of local civilizations (as it was the case in the period of conquering of North, Central and South America by Western Europe) may be added to this list, as well as anti-colonial, national liberation wars in the period of disintegration of colonial empires. They are also wars between civilizations. The end of the 20th century added one more type of warfare, which accompanied the disintegration of federal states, uniting the peoples of various civilizations. The conflicts of newly-formed states being a part of the former federative Yugoslavia may be adduced as a demonstrative example.

In this gamut of warfare we'll be mainly concerned with the armed conflicts inside civilizations and between civilizations. It is the more topical as the 21st century supplemented the classification with so-called asymmetric warfare, at the root of which lie local clashes among civilizations and also a new form of pinpoint terrorist attacks. The latter assume a nature of guerilla warfare as it has happened in Afghanistan and Iraq.

But let's dwell first on the very notion of **warfare**. We understand it as *the extreme form of the confrontation of socio-political sections and groups, ethnoses and nationalities, states and civilizations, assuming a nature of armed struggle and leading to the change in the structure of society (civilization)*. The matter in question is not an episodic armed conflict (as for instance the clash of the USSR and China because of the Damansky Island), but a persistent (for a certain time) phenomenon accompanied by militarization of the whole society.

In such understanding wars could not exist in the pre-state society, although bloody encounters between primitive communities and tribes had also occurred before the early class civilization. However, they became a political phenomenon only after the emergence of the state with its essential attribute — an army, when vital interests for society to conduct offensive or defensive operations using troops were formed.

The US military historian **Quinn Wright** associated warfare with the stages in the development of civilizations, specifying: a heroic period of the proposal of a new military ideal; a period of upheavals and protracted warfare; a period of fatigue, decay, loss of belief: «At the second stage in the period of upheavals all those problems and contradictions that were outlined at the first stage take shape to the full extent. Time of peril and catastrophes comes, destruction and construction intertwined in

a setting of a new world order in the form of a series of external and internal warfare... Undoubtedly, wars were and remain now the prime historical tests of states... As civilization develops the armies became more and more numerous both absolutely and relatively to the numbers of population, wars became more and more money-intensive and brought more and more costs, their intensity grew, and the average duration fell. Involving more and more space, warfare left less and less safety places for civilian population» [cited by 185, p. 303, 304].

Another US politologist **William Eckhart** has come to the conclusion that warfare has a key role in the dynamics of civilizations: «The history indicates that civilizations, empires and wars develop together; wars have acted both as midwives and coffin makers for civilizations in the processes of their historical rises and falls until now... Throughout humankind's history civilization and warfare were inseparably connected with each other... Thus, civilizations really brought wars as such with them, moreover — the more civilizational become people the greater belligerence they showed» [ibid, p. 310–311].

What types of wars exist, what are their causes and consequences? These questions have attracted attention of thinkers since the ancient times. In the ancient society warfare was viewed as one of the conditions of prime importance for existence of society. The ancient Greek philosopher **Plato** viewed it as a quite natural phenomenon as only wars could be a significant source for getting slaves, without whom society could not function in its usual way. His follower, an outstanding scientist of the antiquity **Aristotle** also viewed the art of warfare as an art to «get» slaves. And really warfare was one of the sources for economic might of a slave-owning system.

In the period of the Middle Ages new arguments appeared in favor of naturalness and desirability of warfare. Thinkers of that period connected it with the necessity of a periodic redistribution of property between feudalists, and namely land and peasants farming it. Such social demand formed its own theoreticians. The father of the Catholic Church **Aurelius Augustine**, who in the issues of religion and philosophy was the authority beyond exception in the Middle Ages, could be ranked among them. He sought the sources of any violence in the sinful depravity of human nature; he substantiated the existence of state power by the need for its suppression. However, he described the latter as a «large gang of robbers».

Augustine believed that this vicious circle of violence was inevitable and mercilessly criticized «The City of God» based on «love for your own self reduced to contempt for God.» According to him, there is no sense in criticizing warfare as such are people initiating it and it is better to condemn the nature of man in recumbence on the «City of God».

In the early industrial society the nature of warfare changed, the accents in its theoretical justification changed. The English philosopher **Thomas Hobbes** continued and developed the tradition of seeking explanations of wars in the nature of man, rivalry, distrust, and hunger for glory inherent to him. Its social doctrine considerably influenced the development of the European social thought. Hobbes believed that the way-out of the «bellum omnium contra omnes» is in a social contract, establishment of a strong state in order to ensure security and termination of civil wars. The function of protection of peace was vested in the monarch, who is free to apply sanctions against those who act despite moral duty and civil virtues. Hobbes viewed a concern for peace as the foundation of «natural law» established by a social contract.

Later a well-known French thinker **Jean Jacques Rousseau** made an attempt of a serious inquiry into social causes of warfare. The ideologist of revolution, who caught the internal contradictoriness in the development of a bourgeois civilization, Rousseau saw the reason of wars in the inequality of people in society. He was looking for the main reason of such inequality in the economic sphere, and namely in the emergence of private property. However, he proposed to remove such inequality using force, advocating the thought of the right of people to a revolutionary overthrow of the anti-popular power.

A powerful tradition which connects warfare not only with the development of the state, but with the emergence of policy, exists in a social thought. A form of people's activity aimed at seizure and retention of power (authorities, rights to dominance) by fair means or foul, including violent, is the policy. The German philosopher **G. Hegel** believed that the governors use troops to «reach special aims in policy». A military ideologist of a bourgeois society **K. Clausewitz** was first to provide a complete and distinct definition of connection between two social phenomena – war is a continuation of policy. «War is not only a political act», – he wrote, – «but a real tool of policy, continuation of policy by other means. What remains peculiar in it is only the peculiarity of its means».

In many researches there were pointed out both positive and negative effects of wars. Thus, the ancient philosopher **Heraclites** (544–483 B.C.) found mainly positive features in wars of slave-owning states. In many historical researches the thought of Heraclitus that war is good at least because the stronger and more courageous survive in it, is repeated. **Hegel** wrote that war prevents peoples from decaying which would be the consequence of lasting, and more so of eternal peace.

The apotheosis of war is contained in the book of the French political scientist **Michel Revonnaut** published at the end of the 19th century: «War as a *world law* manifests itself everywhere, by thousands of powerful conflicts. War is a source of a fruitful movement, an impetus giving life to all existent. It is a mother bringing forth all transformations of external and internal world. War is determined by destructiveness full of mystery of the unattainable and as rational it is beautiful» [ibid, p. 295].

The «advocates of war» have always had serious opponents. The ancient Indian thinker **Chanakya** (5th century B.C.) pointed out two aspects accompanying war — losses of material values and dissolution of morals. The mentioned **Hobbes** noted that wars destroy industry, crafts, agriculture, trade and that they are fatal both for the state and its subjects. **Gottfried Leibniz** spoke up in the same spirit adding that what was obtained during war is hard to preserve, and that's why even victorious wars often turn out to be ruinous. The French philosopher **Denis Diderot** believed that war is not only contra-natural, but perverts the morals of the whole nations. **N.G. Tchernyshevsky** asserted that war is destructive for the state already at the stage of preparations for it lays a heavy burden on the shoulders of people, and the main point — war spawns violators and robbers.

In the 20th century the theory of warfare was enriched with new points; it was connected with cyclical factors in the dynamics of economy and society. In 1922 the treatise of **N.D. Kondratieff** «World Economy and Its Conjunctures during and after War» was published, republished in 2002 [86] and published in 2004 in English. Based on a richness of statistical data the book reveals the influence of the First World War on the dynamics and structure of economy as well as the connection of wars with medium-term and long-term cycles.

Table 9.3

Dynamics of Wars in Ancient Greece, Ancient Rome and Europe*

Periods	Duration		Numerical Force of an Army		Number of Victims		
	In years	in % of the 1 st period	Thous persons	in % of the 1 st period	Thous persons	in % of the 1 st period	in % of the army
Ancient Greece							
500–401 B.C.	91	100	1694	100	80.7	100	4.8
400–301	85	93	2413	142	144.0	178	6.0
300–201	48	53	1225	72	54.4	67	4.4
200–126	11	12	205	12	9.1	11	4.4
Ancient Rome							
400–301 B.C.	43	100	860	100	43.0	100	5.0
300–201	83	193	3317	386	252.5	587	7.6
200–101	57	132	1660	193	83.0	193	5.0
100–1	66	153	3674	427	182.2	424	5.0
1–100 A.D.	29	67	784	91	38.8	90	4.9
101–200	28	65	1120	130	56.0	130	5.0
201–300	42	98	1620	188	80.6	187	5.0
301–400	26	60	1235	144	61.4	143	5.0
401–476	37	86	1400	163	70.0	163	5.0
France. England. Austro-Hungary and Russia							
1101–1200			1161	100	29.9	100	2.6
1201–1300			2372	204	68.4	229	2.9
1301–1400			3867	333	166.7	302	4.3
1401–1500			5000	431	285.0	953	5.7
1501–1600			9758	840	573.0	1916	5.9
1601–1700			15865	1366	2497.2	8351	15.7
1701–1800			24849	2140	3622.1	12114	14.6
1801–1900			17869	1539	2912.8	9742	16.3
1901–1926			41465	3571	16147.6	54005	38.9

*[239, p. 296]

N.D. Kondratieff came to the conclusion that the world war began at the moment when a crisis phase of a medium-term economic cycle evolved: «War delayed the development and deepening of depression. Giving rise to a peculiar military market of an exclusive capacity, war “removed” disclosed contradictions of the market and changed the direction of movement of conjuncture. A general economic depression was replaced with a peculiar movement of conjuncture of the military period that is characterized by a continuous and general increase in the value indices under an increase in naturalistic indices in one countries and a fall in the others... Having changed the direction of the dynamics of the world economic conjunctures, “removing” the disclosed contradictions of the world and national markets, war... has deeply transformed the world economy... Disproportions and discrepancies destroyed by war were replaced by other, deeper and considerable disproportions and discrepancies created in their turn by war» [86, p. 334, 335]. War was an obstacle to a technological advance and development of transport [ibid, p. 337].

N.D. Kondratieff has disclosed a new regularity in the dynamics of wars connecting it with up and down waves of big cycles of conjuncture (long waves of economic dynamics). In the report of 1926 he proved that «the periods of up waves of big cycles as a rule are much richer in major social upheavals and overturns in society's life (revolutions, wars) than the periods of down waves» [ibid, p. 374]. In support he provided the following empirical data: in the period of the up wave of the first big cycle 6 military conflicts were observed, in the period of the down wave — one; for the second cycle — this ratio was 6 and 1; the up wave of the third big cycle witnessed 12 military conflicts [ibid, p. 374–376]. The following explanation is given to such irregularity in the dynamics of wars: «Wars originate in the rise in the rate and tension of economic life, aggravation of economic struggle for markets and raw materials. But such tension in economic life is inherent especially to the periods of rising conjuncture» [ibid, p. 383]. Further researches proved the validity of the conclusion on the interconnection of military activity and change of up and down phases of long-term (Kondratieff) cycles.

It should be added that the maximum of military activity is observed in the periods of the formation of a super big, civilizational cycle, a new world civilization.

The research in the field of sociology of warfare, its cyclical fluctuations was undertaken by **Pitirim Sorokin** in four volumes «Social and Cultural Dynamics» published during World War II, and the cumulative volume was published in the USA in 1957 and in Russia in 2000 [183, chapters 3.2, 3.3].

Viewing war as an extreme outburst of violence in the developing system of relations between groups, as the biggest and most bloody form of external forces or disorders between groups P. Sorokin studied the fluctuations, irregularity in the dynamics of wars for nearly two and a half millennia on the example of Ancient Greece, Ancient Rome, China and leading European states. The data quoted by him are tabulated in *table 9.3*.

In the period of the formation of ancient societies the total number of years when wars occurred prevailed (in Greece – 91 years of 100 years in the 5th century B.C. and 85 – in the 4th century B.C., in Ancient Rome – 83 years in the 3rd B.C., 57 – in the 2nd century, 66 – in the 1st century B.C.). However, in the further phases of their life cycle the number of war years reduced sharply (in Ancient Greece – up to 48 years in the 2nd century and 11 years in the 1st century B.C., in Ancient Rome – up to 26–29 years in the 1st, 2nd and 4th century A.D.). The numerical force of the army and the number of victims reached its peak in the 4th century B.C. in Ancient Greece, and in further two decades it dropped many times. Losses made from 4 to 6% of the numerical number of the army, therefore the military service was marked with an extreme risk.

The Middle Ages were characterized by a stable growth tendency in the numerical number of the army (4.3 times over 300 years) and priority increase in the number of losses (in 9.5 times) so that the risk of military men to become a victim of war increased from 2.6% in the 12th century to 5.7% in the 15th century, but it did not exceed much the level of losses in Greece and Rome.

The early industrial revolution, the period of colonial wars and the primary accumulation of capital was characterized by a leap in the numerical number of the army (5 times in the 16th with respect to the 15th century), a number of losses (12.7 times for the same period) and their ratio to the numerical number of the army (from 5.7% to 14.6%); war became more and more risky but at the same time lucrative trade; military economy grew accordingly.

The maturity period of the industrial society – the 19th century – is characterized by a slight easing of military ten-

sion: the numerical number of the army decreased by 28% with respect to the previous century, a number of victims – by 20%. However, already at the beginning of the 20th century – in the phase of decline, convulsive throes of the industrial civilization – militarization grew fantastically. Only in a quarter of the century a numerical number of the army increased 2.4 times with respect to the whole 19th century, a number of victims – 5.5 times, and their ratio to the numerical number of the army – from 16.3% to 38.9%. Military economy, a share of the military sector in GDP and scale of destruction in the periods of combat operations grew in the relevant scale.

P. Sorokin came to the conclusion that with time losses increase faster than the armed forces: «Warfare of new and contemporary time shows a tendency to the increasing devastation due to its wounding and increasing power...The development of technology, physics, chemistry ensured the progress of war technique, creating more destructive means of warfare» [183, p. 637].

Another conclusion, to which the researcher arrived, is that a curve of war and peace fluctuates, but neither regular periodicity nor a uniform rhythm is traced in such fluctuations [ibid, p. 649]. Nevertheless, the book contains some generalizations contradictory to this categorical conclusion. A hypothesis is put forward that in the historical fates of nations a burden of war, absolute and relative, increases in the periods of expansion – political, social, cultural and territorial. In the periods of prosperity military actions reach the peaks [ibid, p. 652]. It evokes a conclusion made by **N.D. Kondratieff** several decades earlier on the intensification of wars on the up wave of a big cycle. Another observation of Pitirim Sorokin is rather curious: «In the history of science most periods of its intensive development in the political, social, economic, moral and intellectual spheres, i.e. the brightest periods of its history, periods of the top magnificence, mighty, greatness and genius as a rule coincide with the periods of the utmost militarism and belligerence» [ibid, p. 653].

Pitirim Sorokin has also noted such regularity as a large number of great wars during a change of socio-cultural types, in the transitional periods from the ideational type of culture to sensual and vice versa [ibid, p. 655].

The Russian historian **I.M. Diakonov** believed that the progress in the production of weapons plays a decisive role in the transition from one phase of the history of society to another:

Table 9.4

Indices in the Dynamics of Military Economy *

Countries	Military Expenses				Armed Forces			
	% in GNP		% in governmental		thous. people		% % to labor force	
	1995	2003	1995	2003	1995	2003	1995	2003
Whole world	3,2	2,6	11,3	10,8	30 182	28 161	1,1	0,9
Countries with a high income level:								
USA	2,4	2,6	11,3	10,7	6178	5476	1,3	1,1
Great Britain	3,8	4,1	21,1	19,4	1636	1480	1,2	1,0
Germany	3,0	2,4	8,7	6,0	233	213	0,8	0,7
France	1,7	1,5	4,9	4,4	365	285	0,9	0,7
Japan	3,1	2,6	7,6	5,4	502	360	1,9	1,3
	0,9	1,0	4,5	-	252	252	0,3	0,2
Countries with a low income level								
	2,6	2,3	17,3	14,8	7891	8189	0,9	0,8
Countries with an average and low income level:								
China	2,5	2,5	13,6	12,3	24 004	22 686	0,8	0,7
India	1,8	2,3	32,5	19,2	4130	3750	0,6	0,5
Russia	2,2	2,3	15,2	14,2	2150	2415	0,5	0,5
Latin America	4,4	4,3	21,1	18,8	1800	1370	2,3	1,7
Middle East and North Africa	1,5	1,2	6,1	6,9	2112	2136	1,1	0,9
Africa south of Sahara	5,8	6,1	-	-	3350	3503	3,9	3,1
	2,3	1,8	8,4	-	1698	1544	0,7	0,5

*[271, p. 41]

«There is only one field of technology where progress renders a direct influence on the change of relations of production. This is a progress in making of weapons. Where there are no metal weapons, no class society could be... It is not great geographical discoveries that put an end to the Middle Ages (although they did too) but a cannon, which reduced to nothing the role of a medieval knight and put the industrial entrepreneurship higher than agricultural... Nuclear and hydrogen bombs will lead (if humankind survives) to establishment of the post-capitalist society on the worldwide scale» [62, p. 13, 14]. Militarization really pushes technological advance, however, the given thesis seems to be too categorical. The development of military technologies may be viewed as a factor

of social progress. But the destructive role of armies, arms race and wars should be taken into account in the dynamics of civilizations. A most active and skilled part of workers are involved in this sphere from production of material and spiritual values, tens and hundreds, if not millions of people die during military conflicts, towns are destroyed, cultural values are lost. Wars served as a reason for the disappearance of a great many states and civilizations from the political map of the world.

In the works of the authors the issues of theory and history of wars, their place in the dynamics of civilizations and opportunities to prevent are investigated [97, 239].

Let's summarize in brief our approaches to warfare in terms of the theory of cycles and crises in the dynamics of civilizations.

1. Warfare is a violent, bloody form of settlements of contradictions in the political and other spheres of society in the dynamics of civilizations and relations between them, an acute form of political and geopolitical crises. Wars appeared simultaneously with the states and local civilizations and act as one of the prime functions of the state and social institutions implementing this function, and first of all the army, throughout five millennia. The periods of war alternate with the periods of a comparatively peaceful development, when the dialogue develops, mutually beneficial economic and socio-cultural exchange between countries and civilizations exists. Wars break the process of dialogue and exchange, but then it is restored.

2. Warfare and militarization in the period of preparations for war transform the whole structure of civilizations and first of all the structure of human capital, rendering a contradictory, mainly negative influence on it.

The most capable and active part of men of the society taken off from productive work serves in the army. In the periods of combat operations a part of military men dies or becomes disabled, and many of them turn out to be unable to peaceful labor after demobilization; they fill the ranks of criminals. War deforms a demographic structure of population (the birthrate falls, morbidity grows) and a labor potential of society.

The best intellectual forces and skilled human resources, that could contribute a lot to the development of civilian industries, are involved in the design and production of weapons and measures of defense. Although a military sector largely financed by the state serves as a source of scientific discoveries, major inventions and

basic innovations which are partially used in the civilian sector of economy, scientific-technological advance in the sphere of creating the latest means of destruction of man by man far from always serve for the improvement of a technological level and competitiveness of economy in general. And from the end of the 20th century scientific-technological advance in the military sphere reached a dangerous edge, which made the further race for super powerful weapons senseless and imperiled the survival of mankind. The awareness of this led to a certain cut in military expense and level of militarization of economy in general in the world in the 90s in many countries and civilizations (*table 10.4*). For a decade a share of GDP directed to military purposes decreased from 3.2 to 2.4 in general in the world.

The level of militarization of economy is different in different civilizations and countries. A share of defense expense in GDP is the lowest in Japan (1%); it is the highest in the countries of the Middle East and North Africa (7.9%) and in Russia (5.5%). Military expenses in China, the USA and Russia occupy the largest share in spending of the state budget, the lowest – in Japan, Germany and France. However, after September 1, 2001 the tendency began to reverse, militarization of economy intensifies again; a share of military expenses is growing in GDP of many countries.

3. Warfare renders a contradictory impact on a technological structure of civilizations. On the one hand, a scientific and inventory activity aimed at the creation of fundamentally new types of weapons and means of defense is promoted, the state marks out large amounts of money for their designing and innovative mastering. A part of these innovations also becomes spread in the civilian sector of economy, contributing to the enhancement of its technological level and competitiveness. Exporters of weapons appropriate the world military-technological quasi-rent. On the other hand, the most gifted and talented scientists, designers, engineers are focused on the creation of military equipment, being taken from the civilian industries, which restricts the growth rate and increase in the technological level of these branches. Hypertrophy of militarism leads to the one-sidedness of a scientific-technological potential, makes the progress in this field dangerous for further existence of man.

4. With the formation of the states and local civilizations, occurrence of armed conflicts between them military economy comes about – a considerable sector of economy activity ensuring the development and production of weapons, building of defensive

constructions, supply of the army with food, uniforms, materials and transport. In the periods of military conflicts a share and significance of the military sector of economy grows sharply due to derivation of resources from civilian industries. As military economy develops on the government orders and export of weapons, it becomes an extremely lucrative business; both government enterprises and private entrepreneurs work for it. However, military economy eventually sucks dry the civilian sectors, giving little in exchange. Therefore, while the creation and maintenance of the military sector of economy is fundamental to ensure the security of the country and civilization, it is necessary to seek the ways to reduce its negative impact on the development potential of civilian industries serving for meeting the demands of population and manufacturing of the means of production necessary for the implementation of this major objective of economy. «Cannons instead of butter» is a slogan, whose implementation in practice deforms the structure and reduces a socio-economic efficiency of national economy. An optimal ratio of spending of public resources for butter and cannons — with a general tendency towards a fall of share of the latter — should be found.

5. Militarism leads to deformation of society's socio-political structure. A social stratum is formed directly connected with the army and military economy. These are not only generals, officers and soldiers, but scientists, designers, entrepreneurs, managers, engineers, workers employed in the military sector of economy and interested in its prosperity, the officials serving this sector, military pensioners etc. This social section lives on the government military orders and budgetary expenses and uses its influence so that military expense will increase; their share in the state budget grows. Although the share of military expense is not that high in the spending of the budgets — it made 11% in average in the world, it is considerably higher for certain countries and civilizations: Oman — 45%, Yemen — 36.4%, Singapore — 30.3%, the USA — 19.4%, Russia — 18.8% [ibid]. In recent years a number of countries where such expense has a tendency towards increase (including the USA and Russia) are growing.

A share and influence of the social sector associated with the military sector especially grows in the periods of wars, when the whole economy and society are submitted to the objectives pertaining to the defense of the country, victory in the military conflict. Although a reverse tendency is observed after war, this social sector is not

eager to give up its influence and place in the distribution of social product produced.

One more political side of the processes of militarism should be taken into account. Preparations for warfare, and moreover its conduct result in intensification of centralization of the state power, scaling down democratic institutions and sometimes to the establishment of the totalitarian dictatorship as it was the case in the fascist states and the USSR. It responds to the social law of fluctuations of totalitarianism and freedom discovered by Pitirim Sorokin: when a considerable crisis hits society in the form of war or a threat of war – the scale and severity of governmental regulation increase and economy of society, political system, a way of life and ideology undergo a totalitarian transformation; when a strong crisis is behind, the scale and severity of the governmental regulation reduces in society, a free re-conversion is underway [181, p. 124]. However, a militarist social sector closely connected with the state machinery hinders re-conversion and is interested in the maintenance of a threat of war, existence of external adversaries. One of the reasons of disintegration of the USSR, Comecon, destruction of a powerful military-industrial complex was a loss of the image of an external adversary, who served as a hoop pooling together the republics and countries.

6. Militarism penetrates the sphere of society's spiritual life – science, education, culture, ethics and religion. In the periods of war and an increasing threat of war a large and the best part of a scientific and inventive potential is directed at designing of new types of weapons and instruments of defense, service of the military sector of economy. A considerable part of the sphere of education works for training skilled human resources for the army and the military-industrial sector; students of higher learning establishments get military training. In culture and art the cult of war, glorifying of military deeds, dominate. Ethics justifies the pursuit and killing of the enemy; moral restrictions are eased among the participants of combat operations. Religion blesses the hatred towards the enemy and military deeds, calls for sacrifices necessitated by the victory in war. The spirit of violence penetrates all spheres of society, even if these are local military conflicts. Human life devaluates, the cruelty is justified. These tendencies especially increase in cross-civilizational wars.

Let's try to imagine the future of warfare in the 21st century. The 20th century led the tendencies towards militarization of society

and wars to the utmost absurdity. ***The force and influence of factors that can eliminate wars from life of the society increase*** — first of all world wars and clashes among civilizations — they can reverse the trend that has prevailed throughout five millennia, from the moment when the state and local civilizations emerged. What are these factors?

Logic of the development of means of mass destruction, military equipment, the creation of the systems that are able — if widely employed — to destroy all living beings on the Earth. There will be no winners in such a war — only the defeated, and not only all humankind, but a considerable part of biosphere. What will occur was called by **Pitirim Sorokin** the «self-cremation of humankind» in the fire of a thermonuclear war. Realization of this fact forced two super powers — the USSR and the USA — to take unprecedented measures in the 80s for the elimination of most dangerous systems of weapons of mass destruction under mutual control. However, the arms race, creation of their new generations continues in the 21st century.

Processes of globalization, turning of all world economy into a united system, presence of vital interests and subsidiaries of powerful TNC in many countries and civilizations also become the power counteracting military conflicts, which will cause damage to these vitally significant interests. Although a part of TNC operating in GDP and export of weapons warm up military conflicts, their influence could hardly become determinative in a long-term run.

The influence of political forces and social movements, which are aware of the danger of warfare and are backing up peaceful, non-violent settlement of inevitable interstate and cross-civilizational conflicts, is growing. The UN and other interstate institutions also act in this direction. The influence of global civil society that opposes armed conflicts and factors generating them is strengthening. The movement in favor of the dialogue among civilizations, for culture of peace and tolerance is evolving. The campaigns proclaimed and supported by the UN and UNESCO contribute to it.

The development of forecasting of warfare effects contributes to abstention from wars. The estimations made in 1983 by the Computer Center of the USSR Academy of Sciences under the guidance of Academician **N.N. Moissejev** confirmed the assumption of the US astrophysicist **Carl Sagan** that as a result of a series of nuclear explosions a nuclear night and as a consequence nuclear winter may settle on the Earth. «Our team was the only organiza-

tion in the world that had the systems of models sufficient for a numerical estimation and necessary information to test the hypothesis of Sagan. The relevant estimations made by us in summer 1983 fully confirmed the validity of the hypothesis of the US scientist. But what is more important we found out that after the disturbances caused by a series of nuclear explosions and fires that were simulated by our models, a new quasi-balance which might arise approximately in a year after a virtual catastrophe turned out to be essentially different from the previous state, and also of that where humankind spawned. We came to the conclusion that Man could not exist in such new biosphere» [134, p. 8]. The forecast of a «nuclear winter» sobered the politicians and became one of the impetuses for the turn to disarmaments.

If we could imagine an opportunity to forecast accurately or estimate the outcome and all consequences of a future conflict (like the chess players analyze the game deferred the day before and without a further play come to terms with each other), this would result in the elimination of wars from the life of people. The reality sobered. The development of civilization has provided people with a partial opportunity to estimate the consequences of armed conflicts depending on the relation of combat strength of the parties, missions decided by the armed forces of the opposing parties, conditions of such missions etc. The development of computer technologies, simulation and forecast technique contributes to the enhancement of the accuracy of forecasts pertaining to the outcomes of possible armed conflicts and warfare, and latest systems of reconnaissance and communications allow making the results of these estimations known to the parties concerned — participants in a potential «virtual war». However, the number of factors, which influence the course and outcome of such a complicated socio-political phenomenon as war is so higher that it could not be accurately taken into account even by the most sophisticated computer facilities. Therefore the results of estimations have as a rule a probabilistic nature and only in the obvious advantage of one of the belligerents, one could forecast the outcome of warfare or an armed conflict with a greater probability.

Consequently, a group of weighty factors aimed at the elimination of interstate and cross-civilizational wars in a geopolitical space have first appeared in the history of society. However, we should notice the **opposing factors** and tendencies of the reverse direction. Let's mention these factors:

1. A threat of the clash among civilizations. This threat was first formulated in the article and then the book [259] of the US political scientist **Samuel Huntington**. He noted that «the international policy has become both multi-polar and multi-civilizational for the first time in the world history... In the modern world a new world order is being formed based on the relations among civilizations... With the end of the “Cold War” the interaction between the West and non-west civilizations is brought to the forefront» [cited by 185, p. 508, 509, 511]. Under these conditions the clash among civilizations becomes inevitable: «Differences between civilizations are not just real. They are most essential. Civilizations are not alike in their history, language, culture, tradition and what is most important – religion... These differences have been formed over centuries. They will not disappear in the foreseeable future. They are more fundamental than the differences between political ideologies and political regimes. Certainly, it is not necessarily that the differences provide for a conflict, conflict does not always mean violence. However, within centuries the most protracted and bloody conflicts were generated exactly by the differences between civilizations» [ibid, p. 515–516].

The concept of S. Huntington was subjected to criticism in many countries. Nevertheless, a threat of the clash among civilizations remains a reality. It became more tangible during the Indo-Pakistani conflict in 2003, which could just end with a nuclear war. Also the international terrorism is distinctly taking shape of «pinpoint» clashes among civilizations. Military conflicts in Lebanon, between Israel and Palestine, in Afghanistan, Yugoslavia obviously have the nature of the clash among civilizations. And although one could hardly anticipate a large-scale, planetary self-destructive clash among civilizations in the recent decades, the probability of local and pinpoint cross-civilizational armed conflicts will persist.

The tendency towards the cross-civilizational clash is expanded in the foreword of the editor to the book of **Patrick Buchanan** recently published under a symbolic name «The Death of the West»: «The oncoming of a new century has inaugurated the beginning of the Fourth World War, war of civilizations, war where civilizations of the “second” and “third” worlds oppose the Euroatlantic civilization of the West. Unlike previous wars this

one is conducted without the use of weapons (save for local armed conflicts), it is of an “information-cultural nature”, however its outcome, judging by the way the situation is being formed, will be the defeat of the West and a loss of not only an empire, but the whole civilization» [28, p. 5]. Such prospect is unlikely that such outlook is practicable, but a threat should be considered so that it can be prevented.

2. *Aspiration for the unipolar world* to a global empire, which is more and more clearly manifests itself in the foreign policy of the USA and its allies, also aggravates a danger of armed conflicts and local wars. In counteracting international terrorism the USA mainly relies on violence. However, violence generates counter-violence.

An attempt to transform non-western civilizations in the similitude of the West, depriving them of their own identity and subordinating, sometimes through violence, the influence of the only super power – the USA can't but cause a response, aggravating a threat of military clashes and international terrorism. Strange as it may appear the concept of the forcible dominance of the West is most clearly and straightforwardly formulated by the Russian scientist-economist, and now the editor-in-chief of the «Svobodnaya Mysl» magazine («Free Thought», ex-«Communist») **V.L. Inozemtsev**. In his treatise «Split Civilization» [70] he has brought forward a paradigm of the «renovated colonialism» with respect to the countries of the «fourth world», which are unable independently to ensure a sustainable economic growth: «These countries should be deprived of their sovereignty in the nearest ten years through the interference of international forces based on the UN mandate or other similar normative act, and their governance will be delegated to the group of international observers and experts relied upon the UN troops. Throughout the next 15–20 years after such regime is established on the funds centrally and concertedly allocated from the budgets of the leading post-industrial countries and granted by international financial organizations the activities should be held for prevention of further degradation of natural ecosystems, ensuring a minimum subsistence level for nationals of these countries, formation of a production potential based on balanced agricultural technologies» [ibid, p. 445]. It was proposed to choose 15–20 poorest countries as the «first wave» for such experiment and the sec-

ond stage of the evolvement of neocolonialism will follow thereafter. The author believes that «in the near future the concept of the “renovated colonialism” is able to be exclusively efficient» [ibid, p. 446].

It is clear that the attempt to implement this concept will cause an outburst of armed resistance, clashes among local civilizations and countries, which have gained their sovereignty not long ago and value it a lot. But most surprising is that this concept is being pursued in actual fact with respect to Afghanistan and Iraq in recent years (although it is difficult to include the latter in the number of the poorest countries). Experience has demonstrated convincingly that the pursuance of the concept of the «renovated colonialism» begins from warfare with the use of the latest generations of weapons and entails a wave of terrorist attacks within a long period of time. Therefore the concept is doomed to a failure.

3. In many countries of the world there exist considerable and influential *forces interested in warfare and war tension* and getting a nice bit of dividends. The matter in question is transnational corporations, national companies and states coining money on export and import of weapons; political elites and religious extremists maintaining their influence due to military tension; international and national terrorist organizations. These forces are not that numerous, but quite influential. In 2002 exports of weapons (in prices of 1990) made USD 6 980 mln. in Russia, USD 4 385 – in the USA, USD 1 753 mln. – in France, USD 825 mln. – in China, USD 1 549 mln. – in Germany, USD 525 mln. – in the United Kingdom, and USD 277 mln. – in Italy. The leaders in import of weapons include China with USD 2 548 mln., India – USD 3 621 mln., Turkey – USD 504 mln., Egypt – USD 504 mln., Australia – USD 485 mln., the United Kingdom – 555 mln., Algeria – USD 513 mln., Saudi Arabia – USD 487 mln. [271, p. 280–282].

A struggle of the two groups of oppositely directed factors will determine the fate of war in the present century and over a long period. However, certain tendencies can be already envisaged now. First, it is unlikely that the world war, which would involve most countries and civilizations, might repeat. The price of such war is too high and the parties have absolutely no chances to win. Second, a risk of asymmetric and local wars will increase as well as pinpoint terrorist attacks, especially if existing or new invented

mass destruction weapon will fall into the hands of terrorists. Third, despite the fluctuations by phases of long-term cycles it is likely that the tendency towards demilitarization of economy will intensify (although a reverse tendency is obvious in the first years of the new millennium under the US leadership). Fourth, the awareness of the harmfulness and dangers of the arms race will promote the reduction of the social and political base of war supporters and demilitarization of consciousness.

Therefore in general a long-term forecast of warfare is optimistic. However, if the pessimistic scenario prevails, then there will be nobody left to forecast a further course of events.

Chapter 10

CYCLICAL DYNAMICS OF THE SPIRITUAL SPHERE OF CIVILIZATIONS



The sphere of spiritual life of society is remarkable for its complexity, quirkiness in the twists of the trajectory of its dynamics, uncertainty in the foresight. But at the same time this sphere is the top of the civilizational «pyramid», a key element of the genotype of civilization, the original source of its movement from stage to stage, change in cycles and crises in the spiral of the historical progress. That's why this sphere is worth of detailed consideration in the aspect of dynamics of civilizations, regular revolutionary overturns in science and education, changes in artistic styles and schools, renovation of ethic and religious attitudes of peoples and civilizations.



10.1. A Key Role of the Spiritual Sphere in the Structure and Dynamics of Civilizations

What do we understand under the *sphere of society's spiritual life*? We include five major elements, which reflect various sides of the man's and society's perception of the world and their own selves, determining of the world outlook and define objectives of the activities:

➤ *science* as a level of cognition of regularities of nature and man, mechanisms to use such regularities in the interests of society, social groups and man;

➤ *culture* as an aesthetic perception of the world, its wealth and diversity, creation of artistic values, understanding of harmony, a sense of beauty;

➤ *education* as a system of generalization and transmission of accumulated knowledge and experience to next generations, social

elements of the genotype of man, ethnos, nation, civilization, aesthetic and moral values;

➔ *ethics* as a system of morals governing family and social, interpersonal and between-group relations, imposing certain limitations on human activities, requiring account for the other members of society's interests and observance of the rules for a social way of life;

➔ *ideology* (including *religion*) determining the objectives and motives for activities of man and social groups, often impelling them to make sacrifices for achieving of long-range, far-reaching targets.

Spiritual life could be understood as a *sphere of spiritual reproduction* where a continuous reproduction, renewal and enrichment of a primary element of the social genotype of man, family, social groups, local, world and global civilizations occurs.

The sphere of spiritual life is a narrower notion than a *socio-cultural sphere* category where in his «Social and Cultural Dynamics» **Pitirim Sorokin** has included [183] not only culture, arts, science, religion, ethics, but also policy, wars and revolutions, economy, i.e. all sides of society's life. Culture is also understood here in a narrower sense than it is often referred to in scientific literature when it is likened with all products of society's activity (material and spiritual culture) or with all the sphere of society's spiritual life.

If the interaction of the sphere of society's spiritual life with other floors of the civilizational pyramid and the elements of its hereditary genotype is considered, it is possible to reveal the following **essential links (regularities)**.

1. *The sphere of spiritual life is effected – directly or indirectly – by all the other elements of civilization* and civilizational genotype: environment and demographic parameters, technological level and economic relations, state-political system, social structure and accumulated historical experience. Embracing all the sides of society's life, penetrating into their essence and aesthetically evaluating them, giving moral assessments and framing ideals and objectives, transmitting all accumulated wealth to next generations, spiritual life is a live mirror that reflects all diversity of the world around man, helps comprehend events and changes which are happening there and choose the correct course for action. Without such support people would be like chips sailing adrift and moving in the swirls of the world.

2. However, the role of the sphere of spiritual life is not reduced to mirroring and perception of the events and changes occurring in

nature and society. *Spiritual sphere is the main instrument; a starting lever for transformation of the world, in the interests of man*, collective, society is a necessary precondition for their efficient activity. The latter needs penetrating into the deep essence of the functioning and dynamics of nature and society, learning the methods of influencing such processes, providing their aesthetic and moral assessment, generalizing and imparting accumulated knowledge and experience to next generations, choosing reasonable ideals and objectives of activity. Spiritual life is what distinguishes human society, *Homo sapiens* from the other animate nature, its other species; this is a base, key element in the genotype, hereditary nucleus of society, civilization. With each next stage of historical development, the role and significance of this element of the genotype increases.

In the well-known dispute about what is primary, being or consciousness, the following solution may be suggested. It is certain that in terms of history and logic — the world around man, material conditions of life, a biological component of the genotype — being is initial and primary in this sense; *Homo sapiens* — a reasonable, emotional and spiritual man — could not have come into being and exist without it. But once coming into the world man has become differentiated from the environment, learnt to understand and transform it. In such transformation man's consciousness and his spiritual life become primary. **Karl Marx** admitted that when he wrote that the instruments of labor used in production are «the bodies of a human brain created *by a human hand* and materialized force of knowledge. The development of the fixed capital is an indicator to what extent universal human knowledge (*Wissen*) has transformed into an *immediate production force*, and hence — an indicator to what extent the conditions of the very social process are subject to control of the universal intellect, transformed in accordance with it» [122, p. 215].

It is noticeably different from one-sided views of Marx's followers, even such a talented one as **G.V. Plekhanov**: «Psychology of society adapts to its economy. On this economic basis the corresponding ideological superstructure fatally towers above it. The features of social environment are determined by the state of productive forces at a given time. Once the state of productive forces is given, then the features of social environment and psychology are adequate to it... But the development of productive forces is itself determined by the features of the environment» [160, p. 182, 192–193, 234].

The idea of a decisive, transforming role of man's reason, his creations and activity in the dynamics of the biosphere underlies the doctrine of the noosphere by **V.I. Vernadsky** [28], evolved by **N.N. Moissejev** [134–136].

3. *The sphere of spiritual life* as well as other sides of society's life and floors of the civilizational pyramid *evolves in accordance with the regularities of cyclical dynamics*, passes through the periods of rises and crises, super long (civilizational) and long-term (Kondratieff's) cycles which transform all its components. Scientific paradigms (the system of knowledge, a scientific picture of the world), artistic styles, educational systems, standards of ethics and religious views regularly change.

Oswald Spengler was one of the first who noted this rhythm of development of spiritual life: «Each culture, each early period, each rise and fall, each of its internally necessary levels and periods has a certain, always equal, always with the significance of symbol, duration, which regularly returns... What does the rhythm of a 50-year period in political, spiritual and artistic formation mean? Or a 300-year period of baroque, gothic, great mathematics, attic plastics art, mosaic painting, counterpoint and Galileo's mechanism? What does an ideal lifespan of one millennium for each culture mean?» [233, p. 55]. If we leave aside the statement on a strict equality of cycles (a strict mathematical accuracy of periods in the dynamics of society is not observed), the idea of the periodicity of cycles with various duration in the development of spiritual sphere is expressed correctly. The entwinement of cycles of a various duration (semi-century, many-century, millenary) is really observed here, the interaction of cycles both inside spiritual sphere, and with cycles in the allied spheres of society's life (economic, technological, socio-political, technological etc.) being extremely important. It is known that radical changes in society are initiated by scientists and figures of culture. They are the first to accurately implement the accumulated contradictions in society and the first to seek the ways to settle them. Changes in spiritual life usually precede and initiate a new whorl in the historical spiral, although the world obtained as a result of such changes is radically different from ideals of intellectuals, who initiated such transformations (**Pitirim Sorokin** called it the «law of social illusionism»).

At the same time it should be taken into account that the cycles in spiritual life are most subjective to accidental fluctuations and impact of a subjective factor — ideas and activities

of creative personalities. Therefore they are hard to measure and forecast. The force of tradition, confrontation of ideas and a gap between generations changing each other play an important role.

4. *In spiritual life of society it is possible to find the action of the regularities of socio-genetics – heredity, variability and selection.* Accumulated scientific and cultural heritage, ethical canons and religious systems are transmitted to next generation forming the core of the social genotype of ethnos, nation and civilization. From time to time they are updated and enriched; this process has a cumulative nature. Scientific and cultural achievements of ancient Greece two and a half millennia ago still make a part of modern science and culture. But the change in the conditions of society's life requires a revision, a turn in the system of civilizational values, a refusal from the old and enrichment with the new based on the well-directed selection. All this is initiated by spiritual leaders – distinguished scientists, talented artists, founders of new religious doctrines etc. In change of historical periods – world civilizations, historical super cycles – the transformation of spiritual sphere assumes an especially radical and dramatic nature. It was the case, for instance, when the early class and medieval world civilizations, industrial society were formed. Radical changes in the spiritual component of the society's genotype may be anticipated also in the formation of the post-industrial world civilization and the third historical super cycle. These changes will take nearly the whole 21st century and will fundamentally transform the society determining the major tendencies of its development for a few centuries ahead.

5. *The unevenness of the dynamics of spiritual life is observed not only in time, but also in space* declaring itself in the change of leaders – both separate components of this sphere, and also civilizations and countries which are in the epicenter of the changes. For instance, in ancient Greece primogeniture belonged to philosophy and culture; it passed to the world religions in the Middle Ages; science took priority in the industrial society. According to the foresight of **Pitirim Sorokin** in the integral post-industrial society the re-union of truth (science), good (ethics) and beauty (culture) will occur: «A new arising socio-cultural system promises to ensure a voluntary unification of religion, philosophy, science, ethics and fine arts into one inte-

grated system of higher values of Truth, Good and Beauty... Arising creative forces will declare the beginning of a wonderful era in the human history» [181, p. 86, 87].

Civilizations leading in the spiritual sphere also change at various historical stages. In the period of the early class civilization these were the civilizations of ancient Egypt, Mesopotamia and India. In the antiquity the leadership passed to the Greek-Roman civilization, Persia, China and India. In the Middle Ages the leaders in spiritual life were China and India, but the role of Western Europe increased fast. The latter took absolute leadership in the periods of the early industrial and industrial world civilizations, thus narrowing spiritual life of oriental civilizations and completely destroying the heritage of civilizations of the New World. In the 19th–20th centuries the Russian civilization was involved in the struggle for the leadership; its peak of success was reached at the beginning of the 20th century – the golden age of the Russian science and the silver age of art. Since the end of the 20th century a global tendency noted by **Pitirim Sorokin** is becoming apparent, that is a «shift of the creative leadership of humankind from Europe and European West where it was concentrated within recent five centuries to a wider region of the Pacific Ocean and Atlantic is taking shape... The present and future history of humankind is already represented on a quite wider arena of the Asian-African-American cosmopolite theatre. Besides Europe, America and Russia, great reviving cultures of India, China, Japan, Indonesia and the Islamic world are getting ready to become the stars of the next acts of a great historical drama» [ibid, p. 11, 12].

A remarkable, but slightly realized in the country and abroad tendency is transformation of Russia into one of the epicenters of the evolving overturn in the spiritual life of society, establishment of the integral socio-cultural system. It can be explained both by the specifics of the genotype of the Russian civilization, where spirituality and spiritual life traditionally occupy the leading place and by the fact that the country has found itself in the focus of a transitional period, is passing through a deep-seated civilizational crisis. It impels creative personalities to active search for ways of resolving the national (global) crisis and generates a burst effect of scientific work and artistic activity.

10.2. Scientific Revolutions and Crises

The cyclic recurrence in the development of spiritual life is most obvious in the field of science where a periodical change of revolutionary breakthroughs to new frontiers of knowledge by an evolutionary mastering of conquered frontiers and crises in science declare themselves clearly, when a further detailing of an obsolete scientific paradigm gives no real increase in knowledge and prevents the adaptation to society's life conditions that have changed.

The fundamentals of the theory of cyclical dynamics with respect to scientific knowledge were briefly and vividly expressed by **V.I. Vernadsky** in the report at the meeting of the Commission for the history of knowledge on November 14, 1926. He observed that «a certain *speed of movement* is inherent in the course of scientific thought... It changes in time with a regularity, and a change of the periods of its fading and the periods of its intensification is observed» [25, p. 215]. Critical periods in the history of society begin with scientific revolutions and are accompanied by outbursts of scientific creativity. The latter according to V.I. Vernadsky show that «in the periods repeated in centuries highly gifted people, whose minds generate a force, that changes biosphere are accumulated in one and few generations, in one or many countries» [ibid, p. 216].

However, the question remains open: why such accumulations of talents emerge and outbursts of scientific creativity in the vanguard countries occur. This question may be answered on the base of general regularities of society's cyclical dynamics and the leading role of a scientific thought in the outburst of changes in it. It could hardly be assumed that the accumulation of talents is determined by demographic regularities in this or that period and in this or that country. The birth proportions of gifted children are relatively equal, but the talented people can realize their potential and offer radically new revolutionary ideas to the society only if the society is able to perceive them, which happens only on the background of an aggravating crisis in society that is when the society has a need in changes. *Scientific revolutions develop under crisis conditions in society*, in transitional periods when an obsolete system and a scientific paradigm underlying it have exhausted their potential and are in need of a new paradigm. The preconditions and formation of a new paradigm were studied by **Thomas Kuhn** five decades after V.I. Vernadsky [104].

V.I. Vernadsky has formulated a general regularity of the increasing role of scientific knowledge in the development of society as the foundation for the formation of noosphere, when science becomes a planetary force transforming the biosphere: «We are approaching a new era in life of humankind and life on our planet in general, when an explicit scientific thought as a planetary force comes to the forefront penetrating into and changing the overall spiritual environment of human societies, when the technology of life, artistic activity, philosophical thought and religious life is covered and changed by it. This was an inevitable effect, first time ever on our planet, of seizure of the overall surface of the Earth as a whole by growing human societies, a transition of biosphere to *noosphere* using man's reason scientifically directed» [30, p. 274–275].

The increase of the role of science in the development of society is uneven and contradictory. Scientific revolutions take turns with evolutionary development, periodical crises in science, and sometimes with even rolling back and losing a part of accumulated knowledge. It was the case, for instance, at the beginning of the medieval civilization when many gains of the antique scientific thought were lost in Europe, and a number of scientific discoveries and significant engineering inventions reduced many times. However, it does not mean that scientific thought on the planet receded in general, a cumulative process of the accumulation of knowledge terminated. It just means that the epicenter of the dynamics of the world science shifted from the Mediterranean to the East – to Byzantine, India and China where the revival of scientific thought was observed, a flow of scientific discoveries and inventions took place and then were assimilated by the Moslem and Western European civilizations as a result of dialogue and became the base for their rise.

Cyclical fluctuations in the structure of scientific knowledge should be mentioned. A scientific revolution begins from a breakthrough in the field of fundamental sciences, with the outburst of essentially new ideas targeted at the transformation of the basics of scientific knowledge (the genotype of science, a prevailing scientific paradigm). After some time a small portion of ideas and theories that could be laid in the nucleus of a new paradigm adequate to changing conditions of society's development is selected by way of a critical assessment. Then when this cleaning and updating job for scientific knowledge is mainly completed, the time comes for its deepening in details and expansion by branches of knowledge (update of particular paradigms), countries and civilizations. At the same time funda-

mentally new ideas and theories are taken up and elaborated by applied sciences, become the initial base for a wave of major inventions, intensive work of designers, production engineers, engineers who form new and more efficient generations of equipment and technology. At this stage a scientific overturn begins to give a tangible payoff for society, becomes the basis for the next turn in the development of productive forces, efficiency of production. With time having exhausted its potential scientific thought is paying off less and less, discoveries, inventions and innovations become petty; crisis processes aggravate in society. Time for a regular scientific revolution comes.

Overtorns and cycles in science should also be classified by *level of depth, duration and scale*. If medium-range ten-year cycles being implemented in the change of generations of equipment and technology are mainly connected with changes in the applied science, then long-term (semi-century) Kondratieff's cycles, which result in the assimilation of new technological orders, require considerable fundamental ideas and major inventions. A change of civilizational cycles once in several centuries relies on a scientific revolution, update of the body of knowledge, genotype of scientific knowledge; such revolutions last for decades and are implemented in the change of generations of scientists and scientific schools. The deepest scientific overturns that form a new scientific picture of the world are even more important in the change of historical super cycles (triads of allied world civilizations), which occur once in several millennia. A shift of the epicenters of scientific creativity is usually observed at that as well as formation of the cluster of new branches of knowledge. Such overturn was observed in the middle of the 1st millennium of our era, a similar overturn in many ways is expected in the 21st century.

Let's consider the historical way of the emergence and cyclical update of scientific knowledge.

The place and time of the birth of the system of sciences are generally known: this is ancient Greece, in the 6th–3rd centuries B.C. **Plato** and **Aristotle** are recognized as the leaders of the scientific revolution, which happened at that time, but that period is also noted for tens of prominent scientists and their scientific achievements: materialism of **Thales**, dialectic of **Heraclites**, philosophy of **Socrates**, atomic theory of **Democritus** and **Epicurus**, mathematics of **Pythagoras** and **Euclid**, mechanics of **Archimedes**, medicine of **Hippocrates**, geography of **Aristophanes**, history of **Herodotus**

[9, p. 128]. The first scientific institutes were founded in Ancient Greece: Plato's Academy (387 B.C.), Aristotle's Lyceum (347 B.C.).

However, the fundamentals of scientific knowledge were actually laid much earlier, in the ancient civilizations of the East in the period of the early class civilization. **John Bernal** admitted that: «The Greeks were the only people who inherited being almost unaware of it and not recognizing it a bulk of knowledge, which survived after several centuries of destructive wars and a relative neglect to knowledge in the ancient empires of Egypt and Babylon. But the Greeks went much further. They assimilated this knowledge and due to the own deep interest and reasons transformed into something simpler and more abstract, and more rational. This thread of knowledge has not been broken since the times of the ancient Greeks until now» [16, p. 95]. The Eastern primary sources of the Greek science were also admitted by **V.I. Vernadsky**.

Hence, the ancient civilizations of the first generation including Egypt, Mesopotamia, India and China could be viewed as the true place where science was born, and the time of birth — the end of the 3rd — beginning of the 2nd millennium B.C., the top period of the life cycle of this generation of local civilizations.

The following approximate picture of cycles and crises in the history of science as the leading link in the spiritual life of society is taking shape.

The *prehistory* of science in the form of accumulation of primary applied knowledge dates back to the time of the Lower Paleolithic. This knowledge was accumulated and transmitted from generation to generation (and the lifetime of generation was considerably shorter than now); it was impossible to hunt successfully without it, make stone, wooden and bone tools, nurse the fire, make bows, arrows, harpoons and use them, work up skins of the killed animals and build primitive dwellings. Without all this the very survival of man was threatened. Knowledge of natural cycles (day, seasonal, annual), demographic knowledge (life cycle of man) and that of what plants are good to eat, for curing etc. formed then. Admittedly, this knowledge was incomplete, inaccurate, but one had to pay his own life for ignorance and errors.

The first overturn in the system of knowledge (the starting point of the first big scientific cycle) occurred in the period of the Neolithic revolution, it was its starting point and the base. In order to tame the animals, farm land and grow plants on it, ply a trade, build homes and urban settlements a new much higher level of

knowledge was necessary. It was then, that the rudiments of applied sciences, mathematics (prime count), astronomy, materials science emerged. The level of knowledge of man of that period should not be underestimated as well as a breakthrough made by him, although this breakthrough lasted for centuries, if not for millennia, and the names of pioneers are not known to us. But by the end of the Neolithic civilization it turned out that such knowledge was not enough to solve the problems that become more complicated both in production and social life. The **first crisis of science** may be spoken about (if not taking into account the first shortage of primary knowledge at the end of the Mesolithic as a component of the environmental crisis that became the impetus to the transition to artificial reproduction).

The first big cycle of development of science dates back to the period of the *early class world civilization* (3rd–2nd millennia B.C.) Irrigation farming, construction of palaces, temples, pyramids, development of various kinds of crafts, goods economy management, local and international trade, use of money, collection of taxes, organization of state economy — all these epochal and base innovations required extensive and various knowledge, separation of groups of people who would be engaged in observation, generalization and forecasting. These were mainly priests who concentrated control over spiritual life of society. It is likely that talented scientists whose names are not known to us appeared then. Invention and use of written language enabled to store and transmit knowledge more efficiently. One could not but be astonished at the level of knowledge of that period embodied the ruins of immense irrigation systems, huge palaces, temples and pyramids, strict proportionality of architectural structures («golden section»).

However, a considerable portion of acquired knowledge was lost at the end of the 2nd — beginning of the 1st millennia B.C., when during devastating wars the major part of scientific knowledge was gone. However, a cumulative course of development of science continued.

The second big scientific cycle is attributed to the period of the ancient world civilization, and particularly to the middle of the 1st millennium B.C., when a scientific revolution, whose contents and significance have been mentioned at the beginning of this paragraph, broke out in Athens and other Greek cities. This revolution resulted in a profound breakthrough in scientific knowledge with birth of the natural philosophy as the foundation for the system of abstract sciences.

The pyramid of scientific knowledge got its top covering both natural and social sciences.

However, one should not view the scientific revolution of the ancient period as only a prerogative of Ancient Greece and Rome. In the same period a breakthrough took place also in China. One of its main points became the philosophical and ethic theory of **Confucius** (551–479 B.C.), which dominates the mentality of the Chinese civilization until now. Besides, China achieved success in such fields as astronomy, medicine, construction and engineering sciences. The works of Indian scientists as **Panini** «Ashtadhyayi» (scientific grammar 5th c. B.C.), **Kautilia** «Arthashastra» (science about policy, 4th century B.C.) indicate a high level of the development of science in ancient India.

A crisis of the ancient civilization also told on the fate of science, determined the crisis in this sphere. Bright names that blazed in the Greek science disappeared for centuries; in wars and incursions of barbarian tribes scientific books were annihilated, scientists suffered persecutions. Even now people tell a story about a Chinese Emperor who ordered to gather and murder all scientists of his enormous country. The ancient scientific heritage was maintained and developed only in the Byzantine Empire until the Empire itself was undermined during the crusades and invaded by the Turks – Seljuk.

For several centuries that were later called the Dark or Gloomy Ages after the downfall of the Western Roman Empire in Europe, a deep-seated scientific crisis was observed. A considerable part of classic scientific heritage was destroyed or passed into silence. The Church got the monopoly in the spiritual life and rejected and destroyed everything that was not in line with the Belief.

The center of the scientific search moved to the East: «During 500 years following after the downfall of Rome the center of scientific life moved to the East from the Euphrates. The 5th, 6th and 7th centuries were the centuries of a considerable cultural advance not only in Persia and Syria, but also in India... In India the development of science, especially mathematics and astronomy, occurred which had the primary significance for the whole world...» [16, p. 156–157]. The Chinese civilization saw an economic, cultural and scientific rise under the dynasties of Wei (386–549) and Tang (618–906).

The Greek scientific heritage saved and multiplied by Byzantium scientists (mathematicians, physicists, astronomers, mechanical engi-

neers, philosophers, physicians), was partly transmitted both to the Western Europe and Russia. Another channel for transmission of the heritage of the antiquity became — Arabic world. It was from there, that through Spain it returned to the Western Europe being developed and enriched by the Arab thinkers. The Western European science itself evolved within the Christian scholasticism, which held back the train of scientific thought. The period of establishment of the medieval civilization and the second historical super cycle was characterized by a protracted stagnation, a relatively low level of the world science, a lack of the avalanche of major discoveries and bright names. The data of **Pitirim Sorokin** on the number of scientific discoveries and engineering inventions in their distribution by epochs indicate it (*table 10.1*). Admittedly, the data on the West are mainly taken for consideration; the adjustment for dynamics of scientific thought in the East would change the picture.

As it is seen from the table, the period of the ancient civilization witnessed the outburst of scientific creativity: the number of scientific discoveries and technological inventions was nearly 16 times more in the Western world than in the previous, much longer period of early-class civilization. Moreover, half of discoveries and inventions fell to the 4 centuries (6th—3rd centuries B.C.). By the end of the ancient period the scientific activity fell: for 3 centuries (3rd—5th centuries A.D.) the number of discoveries and inventions reduced by 8% only of the total number for 13 centuries.

Traditions of the Greek science were continued in the Hellenistic period (the Alexandrian Museum is actually the first state research institute) and in ancient Rome where the applied sciences were well-developed (the outstanding figures as Lucretius and Seneca). However, no such epochal increase in knowledge was observed in Rome as given by the Greek science.

In the medieval period the scientific activity dropped sharply — from 4 to 13 discoveries and inventions for a century. In general during 9 centuries — 2–3 times less than in the period of the ancient civilization, and during the 9th—10th centuries no significant inventions were registered. They were really the Dark Ages for science on the European continent. However, in the East — in Byzantium, India, China and the Arabic world — a flow of scientific thought intensified, significant scientific discoveries were made; major inventions underlay the base innovations.

The ascent of scientific thought was observed in the Arabic world. It is enough to quote the names of the scientists-

Table 10.1

**Dynamics of the Natural Scientific Discoveries
and Engineering Discoveries in the Western World ***

Civilizations, Centuries	Natural Discoveries	Engineering Discoveries	Discoveries and Inventions	In % of the previous period (Civilization, Century)
<i>Early class civilization (3500–801 B.C.)</i>	5	17	22	100
<i>Ancient civilization</i>	241	107	348	1582
800–701 B.C.	3	6	9	7
700–601	2	5	7	78
600–501	20	10	30	429
500–401	34	5	39	130
400–301	46	12	58	149
300–201	33	12	45	78
200–101	14	2	16	36
100–0	14	17	31	194
1–100 A.D.	39	21	60	194
101–200	23	4	27	45
201–300	5	3	8	30
301–400	9	8	17	212
401–500	2	2	4	24
<i>Medieval</i>	22	28	50	24
501–600	8	5	13	325
601–700	2	2	4	31
701–800	3	1	4	100
801–900	–	5	5	125
901–1000	–	5	5	100
1001–1100	2	5	7	140
1101–1200	7	5	12	171
<i>Pre-industrial</i>	1222	510	1732	3464
1201–1300	39	9	48	400
1301–1400	31	25	56	117
1401–1500	45	49	94	168
1501–1600	245	121	366	309
1601–1700	492	169	661	153
1701–1750	370	137	507	1874
<i>Industrial</i>	5163	4168	9331	208
1751–1800	674	382	1056	355
1801–1850	1877	1181	3754	116
1851–1900	2060	2296	4356	10 862 ¹
1901–1908	552	309	861	249

*[183, p. 316–317]

¹ terms of the average annual number

Encyclopaedists **al-Khwarizmi** (the end of the 8th – beginning of the 9th century), **al-Biruni** and **Ibn Sina** (Avicenna) (the end of the 7th – beginning of the 9th centuries), one of the founders of the theory of historical cycles – **Ibn Khaldoun** (1332–1406), however, his research already belongs to the next scientific cycle.

The beginning of *the third big scientific cycle* is associated with the Renaissance, with the phase of the rise of the early industrial world civilization, when the epicenter of scientific creativity moved to the Western Europe. Dozens and hundreds of important discoveries and significant inventions were made in the 16th–17th centuries and in general during 350 years of this civilization their number turned out to be nearly 10.6 times greater than for 900 years of the medieval civilization. Scientific thought continued to develop even faster in the industrial civilization. During the period of 1751–1908 the number of natural scientific discoveries was nearly 19 times greater than for the previous five and a half centuries.

Admittedly, in estimation of the data given in [table 10.1](#) the effect of aberration, distortion by time should be taken into account: the near times are more known and seem more significant than the times that already passed long ago. For instance, in the period of the early class world civilization during 27 centuries the number of scientific discoveries and major inventions was many times higher than it is indicated in the table. The fact is that we don't know about them. **John Bernall** noted that the base for the outburst of scientific creativity in ancient Greece was laid long before that in the civilizations of the East. The same can be applied to the technological engineering creativity: the rise of the epochal engineering innovations was observed in the formation of the early class civilization: «The boom of technological creativity arisen together with the beginning of the city life in the vast river valleys of Mesopotamia, Egypt, India and China lasted not more than several centuries, approximately from 3200 B.C. to 2700 B.C. It was followed by a relatively long period of cultural and political stagnation» [16, p. 82]. According to J. Bernall, the ancient civilization did not generate such large wave of engineering achievements: «The Iron Age did not generate the same major engineering achievements which inaugurated the beginning of the Bronze Age, but its achievements were always based on the application of cheaper metal available in plenty, were spread wider not only in terms of geography, but among social classes» [ibid, p. 88]. However, it was the antiquity that became the period of a major

scientific revolution (especially in the 6th–3rd centuries B.C.), which laid the cornerstones in the further development of science, including modern, its genotype — a periodically updated heritable nucleus.

How is it possible to assess the development of science in the 20th century and in the outlook for the 21st century from the positions of the cyclical approach? The answers to these questions should be looked for in the treatise of **A.I. Anchishkin** [6] and in a number of our works [99, 103, 239, 247, 249, 250].

The 20th century was characterized by *two overturns in science*: modern revolution in the natural science of the end of the 19th — beginning of the 20th century, which laid the foundation of the fourth technological order, and a scientific and technological revolution of the middle of the 20th century, which opened the road for the establishment of the fourth order. The expenditure for researches grew at the priority rates. The triumph of science was proclaimed; the faith in its omnipotence established itself, the possibility of an efficient and relatively fast solution of the key problems facing humankind with the help science became obvious.

However, the dark spots, dissonances declared themselves more and more clearly in this powerful flow and triumphing hymn of science.

First, major efforts of scientists under the orders of the belligerent states were directed at military needs, at creation of a more powerful weapon of destruction. The advent of a nuclear and then thermonuclear and biological weapon called in question the very existence of humankind. Science in its military appliance has become dangerous for society.

Second, the priority was given to natural and engineering sciences, whose efforts were directed at conquering of nature, a fuller use of non-renewable exhaustible resources. Powerful engineering systems polluted more and more the environment, made it less fit for life of man. The might of the intellect transforming biosphere destroyed it. Science became dangerous to nature and society, environment around society, a real threat of a global environmental catastrophe appeared.

Third, science became less socially responsible for the application of its discoveries and inventions. Its achievements were used in the interests of a handful of rich countries («golden billion»), greedy TNCs, which didn't improve and at times even worsened the quality of life of majority of population on the planet. Figuratively speaking, the worms of militarization and gain of few

gnawed through the apple of progress. Billions of people were brought to poverty, sufferings and the edge of survival. Science about man, society was neglected, third-rate.

Fourth, a scientific progress of the late industrial society was based on the industrial scientific paradigm that was completing its life cycle. It mainly exhausted its scientific potential and found itself unable to suggest radical efficient solutions for the pressing problems and puzzles of the transitional period, lost its prognostic ability, which is the first sign of bankruptcy of the prevailing scientific schools, crisis of science. It is not accidental, that the radical changes in the society at the end of the 20th century turned out to be non-forecasted, unexpected and thereby painful.

The four factors referred to above turned out to be the major reasons for the most deep-seated *crisis of science at the end of the 20th – beginning of the 21st century*, a loss of its creative potential and authority in society. That's why astrology and other anti-scientific, pseudo-scientific and religious isms immediately began to fill the vacating niche. The statements appeared that the end of the century of science came, that all great discoveries had already been made, and it remains with the scientists to polish the details and finalize the decorations of the temple of science. The aspirations for limitation of allocations earmarked for the development of science intensified, and it was implemented in actual fact in the post-Soviet space. Science from the beloved daughter turned into a step-daughter.

The crisis of science is present: it is an undeniable fact. And it is not accidental and local by nature, but general, systematic, protracted. Basically, this is the *crisis of the industrial scientific paradigm*, whose historical time ends. Society enters a new era, changes into the integral post-industrial civilization, the third historical super cycle – the next phase of the life cycle of a global civilization. New time requires new knowledge, a new picture of radically changing world. ***The general crisis of science is a precondition and impetus to the next scientific revolution, whose result will be the formation of the post-industrial scientific paradigm.*** Time of big science has not passed, it just begins. A wave of scientific discoveries and major inventions is ahead. The life cycle of the industrial scientific paradigm which prevailed during the recent 4–5 centuries ends and the life cycle of the post-industrial paradigm begins that will take more than one century. The King is dead... Long live the King!

A transitional period of the sunset of the industrial and the formation of the post-industrial paradigm will be long (it will take at least a half of the century) and excruciating. It is first of all connected with the fundamental distinctions in the nature of a new paradigm [19, p. 160, 161]. The post industrial scientific paradigm is characterized by:

➡ the leading role of sciences about life, social and humanitarian sciences, and not natural science and engineering (it is time for man and society to cognize themselves);

➡ orientation at the establishment of a positive variant of the noosphere, rational co-evolution of society and nature, and not harnessing of nature;

➡ a cyclical-genetic and civilizational approach, and not linear-progressive and formation;

➡ the priority of the spiritual sphere, formation of society based on knowledge, and not on productive material forces, economic base, market;

➡ formation of an integral socio-cultural system and not a sensual socio-cultural system.

While the epicenter of the industrial paradigm was the western European civilization, then completed by the north American, then a **post-industrial paradigm is arising in the Russian civilization**. Besides, the Chinese and Indian civilization will make a weighty contribution in its formation. Only over a certain period of time and with some trouble the post-industrial paradigm will make its way to the space of the present leaders — North American, Western European and Japanese civilizations.

What do we base such bold statement about the change of the scientific leadership on, despite the obvious supremacy of the USA, Western Europe and Japan in science and a distressful situation in modern Russian science?

First of all, on the fact that Russia was four times in the crisis situation in the 20th century, it demanded the tension of all of its material and spiritual powers. At the very beginning of the century a defeat in war on Japan and revolution of 1905 shocked the society and revealed the depth of its contradictions. Then came the trying times of the First World War, February and October revolutions of 1917, of the Civil War and foreign military intervention, which threw the country back for decades. In the 30s tens of thousands of intellectuals, scientists of world reputation were either repressed or shot down or at best — exiled abroad. The Second World War

brought an unprecedented damage to Russia. However, after each of these crises our people found strengths to restore the country and its science. Every time it in mysterious for the surrounding world way managed to arise and restore in unbelievably short periods. Thus, in spite of the economy undermined by the war, in the 50s–60s the country managed to master the achievements of a scientific-technological revolution, fourth technological order and reached the techno-military parity with the Western civilization, and in certain science-intensive directions even gained the lead (in peaceful exploration of space, atomic energy). And the economic growth rates were quite impressive in the 50s: 7.8% of average annual – 1.6 times higher than average world and 1.9 times higher than in the developed countries [133, p. 507–508].

However, the economy developed one-sidedly – the techno-military complex was swollen like a gumboil, and civilian industries lagged behind, the consumer market was poorly saturated. The development of science, especially social, humanitarian, biology was under a rigid totalitarian control that led to the lagging in a number of new directions, and in the 80s – a lagging in the assimilation of the fifth technological order. The aggravation of conservative and bureaucratic elements in the party-state leadership contributed to it as well as a fall in the economic growth rates below average world (in 1981–1990 – 0.5% against 2.9% of the world average) [ibid]. The elements of stagnation aggravated in the national science.

A civilizational crisis of the 90s hit heavily the national science. The budgetary and commercial financing of science was cut many times, sharply reduced the number of researchers (especially in the applied science), designers and engineers. The average annual rates of expenditure cut for sciences made 23.9% in 1991–1995, the number of researchers – 10.8%, the number of inventions first used – 12.1%. While a share of the researchers in the world made 10.8%, a share of the total expense for science 1% only. Scientists had an exiguous pay, the instrument base was not updated. Thousands of talented scientists moved abroad. Science seemed to be smashed, and one should have forgotten about its revival and leadership.

Nevertheless, like in the periods of previous ordeals and crisis the acuteness of problems that country faces has woken up scientific thought has impelled the country to a bold scientific search, especially in the field of social sciences, where no billion investments are

required in the instruments and laboratories. In recent years after the first shock caused by an unforeseen crisis, the signs of revival of scientific thought and a new wave of the outburst of scientific creativity are observed. New scientific schools are being formed, which lay the foundation of the post-industrial paradigm of social science. Such outstanding scientists of the 20th century as **Nikolay Kondratieff** and **Pitirim Sorokin**, **Alexander Bogdanov** and **Nikolay Berdyaev**, **Vladimir Vernadsky** and **Alexander Chizhevsky** and many others, whose names were forgotten before, are in demand again, scientific schools and separate specialists are developing their ideas and are forming the picture of the world adequate to the realities of the 21st century. Cyclical-genetic and civilizational approaches develop, ideas of integralism coming to replace Marxism and liberalism are being apprehended. A contradictory process of a change of the generation of scientists is underway.

A return of Russia to the number of leaders of a scientific revolution of the 21st century, its weighty contribution to the formation of a post-industrial paradigm is not guaranteed at all. Many factors work against it featuring a weak support of science by the state: a low demand for radical changes and major inventions by economy, conservatism of scientific circles and a neglect of foreign scientific leaders for the Russian science. Nevertheless, the chances for a scientific breakthrough as a base, starting point for a strategy of an innovative breakthrough which means the revival of the whole state, still persist. The outputs of our researches indicate it [103]. The point is how to use this chance, how to support this scientific breakthrough and the scientific schools implementing it. Only a scientific paradigm adequate to the conditions of the 21st century can determine the contents of education so that generations of a new century could be included in a scientific-technological overturn and employ efficiently its results. This is a key to the revival of the once vanguard scientific base of the Russian civilization.

10.3. Cyclicity in the Dynamics of Culture

As it was shown at the beginning of the present chapter, *we understand culture* in a relatively narrow sense as *the sphere of people's activity associated with the esthetic imaginative reflection of the world and its transformation*, as a product of a counter-hemi-

spheric functioning of man's brain (while science is a result of the logical mastering of the world, a product of the left hemispheric functioning of brain). In such understanding, culture may comprise the following in the contemporary world: fine arts (painting, sculpture); architecture; music; theater; literature (fiction and non-scientific); cinema; radio; television, Internet; printing; typography in the industrial esthetics, to the extent they use imaginative means for information transfer. Finally, one could speak about the language as a carrier and mouthpiece of culture.

Imaginative and logic ways of information perception and transfer complement each other, help man to fully perceive the world, to act more efficiently. At the first stages of human development imaginative perception dominated. Then it was completed and expanded from a period to period by logical, scientific, though never replacing and ousting it. In the industrial period it seemed that a rational-logical beginning triumphed finally. But from the second half of the 20th century with the development of a computer-information revolution a restoration of a violated harmony occurs again, a logical and imaginative complement each other, helping man to orient better in the ocean of information.

The development of culture as well as other spheres of spiritual life is subject to *cyclical-genetic regularities*. But these regularities show themselves peculiarly in this most subtle and ambiguous sphere of spiritual life, it is often difficult to identify them and assess to forecast their further course.

To a certain extent, the *fluctuations of fashion*, especially women's could be considered as in the cycles of an esthetic nature. One could identify short-term (2–4 years), medium-term, long-term and century cycles. However, in most industries and types of culture short-term and medium-term cycles can't be usually seen (except industrial esthetics where the change of models and generations of articles is often connected with this or that artistic images, which helps to promote a product to the market). Long-term (semi-century) and super long (civilizational) cycles declare themselves more vividly, which finds its expression in the change of artistic and architectural styles, development of fundamentally new ways to reproduce and transfer esthetic information.

Having made inquiries into the dynamics of culture for two and a half millennia **Pitirim Sorokin** has established that the alteration of the types of arts occurs relatively synchronously in all its types: «If

we take long enough periods, let's say at least a century, then with an inevitable exception all arts — painting and sculpture, architecture and music, literature and dramaturgy — pass simultaneously from one, let's say ideational, to other, let's assume, an idealistic or sensual form... If a shorter period is taken and less considerable fluctuations are researched into... these short-term fluctuations resemble ripples on the surface of big waves: they are both not deep and not fundamental» [183, p. 251, 252].

The contents and artistic styles of various types of arts change concertedly. Pitirim Sorokin has made an attempt to provide the evaluation of the contents (religious and secular) and artistic styles of the European painting and sculpture for more than a millennial period (*table 10.2*).

In the period of the Middle Ages, when religion dominated in all spheres of spiritual life, religious motives prevailed in art (up to 97%) and the ideational super sensual symbolic style (up to 92 %). However, the dominance of religions began to decline already in the period of the early industrial civilization and the secular contents leveled, the sensual (virtual) style became prevailing. These tendencies established themselves and became prevailing in the industrial period. In the 19th century the religious contents decreased up to 10% (in the first third of the 20th c. — up to 3.9%), and the ideational

Table 10.2

Tendencies of Dynamics of the Contents and Styles of the European Painting and Sculpture *

Century	Contents		Artistic Styles			
	religious	secular	virtual (sensual)	ideational (sensual)	expressionist	mixed
before the X th	81,9	18,1	13,4	77,0	-	9,6
X th —XI th	94,7	5,3	2,3	92,2	-	5,5
XI th —XIII th	97,0	3,0	6,0	51,1	-	42,9
XIV th —XV th	85,0	15,0	53,6	29,2	-	17,2
XVI th	64,7	35,3	72,0	20,3	-	7,7
XVII th	50,8	49,2	90,6	5,9	-	3,5
XVIII th	24,1	75,9	96,4	2,5	-	1,1
XIX th	10,0	90,0	95,5	0,6	2,5	1,4
XX th (up to 1930)	3,9	96,1	61,5	0,7	35,5	2,3

*[184, p. 443—446]

style reduced up to 0.3% giving place to the sensual style (95.5%). This was the period of the height, triumph of the sensual socio-cultural system. In the 20th century its decline began, a crisis phase of the life cycle that continues now.

Each big cycle in the dynamics of culture passes through consecutive phases – germination, establishment in the struggle with the cycle dominating earlier, diffusion, dominance, then stagnation and crisis, the loss of positions and passing away from the historical scene.

In the dynamics of culture the *socio-genetic* regularities such as heredity, variability and selection also declare themselves. In the structure of any type of culture one could discover the *genotype* worked out by centuries and enriched by experience of generations, the nucleus transmitted from generation to generation. This nucleus may disappear only together with a given nation, civilization. The genotype of culture of a specific local civilization is various, reflects the wealth of the cultural heritage of ethnoses making it. It is also possible to speak about the genotype of culture of this or that world civilization expressing general features in the dynamics of local civilizations making it, about the culture of the antiquity, middle ages, industrial period etc. Finally, the world cultural heritage expresses the contents of the genotype of the global civilization, diversity of local civilizations making it and the achievements of cultures of the periods elapsed.

However, culture will not remain unchanged, frozen at this or that stage of its development whether the matter in question is the culture of civilization: local, world or global. It is subjected to a periodical update and enrichment reflecting the action of the regularity of *inheritable variability*. In the critical periods when the phases of a life cycle change or the world civilization changes, such update and enrichment is especially noticeable. A revision of the accumulated cultural heritage occurs; one artistic style is replaced by another. Sometimes new kinds of art appear, technologies to preserve and reproduce the works of art change (photography, cinema, television, CDs, multi-media disks etc.).

Who makes such *selection* in the dynamics of culture? First of all it is people involved in art and culture featuring dramatists, artists, musicians, sculptors, architects, playwrights, poets, writers etc. aiming at innovations in their field, creating new styles that either reject or recognize and enrich the cultural heritage. These are also directors, actors, producers and owners of galleries bringing the idea of

the creator home to consumers, creating demand on the market of works of culture. Finally, these are the broad masses of listeners and spectators, for whom all works of art are created.

Let's dwell in brief on the **historical way of culture** as a primary component of society's spiritual life, on big cycles in its dynamics.

Culture as a way of imaginative, esthetic perception of the world appeared together with man, its conscious. But originally it was not separated from all other kinds of activity, found its expression in cave art resources, ritual dances, songs, drawings on the stoneware (that is often the base for making difference between cultures of that period), in painting of homes. But it was rather a prehistory of culture that was enriched considerably at the end of Neolithic civilization.

The first big cycle in the dynamics of culture should be dated back to the period of the early class civilizations when cities and state sprang up, written language appeared, the property establishment got the opportunity to maintain professional artists, sculptors, architects, poets, musicians, dancers, build and paint palaces, temples, table-tombs, order and buy rich and various decorations, encrusted arms from the craftsmen. A significant step occurred in the development of a social division of labor — a section of people professionally engaged in activities in the field of culture separated, a special field of economy appeared that has its own tendencies of cyclical-genetic development and at the same time a prime component of the sphere of spiritual reproduction, socio-cultural system. This was an epochal innovation, wherefrom one should count the big cycles in the dynamics of culture. This cycle ended with the crisis of culture at the beginning of the 1st millennium B.C. as a component of the general crisis of the early class civilization. In this period many civilizations of the ancient world ended together with the cultural heritage that was created by them.

The second big cycle of culture embraced approximately a millennium and had the periods of rise in ancient Greece 6th—3rd centuries B.C., a short Alexandrian period and a longer Roman period — from the culture of Etruscans to vast, but not plenty in masterpieces equivalent to the Hellenic heritage, culture of the Roman Empire, which assimilated a lot of elements of culture of the peoples conquered by it.

The culture of ancient Greece was the top of this big cycle. «Between the 12th and the 6th centuries B.C., — **John Bernal** wrote — a common culture was created on the lands of the Greeks that assim-

ilated to a great extent existing knowledge and added even more their own to it. The so called *Classic* culture emerged as a result of that, which was completed, but not changed in its essence by culture of Alexandria and Rome, and still remains the cornerstone of our modern world culture. Classic culture was synthetic, and it used each element of culture which it could find in the countries where it was spread and with which it contacted. However, it was not a simple continuation of these cultures. It represented something definitely new» [16, p. 96–97].

It should be noted that in this period imaginative and logical perception of the world went harmonically with each other, complementing each other. It was the youth of humankind that was discovering the world anew for itself and increasing rapidly its knowledge about it. Culture occupied a prime place in the life of society; a share of resources that was many-time larger than it is now was allocated for it. And this can be related not only to the Greek-Roman, but Persian, Indian, Chinese civilizations of that time, and also civilizations of the New World when they were in the same phase of their life cycle a little later.

By the end of the period of the ancient civilization, in the first centuries of the new era a crisis of culture was observed. Culture became more eclectic oversaturated, sensual. Masterpieces were not created in such numbers and the quality of whose which appeared was much lower than that of the previous ones. This mirrored the general state of decline of the ancient world civilization, being in the last phase of its life cycle. The traditions of the ancient culture were continued only in Byzantium, but already without previous boom and scope. In India, after the bloom of civilization in the period of the Gupta Empire (4th–5th centuries) and in China after the second Han dynasty (1st–3rd centuries) the period of a protracted crisis that hit also the sphere of culture began.

The third big cycle of culture started after a long decline in culture and art in the period when the Middle Ages established themselves. The invasions of barbarian tribes and wars led to the loss of a considerable part of the cultural heritage of the antiquity. It was a period of regress, a roll back not only in the field of culture, but also in other spheres of society's life.

From the end of the first millennium a rise of the medieval culture began, but already on the ideational, religious base. This process went in several flows involving the leading civilizations. A rapid diffusion of the Islam from the middle of the 7th century was accompa-

nied by the formation of a peculiar, mainly Arabic culture that assimilated many elements of culture of the Greek-Roman, Persian and other civilizations. The Byzantium culture, whose traditions were further transmitted to Russia, transformed the ancient culture with respect to the canons of the orthodox Christian religion. The culture of the medieval Western Europe was formed under the influence of the catholic Christianity and assimilated the major elements of culture of the Roman Empire, barbarian tribes, and then the Arabic East. The contents of the Western European art and sculpture as it is seen from *table 10.2* given above were saturated nearly completely with religious motives, ideational artistic style dominated absolutely. The ascetic, full of the biblical motives and picturesque description of the divine scourge for human sins, medieval art replaced bright, cheerful ancient art. Thousands of skyward temples and mosques were built which called people to renounce the worldly pleasures for the sake of the bliss of the afterlife. These motives and restrictions were less felt in the Chinese and Indian culture of that period. However, in the phases of the rise and maturity of the medieval civilization a lot of masterpieces of art such as icons, magnificent gothic temples, minarets in the East, works of Chinese and Indian masters were created. Despite restrictions imposed by the church high level pieces of art were created. It is impossible to stop and, moreover, to turn back a live flow of culture.

The fourth big cycle of culture evolved in the period of an early industrial civilization. The magnificent Italian Renaissance that lasted about three centuries and expanded its influence on other countries of the Western Europe became its core. The outstanding masters of the Renaissance — **Leonardo da Vinci, Michelangelo, Raphael, Dürer, Dante, Cervantes** and hundreds of others — left the masterpieces still unsurpassed, and **Shakespeare's** plays are still running on the scenes of most countries worldwide. While art remained religious by form in many ways, it was more often filled with earthly, live contents. This was the period of reign of the idealistic, integral art penetrated with humanism, although its way was thorny: the church was not eager to give its dominating positions, and the feudal wars also caused a lot of damage to cultural monuments. Devastating invasions of the nomadic Mongolian civilization that embraced a larger part of the Eurasian continent in the period of its heyday caused heavy losses to the cultural assets of the Chinese, Moslem and Russian civilizations. A destruction of a significant part of the cultural values of Maya, Incas and Aztecs has

become a heavy loss for the world culture as a result of the barbarian colonization of America.

However, by the 17th–18th centuries the heyday of the culture of the Renaissance was already in the past, the canvasses of painters, scenes of theaters, libraries were filled in with artistic works of a lower and even mediocre level that was much promoted by a counter-reformation in Europe and the overall control of inquisition.

The next, *fifth big cycle of culture* dates back to the period of the industrial civilization (middle of the 18th– end of 20th c.), when the dominance of a sensual socio-cultural system established itself. In the phases of the formation and diffusion of this system the rise of culture was observed first of all in the Western European and Russian civilizations. It is enough to quote the names of **Voltaire** and **Rousseau**, **Goethe** and **Schiller**, **Goya** and **Watteau**, **Byron** and **Beethoven**, **Pushkin** and **Lermontov**, **Gogol** and **Turgenev**, **Ostrovsky** and **Glinka**, **Tolstoy** and **Dostoevsky**. The religious contents of art was replaced by the secular one, culture got rid of the church influence, which restricted its development. In the spiritual sphere, literature took the lead. However, the culture of the civilizations of the East went through a heavy period after it had suffered heavy losses in the period of the colonial dominance. And the Western European culture failed to rise to eminence of the Renaissance.

In the 20th century especially in its second half the signs of the general *crisis of culture of the late-industrial period* began to declare themselves more and more clearly. The signs of the crisis of culture were observed already at the beginning of the century by **O. Spengler** and **N.A. Berdyaev**. The latter noted: «A heavy crisis in creation and a deep-seated crisis of art begins to manifest itself... In the depth of human culture some inside elements of barbarism that prevent further creation of classic culture arise... The dusks of Europe are coming which has flourished brilliantly within a number of centuries, which has viewed itself the monopolist of the supreme culture and imposed its culture, always with such violence on the rest of the world» [13, p. 137–139]. This forefeeling of a well-known Russian philosopher proved to be true. One of the most important tendencies in the dynamics of culture in the 20th century became the establishment of the dictate over culture in the totalitarian countries. Another one was the loss of humanistic and realistic traditions

in art, its extreme commercialization, emergence and diffusion of impersonal admass culture (more precisely – anti-culture). The second tendency was noted by **Pitirim Sorokin**, who already in the middle of the 20th century provided a profound and accurate diagnosis of the crisis in culture: «In search for sensual and sensational material that is much a success and as a necessary condition for stimulation and incitation of sensual pleasure, art digresses from positive displays in favor of negative, from positive types and events towards pathological, from fresh air of a normal socio-cultural reality to social settling basins and finally it becomes a museum of pathologies... As a commercial product for entertainments, art is more and more often controlled by traffickers, commercial interests and fashion trends... Such situation makes the top judges of beauty from traffickers, forces artists to obey to their demands, imposed by the advertising and other mass media to boot» [184, p. 450, 452].

This tendency was taken up and intensified by the might of achievements of an information revolution, latest information technologies (television, CDs, multi-media and Internet) that made a material-technical base of contemporary admass anti-culture, controlled by powerful TNC and imposed on the billions of users and first of all on the younger generation, examples of pathological art, scenes of violence and pornography, implanting merchantable models of anti-culture.

However, one should not see all modern culture black. The world cultural heritage under the UNESCO protection is the base of a cultural component of civilizational genotypes. Thousands of museums that are visited annually by hundreds of millions of people constitute the repositories and continuers of this heritage. Classic art is transmitted from generation to generation; the number of its followers is growing. Modern information technologies contribute to it a lot. As a reaction to admass anti-culture, its antipode, the basics of integral culture adequate to the post-industrial humanistic civilization are being formed.

It can be forecasted with a great deal of confidence that the 21st century will become the beginning of the ***sixth big cycle in the dynamics of culture***, whose contents will become the Renaissance of high culture as a prime component of the integral socio-cultural system, maintenance and enhancement of the world cultural heritage and diversity of cultures, the UNESCO «Declaration on Cultural Diversity» calls for that.

Certain outlines of the integral type of culture inherent to its sixth big cycle that will likely take the space of the 21st–22nd centuries are already taking shape.

First, pathological, corrupting tendencies of modern culture inherent to the period of the decline of the industrial society and sensual socio-cultural order will be surmounted. The original, natural purpose of art that is esthetically reflect the harmony of the surrounding world and man, convey this harmony and optimistic spirit to the next generations as a component of a social genotype of man and society will triumph. The interest to classic cultural heritage, its perception, enhancement, and development will revive.

Second, the society will escape a danger of unification of cultures, a loss of cultural diversity of ethnoses, nations and civilizations without contraposition of one culture to others. The tendency towards a diffusion of admass impersonal, standardized anti-culture, duping man to please commercial tastes will strengthen. The world globalized culture of the post-industrial society will be formed as a bright gamut of various cultures in the multipolar world.

Third, it will be necessary to overcome an extreme commercialization of culture, its subordination to the market laws, powerful transnational corporations. It should be admitted that culture as well as the whole spiritual sphere is a component of a non-market sector of economy. The state, interstate unions, UN and UNESCO are called to take care of culture in the interests of past, present and future generations. National and world cultural and natural heritage should be maintained and enhanced on the income generated from the market sector of national and world economy. It is very important, as the role of culture will increase considerably in the humanistic post-industrial society as one of the leading branches of economy. Soon culture may occupy the position approximate to the place that it occupied in the Greek-Roman ancient civilization and in the Renaissance.

Fourth, the revival and intensification of diversity of cultures in this century will be pursued on the latest technological base using the attainments of the modern information revolution under conditions of the formation of global information networks (Internet, telecommunications). It opens additional opportunities for dialogue among various cultures not only through development of tourism, but using virtual visits to museums, historical cities, cultural centers using multimedia disks and Internet. However, these information

channels as they function now using simplified English and controlled by TNC carry a threat of unification and vulgarization of cultures, a loss of diversity and singularity of cultures. Therefore a prime objective of coming decades is to form multi-language information networks with a skilled automated translation so that to make the dialogue among cultures available to billions of people, foster the maintenance of cultural diversity and cultural heritage. Also, a good deal of funds are necessary for establishing international organization involved in the matters of culture as cultural diversity is as necessary and valuable for the future of humankind as biodiversity for its future biosphere.

What are the outlooks and the role of Russia in the formation of the integral type of culture and the sixth big cycle of world culture? Will it be one of the leaders in this process or share a fate of the cultural backwoods?

A number of factors speak in favor of an optimistic scenario.

First, Russia has very rich cultural heritage generally recognized in the world that is a germ of the world cultural heritage. The Russian civilization was built on diversity and interaction among cultures, assimilated a lot of valuable from cultures of other civilizations, integrated the cultures of peoples, who lived here and in its turn rendered a considerable influence on the cultures of other peoples and civilizations. It is impossible to imagine the culture of the Western and Eastern Europe, both Americas, China, India, Japan and Moslem world without understanding and perception of **Tolstoy** and **Dostoevsky**, **Chaikovsky** and **Shostakovich**, **Repin** and **Levitan**. Russia is open for dialogue and mutual enhancement of cultures and acts as an originator and an active participant in this dialogue, which makes a distinctive feature of the integral socio-cultural system.

Second, during a larger part of the 20th century Russia was insulated from the wave of anti-culture. And while many things were suppressed by the totalitarian regime, the healthy nucleus of culture persisted. At the end of the 80s these barriers were removed, and a dirty wave of anti-culture flooded the screens of TV sets and cinema, computer monitors, theater stages, counters of bookstores, not restricted by anything and anybody. At the same time the state support for national culture was cut many times, many institutions of culture went bankrupts or were privatized. It was a peculiar cultural «shock therapy», «cultural counter-revolution», which caused a lot of damage to the cultural heritage of Russia.

However, healthy forces of the Russian culture recovered soon after shock, adapted to the changed conditions and began to struggle for survival. Having been liberated from the ideological dictate and at the same time keeping themselves aloof from dirty waste of sensual western culture, they intensified their efforts toward preservation and enhancement of the Russian cultural heritage and development of equal dialogue with other cultures. The Hermitage and the Russian Museum, Tretyakov Gallery and Pushkin Museum, Bolshoy and Mariinsky Theatres, St. Petersburg and Moscow Philharmonic Halls, national libraries, provincial museums and libraries, other institutions of culture are engaged in the active struggle for the maintenance and transmission of the richest cultural heritage of the country to the next generations, for its worthy place in the world cultural heritage and dialogue of cultures.

Third, a lot of efforts are undertaken in the country to use modern information technologies in culture, making multi-media disks, internet-sites, TV-programs, CDs devoted to museums, architectural and historical monuments of Russia, masterpieces of art, representing the Russian culture in the language available to the younger generation worldwide, evolving the system of esthetic education.

If these factors were capably and efficiently supported and used by the state on the federal, regional and municipal levels (which it does now to a less extent and unwillingly), Russia would have all grounds for becoming one of the world leaders in the formation of the integral socio-cultural system adequate to the humanistic noospheric post-industrial society.

10.4. Educational Cycles and Revolutions in Education

A body of knowledge and skills accumulated during a number of generations should be transmitted to next generations. This function is performed with the help of *education* that constitutes a significant component of spiritual life, inheritance mechanism, preservation, enhancement and transmission of the genotype of man, family, clan, nation and civilization. Since the emergence of human society the transfer of knowledge and skills was performed by parents, senior family and community members. During a number of years the transfer took place empirically until the child grew up. His transition to

the state of independent community members was specially celebrated. After the Neolithic revolution when a special training was required for the performance of this or that specialized type of activity, a scope of knowledge and skills to be communicated increased many times.

As an independent social institution the system of education was formed in the 3rd millennium B.C., in the period of the early class world civilization. The developed system of a social and professional division of labor, a complicated state-law system, various types of culture, formation of the outlines of sciences, mastering writing, all this required deep and special knowledge and skills that could not be learned in family. In Sumer, ancient Egypt, China and India first educational establishments emerged: schools of scribes, land-surveyors, studios of architects etc. This may be viewed as the ***first revolution in education, the beginning of the first big (civilizational) educational cycle***. However, one should not overestimate the significance of this revolution. Only a fraction of percent of the younger generation studied at the educational establishments; they mainly included the students from rich and noble families. The majority of population — farmers, cattle-breeders and craftsmen — continued to get education in family and during labor activities.

The situation changed during ***the second super long educational cycle*** in the framework of the ***educational revolution of the ancient civilization***. It most clearly declared itself in Athens and other Greek state poleis where there were educational establishments of various specializations. The schools of well-known philosophers were widespread where young men were eager to go because they understood that there they would be able to get the most modern knowledge. The Plato's Academy that existed about nine centuries and the Aristotle's Lyceum where education was combined with researches became world famous. Young men from rich families of other cities of Greece and the Bosphorus Kingdom came to Athens to get a higher quality education. A wide network of various schools existed in Rome and in China. In 127 B.C. **Wudi** Emperor established the Grand School in the capital, whose graduates had the right to hold public offices. The procedures for taking exams to enter the public office and regular certification of officials have existed in China for more than two millennia.

The third revolution in education was observed in Europe in the medieval period after a long-term crisis, which hit the educational system in the 5th–8th centuries A.D. Now the system of education emerged under the aegis of religious institutions. Schools attached to monasteries and parishes appeared, and then the first universities where the leading place was taken by teaching of church scholastics. In Byzantium and China the traditions of the previous big cycle in the dynamics of education survived.

The fourth revolution in education evolved in the period of the formation of the early industrial world civilization, during the Renaissance. Its typical features included:

➡ development of secular education, gradual release from subordination to church, reflection of the achievements of the scientific revolution of that period;

➡ establishment of the network of universities (Europe numbered 79 universities by the end of the 15th century) teaching natural and humanitarian subjects (philosophy, mathematics, astronomy, dialectics, rhetoric, medicine and ancient languages);

➡ development of basic and secondary schools, educational establishments which trained specialists for commercial activities, construction, seafaring etc.;

➡ formation of the pedagogic as a branch of science. The Czech humanist scientist **John Amos Comenius (Komensky)** (1592–1670) is considered its founder. Invention of printing permitted to publish various textbooks.

And nevertheless, a relatively small share of the young people could get general and vocational education. Peasants and craftsmen got knowledge and skills in families, in their labor activity, long apprenticeship at the craft guilds.

The industrial revolution, development of the machine industry changed the nature of education: it required thousands of qualified workers who were able to operate more and more sophisticated machines, engineers, doctors and educators. The former system of education did not meet these demands. The next crisis in education was handled with the help of the **fifth revolution in education** that evolved in the 19th century. The essence of this revolution was following:

➡ the formation of the system of general free basic education that granted the basics of scientific world outlook and literacy enough to work in various industries and under a regular change of generations of machines (3–4 generations of machines changed during the labor activity of generation of people);

➡ along with the development of universities of all types specialized secondary and higher education institutions were established that trained engineers, technicians, agriculturists, doctors, lawyers, economists, managers, educators, etc.;

➡ education reflected the contents of the scientific revolution of the 19th century and scientific-technological revolutions of the 20th century that required frequent update of textbooks and refresher training courses for educators;

➡ a technological base of educational establishments improved, research laboratories were set up, generations of teaching aids appeared;

➡ education was turning into an independent branch of economy developing at the priority rates and financed mainly from budgetary funds, although there were a network of private fee-paying colleges and other educational establishments;

➡ higher education was integrating with science; research division was set up in the universities and institutes engaged in government and industrial orders. It enabled professors, postgraduates, students to replenish and update scientific knowledge, master the skills of research work.

In the past decades of the 20th century in the period of decay of the industrial civilization, the signs of ***crisis in the system of education*** manifested themselves more and more clearly. The conditions of life and labor were changing radically, and this required changes in the contents, technological base and organization of the system of education. It was difficult for narrow specialists to adapt to swift changes. Functional illiteracy and professional incompetence became widespread. All this hindered the adaptation of man to conditions of the post-industrial knowledge-based society, it told negatively on the economic growth rates and efficiency of production. These contradictions were aggravated by a growing gap in the level of education between the rich minority and the poor majority of countries and civilizations (*table 10.3*), existence of a lot number of illiterate people, whose overall number remains stable (877 mln. in 1980 and 881 mln. in 2000) and who mainly live in the developing countries (848 mln. people in 1980, 870 mln. in 2000).

Expense for education per capita is 83.5 times higher in the countries with high income than in the countries with low income (by PPP – 17.9 times), and 413 times in the USA

against Ethiopia (by PPP — 47.8 times). The North-American, Japanese, Western European and Oceanic (Australia) civilizations are leading by this indicator; lagging are African, Indian and Chinese civilizations. Russia is 69% behind the average world level according to the current rate and almost by one fourth by PPP.

The general crisis in education could be handled based on the ***sixth revolution in education*** that has been evolving from the end of the 20th century. It is a significant link in the formation of the post-industrial society based on knowledge and the integral socio-cultural system. **The result of this revolution that will take nearly all first half of the 21st century will be a considerable update and enhancement of the genotype, hereditary nucleus of society, each civilization and country.**

What are the main features of this revolution?

1. Radical changes in the ***contents of education*** so that it will reflect the achievements of a modern scientific revolution forming the post-industrial scientific paradigm, meet the conditions of functioning of a new technological mode of production, technological orders and generations of equipment implementing it and changing of a socio-political and state-legal structure.

A certain contradiction lies here. On the one hand, education should pass ahead, prepare a new generation for the conditions of life and labor activity, in which it will find itself in 10–20 years implementing its potential. On the other hand, textbooks reflect the already established knowledge, the universally acknowledged truth, familiar conditions of life and labor activity, which will be undoubtedly subjected to significant changes in prospect. ***Schools and universities teach what is, and not what will be*** when the students enter life and suddenly find out that their amount of knowledge and skills do not meet the changed conditions. This gap especially intensifies in transitional periods, and the first half of the 21st century is exactly such a period. In other words, ***education should be of an innovative, anticipatory nature***, prepare for apprehension of new ideas and active implementation of efficient innovations. Conservatism and standardization of knowledge based on the arbitrariness of officials from education disagree with a knowledge-based society, reduce the quality of human capital and efficiency of its functioning.

Taking into account the changes in the priorities of society's development and a scientific revolution alterations will occur in the

Table 10.3

**Expense for Education by Countries
and Civilizations ***

Civilizations and Countries	Expense for Education, 2002–2003		Per capita of population, 2002, \$		GDP per capita of population, 2003, \$	
	% of GDP	% of govern- ment expense	Official Rate	PPP	Official Rate	PPP
World	4,4	...	210	321	5510	8190
Countries with high income	5,5	13,1	1086	1165	28 600	29 580
Countries with low income	3,2	...	13	65	440	2110
North American USA	5,7	17,1	1735	1769	37 870	37 750
Western European					22 810	26 350
Great Britain	4,7	11,4	1046	1088	28 320	27 690
Germany	4,6	9,5	1023	1214	25 270	27 610
France	5,7	11,4	1290	1568	24 730	27 640
Eastern European						
Poland	5,6	14,0	228	522	5280	11 210
Eurasian						
Russia	3,1	11,5	66	250	2610	8950
Japanese						
Japan	3,6	10,5	1224	986	34 180	28 450
Chinese						
People's Republic of China	21	99	1 100	4980
Indian						
India	4,1	12,7	19	109	540	2880
Buddhist						
South Korea	4,3	13,1	357	611	12 030	18 000
Latin America						
Brasilia	4,3	13,4	148	313	3280	7130
	4,3	12,0	113	298	2720	7510
Oceanic						
Australia	4,9	13,3	1098	1330	21 950	28 780
Moslem						
Middle East and North Africa	101	244	2390	5860
African						
Ethiopia	3,3	...	15	58	500	1750
	4,6	13,8	5	37	108	710

*[271, p. 22–24, 82–96]

body of knowledge learned. If before the priority was given to natural and engineering sciences, economy and law, now social sciences and humanitarian knowledge, sciences about life and environmental sciences are coming to the forefront and without assimilation of such knowledge it is impossible to work efficiently and live in the humanistic noospheric post-industrial society.

2. The need for the *orientation at creative pedagogics, innovative thinking* and skills arises out of such demand, and not loading of memory of a student with a growing bulk of knowledge, which ages fast, and at the ability to make a diagnose of newly arising problems and tasks and find efficient, non-standard ways to solve them, a zest for invention in a wide sense of this word, ability to orientate in a daily changing life and find necessary sources for solution of theoretical and practical tasks in it.

A differentiated approach to the students is necessary for that, competence to discern specifics of a particular person in the course of personal contacts, his dormant talents, to develop them and let them develop. Each person is individual and unique; a routine approach, the use of general egalitarian standards ruins such diversity of personalities, extinguish talents not enabling them to implement. A flow of made to standards specialists disagrees with the humanistic noospheric industrial society: it impersonalizes personnel potential, hampers the implementation of matured changes. This is especially dangerous in terms of the tendencies towards depopulation in many countries and aging of population, when a share of the innovatively-orientated population is decreasing. So it implements higher responsibility on those who after education should use learned knowledge and skills and ensure the contents, functioning and development of all society in the speeding up rate of changes.

3. Education should be of a civilizational nature, assist to digest the logic of development and interaction among civilizations, learn the system of civilizational values. Therefore the diversity of educational systems will persist in various civilizations as a precondition for transmission of civilizational and cultural diversity heritably.

4. The information revolution transforms the whole system of education. Connecting logical and imaginative in learning knowledge, allowing to concentrate and to differentiate (individualize) the flow of learning methods, it enables to considerably speed up and facilitate the accumulation and update of knowledge received by

each student. This is attained through both computerization of educational establishments, a skilful use of advanced information technologies in education and the option for each to connect to the databases of knowledge through Internet, telecommunication networks using multimedia, CDs, videocassettes etc. in accordance with their interests and demands.

But the flow of information overwhelming each person has also its negative sides, poses dangers for new generations. Extreme commercialization of information networks, the loss of social control for the contents of information flows, their use for imposing the system of values of the Western civilization on all the world, can lead to standardization and zombing of the younger generations, to their inability to solve creatively new intricate problems continuously arising in life, to the loss of civilizational identification. Humanization of information flows, their competent incorporation in educational processes is still ahead as well as differentiation by language and contents with respect to the specifics of various civilizations. Information flows should bear civilizational and national specifics, and not be impersonalized.

5. New demands for the **organization of education** arise from the attributes of a contemporary revolution in education given above. The primary demands are the arrangement of **continuous education through all lifespan of each man** so that he could adapt faster and more efficiently to changes in the social and natural environment around him. Based on uniform principles, contents, methods, means and organization of education should be differentiated with respect to the specifics of each stage of man's life cycle: in pre-school age, getting school, higher, postgraduate education, in labor activity and at the retirement age.

Modern information technologies that are used during education at the educational establishments and in the system of distance learning and independent education based on a free choice play a prime role in the continuous education. However, it does not exclude the role of scientific literature and fiction, textbooks, encyclopedia and reference books, magazines and newspapers; they also make a contribution to the process of learning, updating and replenishment of knowledge.

Life in the knowledge-based society implies the availability of competent guides, sea charts in the ocean of continuously growing and fast aging knowledge. Such «sailing directions» will not allow to suffocate and to get drowned under the «decumen

wave» of overturns in science. Therefore it is necessary to establish specialized research-information institutes assisting in orientating in such ocean. This difficult task may be fulfilled with the help of the initiative of the Pitirim Sorokin – Nikolai Kondratieff International Institute and the St. Petersburg State University on the development of the Internet portal «World Scientific Heritage», which would include scientific-educational sites and Internet-museums of outstanding scientists of world recognition and their contribution to the world science. The first steps towards this have already been made: there were created sites «Nikolai Kondratieff», «Leonid Kantorovich», «Vassiliy Leontieff», the work over Internet-museums «Pitirim Sorokin» and «Dmitry Mendeleev» is already underway. This initiative is worth of support from the UNESCO that undertakes a lot of activities with respect to the World Cultural and Natural Heritage. It will help to perceive anew and transmit to future generations a scientific heritage of preceding periods on the language understandable to them, to incorporate it integrally in continuous education and distance learning.

6. A prime feature of the contemporary revolution in education is its **globalization, formation of a global educational space**. This is ensured by both availability of information flows in any country and civilization, and a widely practiced exchange in schoolchildren, students and professors as well as activity of the UNESCO educational institutes (including the UNESCO institute for information technologies in education that works in Moscow).

However, globalization of education so far is evolving one-sidedly in many ways and contributes to a little extent to bridging an extreme gap in the level of competence of workers in various countries and civilizations. The world education development programme is necessary to be pursued under the guidance of UNESCO to speed up the remaking of the world system of education with respect to the demands of the post-industrial society. It is necessary to carry out large-scale projects in support of education in the countries with a low level of income so that they could ensure their development independently using the achievements of the post-industrial technological mode of production. The Global Socio-cultural Fund under the aegis of the UNESCO on the deductions from the world financial rent should be established for financing of such projects. Such proposal was made during the roundtable session of

the Global Civil Forum at the 2002 World Summit on Sustainable Development in Johannesburg.

What role could Russia play in the evolving of global educational revolution?

It has favorable preconditions for the leadership in this sphere: the system of fundamental education orientated at creative learning of a scientific and practical heritage, at non-standard solution of new tasks has formed historically in the country. This served as a basis for an innovative breakthrough in the pre-war and post-war years. It is not accidental that after the launch of the first Soviet sputnik a book of 700 pages was published in the USA where the USSR system of education was investigated.

However, in the recent years numerous reforms resulted in a loss of a number of traditions, and in the 90s a deep-seated crisis burst out in education. The budgetary financing of educational establishments was cut sharply; in 2002 expense for education per capita made only USD 66 — 31% of the average world level and 6% of the level of developed countries (by PPP — 78% and 21% respectively). Many private higher education establishments were set up, and in many of them a quality of training of specialists is low. The training system of skilled workers is nearly broken; a heavy damage is caused to the engineering training. The present reform in education aimed at standardization and pragmatization according to the US model undermines even more the traditions of the Russian educational system. This is especially dangerous under transition to a knowledge-based society. It results in a shortage of scientists, designers, engineers, skilled works who could be able to assimilate base innovations, produce and operate sophisticated engineering systems of the fifth and sixth technological orders. A radical revolution in education, a many time increase in contributions to reproduction of human capital are becoming a vital demand, upon which the fate of Russia depends in the 21st century. It has not been realized yet by the ruling and business elite.

10.5. Dynamics of the System of Civilizational Values

The system of values occupies a leading place in the genotype of global, world and local civilizations and in the world outlook of social groups that expresses social differentiation in society.

Three major components may be distinguished in the system of values:

1. Ethics — standards of morality determining man's behavior in society, in family, in this or that social group, allowing to give an ethical assessment to this or that action, a kind of a set of rules for human behavior. A violation of these rules causes dispraise of society, and violation of that part of standards of morality which made a part of law by virtue of legislation, causes retribution differentiated depending on the nature of an action; on the contrary, a strict compliance with standards of morality encouraged by society serves as an example to follow.

2. Ideology — ideals that govern man, this or that social group determining the aims of actions and deeds impelling at times to make sacrifices for the sake of achieving the ideals. The ideals may include a desire for justice, democracy, socialist and communist ideals, patriotism, market fundamentalism etc. The ideals become the driving and material force assumed as a basis for actions of social groups, political parties, state formations (state ideology expressed in the constitution and pursued in reality). The fundamental distinctions may exist between the proclaimed ideology and ideology pursued as it was the case in Russia and other post-Soviet countries in the 90s.

3. Religion (or its absence, a lack of faith) — a system of views whether or not there is *Ens Supremum*, its influence on life on the earth, fate of man and nations, existence of the other world etc. Religion absorbs and supports the prevailing standards of morality, produce a significant influence on ideology, system of ideals of various social groups and civilizations. **A. Toynbee** gives religion the constituent role in the formation of civilizations, defining the Western Christian, Orthodox Christian, Islamic, Hindu civilizations of the third generation [191, p. 33]. **S. Huntington** holds the same views. Religion really plays a prime role in the system of values of local civilizations. However, **N.N. Moissejev** believed that it is not religion that forms a civilization, but the latter chooses religion appropriate to it: «Unlike Toynbee, I assume that it is not religion that forms civilizations, but civilizations fix those moral principles and that religious world outlook that meet most the civilizational tradition of the nation. In other words, a civilization “chooses” religion and adapt it to its needs and ideals» [136, p. 105].

The system of values forms the nucleus of the genotype of a global civilization. It is just the existence of values — ethical, ide-

ological, religious – that differs the human race, Homo sapiens species from other creatures, serves as a motivation to act, impels at times to sacrifice life for the sake of achieving of these or those ideals, subduing the instinct of self-preservation. Changes in the system of values characterize a transition of human society, global civilization from stage to stage of their life cycle.

The system of values determines the essence of world civilizations and changes when they change. For instance, in the transition from the Neolithic to Early Class civilization the vector of some moral and religious standards changed. There appeared the rule «Thou shalt not steal» that blessed the right of private property; the rule «Thou shalt not kill» which protected the life of nationals (it was not applicable to slaves and representatives of other civilizations). It was typical of the medieval civilization to have the dominance of world religions in the system of values, spiritual life of society. The industrial civilization forced out religion in the western societies to the background. The post-industrial, integral world civilization is likely to be described by the revival of humanistic ideals, intensification of religious elements in man's world outlook.

Differentiation of the system of values serves as a distinctive feature for various local civilizations and their groups. For instance, it is inherent to modern western civilizations (Western European, North American, partially – Latin American and Oceanic) to have the dominance of the ideals of democracy, freedom, rights of person, market values, formal recognition of religion. The system of religious values plays a determinative role for the Moslem civilization, religious fundamentalism is highly developed. The priority of team before personality, latitude in religion is inherent to the Chinese, Japanese, Indian civilizations and partially to the African civilization. A combination of collectivistic and individualistic morals, tolerance to various denominations, priority of spiritual principles are typical of the Russian (Eurasian) civilization.

The systems of values vary also by social groups – by various nations, ethnoses, classes, the rich and the poor, young and old people etc. These differences are applied to the civilizational values, but they tend to differentiate considerably at times, especially in the watershed, crisis period, becoming a base for social conflicts and civil wars, revolutions and counter-revolutions. In such periods the intensification of religious and moral polarization are observed, but later it eases. This regularity has been noted by **Pitirim Sorokin**: «A profound research into the influence of the great national, social and

political catastrophes on religious and moral life of individuals and societies shows that such influence is not in the revival of religiosity and moral improvement, not in a simple growth of non-religiosity and setting morals, but rather in ethical-religious polarization of the relevant populations. These two opposite tendencies co-exist and intensify due to conventional, routine and somewhat superficial religiosity and morals of most populations during regular (crisis-free) times. This majority, under normal conditions... is not too sinful or non-religious, not too saint-like and religious. In times of great crises, for instance, wars, revolutions, natural calamities, catastrophes, such majority has a tendency towards polarization. One its part becomes more religious and moral, while the other tends to non-religiosity and crime» [181, p. 198–199].

What serves as a **mechanism for hereditary transmission and transformation of the system of civilizational values?**

It is first of all *family* — a primary unit of society. Man is not born with social components of the genotype; they are acquired in process of upbringing, beginning from a baby period. They depend on the attitude of a parent to a child, on those standards and rules which become engrained from the first days of life. The social components of the genotype are being assimilated during childhood at speeded up rates. The second channel — *school*, high and higher school. It is actively involved in the formation of a social genotype along with transfer of knowledge — and not only through edification and example of educators, but through life and communication in the team of schoolchildren and students. The third channel is *labor life*, work, communication with representatives of the state as well as social and political struggle. The fourth channel — *mass media* — television, radio, press, Internet, etc., which render a more and more increasing influence on the formation of the system of values, especially of the younger generation. The fifth channel — *culture*, especially literature, dramaturgy, art, modern admass culture, which produce an improving or decaying influence on the formation of the system of values. Finally, the sixth channel — *religion*, whose influence intensifies in the atmosphere of the Renaissance of religions, which is being observed since the end of the 20th century.

Let's consider historical stages (big cycles) in the dynamics of civilizational values.

The first big cycle is attributed to the period of the Neolithic world civilization, when the values of the primitive-community system that supported the existence of communal property, egalitarian

distribution, standards of morality of a large family included in the community, veche (people's assembly) democracy under a minimum social stratification prevailed. There was no law, which fixed legally the prime standards of morality, animistic world outlooks prevailed, which deified the forces of nature as well as ancestor worship, which is necessary for the transmission of a social genotype from generation to generation. This system of values was inherited as a part of the genotype of the preceding periods (Lower or Upper Paleolithic, Mesolithic) and met the first stages of the development of the Neolithic civilization. But by the end of a life cycle of this civilization it came into antagonism with the radically changed conditions of functioning and development of society: private property and property stratification appeared, formation of hereditary leadership states based on the tribal upper crust took place as well as separation of a monogamous family. *The first global crisis of the system of values* broke out, which ended in the formation of a new big cycle inherent to the early class world civilization.

This was a real ***ethical-religious revolution***, which resulted in:

➡ ethical fixing of private property of families, state, priests, the rule «thou shalt not steal» and a rigid support of such new standards by the system of law; the right of ownership extended to the accumulated property, and also slaves; however, the head of the state was recognized as the supreme owner (pharaoh, king or a duke), which entitled him to fix taxes and tributes in favor of the treasury;

➡ making the rules of law of the major rules of ethics fixed by laws and supported through the force of the state coercion; this permitted to regulate established social relations, restrict the club law;

➡ the formation of religious system built on a hierarchal base (polytheism) where there was the high god and gods subordinated to him, who were patrons of certain types of business and battle with each other, and also good and evil spirits. As a result of the evolvement of a social division of labor the groups of people appeared who communicated with goods professionally, who exercised cult actions and offered up sacrifices to gods, numerous magnificent temples were built. For instance, Assyrian-Babylonian civilizations of Mesopotamia worshipped a whole host of gods (Annu, Ashur, Ishtar, Ea god — the patron of wisdom and crafts, creator of writing, science and art — were considered senior); recognized the existence of evil and good spirits along with gods. Priests were mediators between gods and people. They offered sac-

rifices and saw to the observance of the standards of morality blessed by religion.

This ethical-religious revolution became a real overturn in the spiritual life of society that established its basics for many millennia ahead. The results of the overturn were consolidated and developed in the *third big cycle in ethics, ideology and religion* during the ancient world civilization. It was then that the notion of freedom appeared as a basis of democracy. It is clear that the matter in question was the freedom and democracy for citizens of a polis, and not slaves. In the prosperity period of ancient societies a transition to monotheistic world religions evolved. The German historian **Karl Jaspers** called this period the «axial age» when a modern man formed in all integrity of his spiritual world: «This axis seems to be attributed to the period about 500 years B.C., to that spiritual process that was between 800 and 200 years B.C. The most drastic turn occurred in the history then. A modern type of man as is now appeared... The main categories in which we think until now were developed in that period and the foundation of the world religions that determine people's life nowadays were laid... All these changes in a human being could be called *spirituality*... In the axial age occurred the discovery of notions, which got the names of reason and person» [252, p. 32–39]. Admittedly, it should be noted that the overturn was more considerable and deeper in the spiritual life than in the previous historical stage, when the early class world civilization was establishing itself, and the heritage of «axial age» was used to a great extent and more significantly in western local civilizations than in eastern.

In the first centuries of our era the spiritual sphere of the ancient society, including morals, ideology, religion, found itself in the state of a protracted, deep-seated crisis. The process of moral decay of the ruling upper crust, crisis of the system of spiritual values, deepening of ideological contradictions intensified. It set the preconditions for the dissemination of Christianity, and in the 7th century — of Islam: monotheistic religions became a response to the challenges of the period and were embraced by the millions of sufferers, and then made to serve to the ruling establishment.

The fourth big cycle in the dynamics of spiritual values evolved in the Medieval Ages. Its typical feature was the absolute dominance of monotheistic religions in all spheres of spiritual life (this tendency less clearly declared itself in the Chinese and Japanese civilizations). The integration of religion and morals occurred, religion was active

in its influence on the state and policy, religious warfare and crusades began. The dominance of world religions had positive features supporting the unity of spiritual values under the feudal disunity and endless warfare. But religious dogmas enchained the freedom of scientific thought, gave rise to the cross-religious intolerance. Destruction of the cultural-historical heritage of ancient civilization of the pre-Columbian America — Aztec, Inca and Maya — became a historical crime of the Catholic Church. By the end of the Medieval Ages, in the 7th–14th centuries a crisis of civilization values of that period intensified.

The next, *fifth big cycle in the dynamics of the system of civilizational values* covers a period of two world civilizations — early industrial and industrial. The major features of this cycle included:

- ➡ a stage by stage secularization of the spiritual sphere, relaxation and ousting into the background of the system of religious values of the Renaissance, reformation and enlightenment;
- ➡ expansion of the dominance of individualism over collectivism, increase in significance of freedoms and individual rights;
- ➡ extension of ideals and values of western civilizations to other civilizations, especially under information revolutions of the end of the 19th — beginning of the 20th century and the end of the 20th century;
- ➡ reduction of the role of a family in transmission of the system of values to next generations under a concurrent increasing influence of education, mass media, public and political organizations and the state (especially under a totalitarian regime).

However, along with the dissemination of the system of values of the industrial world the contradictions aggravated in it. It was already noted by **N.A. Berdyaev**: «The industrial-capitalist system of civilization ruins the spiritual basics of economy, thus preparing itself for death. Labor ends to be spiritually-comprehended and spiritually-justified and revolts against the whole system. The capitalist civilization finds its deserved retribution in socialism. But socialism also keeps up the ball of civilization, it constitutes another image of the same “bourgeois” civilization, it tries to develop civilization, not introducing a new spirit in it. Giving rise to fascism and ghosts industrialism of civilization inevitably undermines the spiritual discipline and spiritual motivation of labor, preparing its downfall thereby» [13, p. 71].

In the 20th century, especially in its second half, the signs of *crisis and decay of the system of the industrial-market, sensu-*

al socio-cultural order – became increasingly obvious as well as the formation of the beginning of the revival of humanistic values inherent to the integral socio-cultural system. This process is most completely researched by an outstanding sociologist of the 20th century **Pitirim Sorokin**. «In ethical life of humankind a continuing decay of a sensual system has declared itself in many forms. First, in the progressing relativization and atomization of all ethical values and rules of law. Second, the decay manifested itself in an extreme degradation of these values and rules... Third, as a result of this extreme atomization and degradation ethical values and rules of law lost their moral prestige and binding force as efficient regulators of human behavior... Fourth, having lost its “special taste” and efficiency, they opened the way for a brutal force as the only controlling factor in human relations... Fifth, this state of an extreme moral anarchy naturally gave rise to extreme outbursts of warfare, revolutions and ruthless conflicts... The degradation and atomization of moral values also caused an extreme brutality and inhumanity, which demonstrated themselves in this warfare and conflicts and increased criminality and other phenomena of extreme demoralization» [181, p. 60–61]. The tendencies identified by the scholar are taking more and more definite shape in the modern world.

What are the signs of crisis of sensual industrial and formation of an integral post-industrial system of values in the ***transitional period to the six big cycle***, which (the period) began in the second half of the 20th century and is likely to take all the first half of the 21st century?

First, this is *a crisis and revival of humanism*. In the industrial capitalist-market or socialist-bureaucratic society man is only a part, a screw in the huge industrial-technological and social-political state machine, which is targeted at itself and finally neglects the interests of a person (even if it proclaims their priority). The target of the post-industrial integral order is to disclose and implement a creative potential of a free person; technological, economic (market and non-market) and social-political systems should serve this major aim.

Second, in the period of the decay of industrial society a negative moral-ethical polarization has intensified sharply, in *disunion and confrontation of ethics, religion and science*. Pitirim Sorokin mentioned that «ethical-religious polarization of people has

assumed a huge scale. It declares itself in all spheres of social, cultural and private life» [ibid, p. 200]. The tendency towards the decay of a family, development of contra-natural homosexual families, promiscuity not related to the basic instinct to transmit life is present. The highest value – human life – is devaluated, a special job appeared – a killer, contract murderer, the outburst of terrorism is observed, mass murders of harmless people occur. A set to intensive labor is being replaced with exchange speculations, pursuit of easy profits. A loss of moral values and commandments supported by religion is taking place, and, on the other hand, a flow of religious fanaticism is growing (including terrorist suicides of fanatics-kamikaze (shahids)).

The forces of a positive ethical-moral polarization are growing as a reaction to these destructive tendencies. This tendency was already observed by **Pitirim Sorokin**: «Along with an outburst of forces of negative polarization there appeared and are growing the forces of positive religious and moral polarization. Constructive religious and moral forces must grow adequately so that finally they will prevail over destructive forces, will make a new social, cultural and personal order in the human universum» [ibid, p. 215]. In prospect, «these forces will certainly prevail over the forces of negative polarization; they will finally bring humankind in a new era of constructive history. There is a hope that religion improved spiritually and morally will sincerely cooperate with a morally responsible science and illuminated and refined arts in this era. Truth, good and beauty will again unite in the high triad of values» [ibid, p. 242]. However, because of difficulties on this path the time of such integration has been delayed for many decades ahead against the foresights of the outstanding sociologist. The resistance of disintegrating forces of a moral-religious polarization has turned out to be considerably higher than it was anticipated, especially under conditions of globalization and dictate of powerful TNC, for which moral-religious and ideological values turn out to be third-rate.

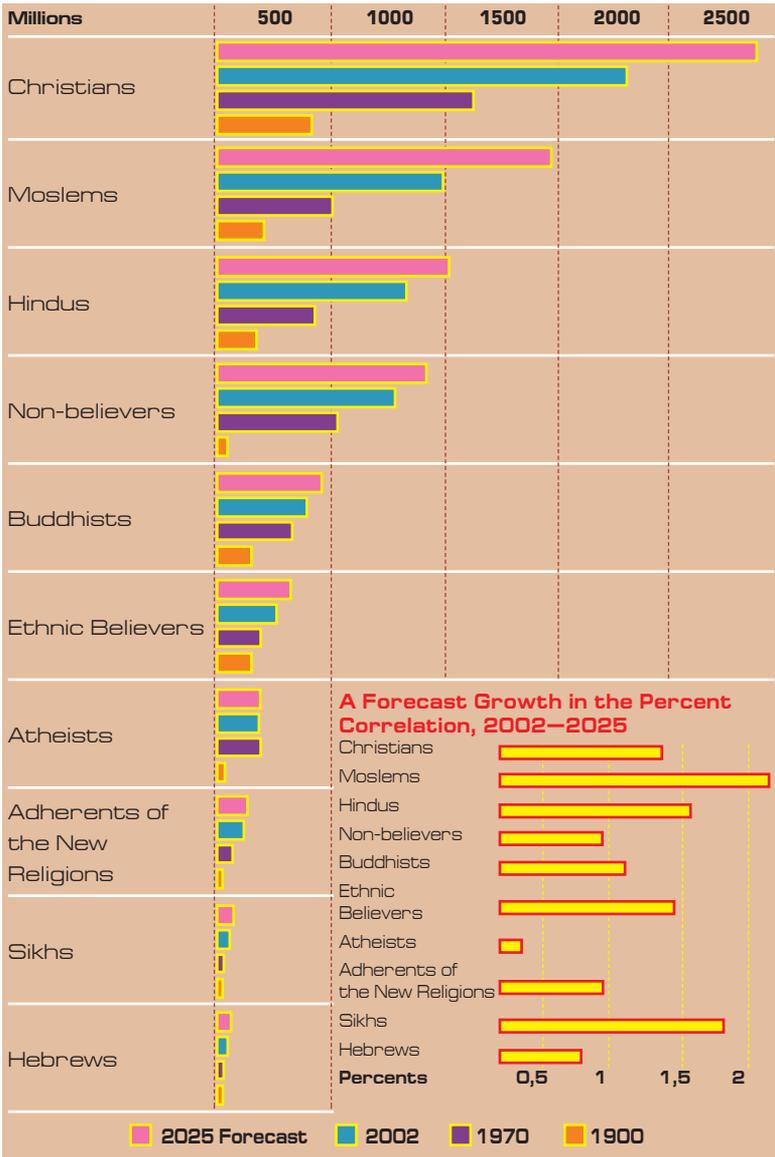
Since the end of the 20th century a tendency for revival of religions, for the increase of the number of the adherents of the greatest world religions, especially Moslems and Christians has been observed (*fig. 10.1*). This tendency is expected to persist at the beginning of the 21st century with the numbers of Moslems growing at the increased speed, which is connected with the high rate of population growth in Islamic countries. The population growth

forecast of Moslems in the European Union is from 15 mln. in 2005 up to 27–38 mln. in 2025. It can strengthen confessional contradictions inside Western-European civilization (as showed the events of October–November 2005 in France). Such tendencies make the widening of the dialogue and interaction of civilizations in solution of sharp sociocultural problems and contradictions of the 21st century absolutely necessary.

Third, changes take place in the very structure of values. In the 20th century a threat of *militarization* turned out to be especially tangible, which manifested itself in the bloodiest of the world wars in the history of humankind and the «Cold War», which called into question the existence of humankind. The service to the Moloch of war, victory in the race of murderous arms became the basis of ideology, which is incompatible with the main commandment of all religions and ethical norms «thou shalt not kill». After the end of the «Cold War» new threats have come to the forefront – clash among civilizations, international terrorism. The triumph of this ideology leads not only to moral degradation of humankind, but its self-destruction, end of civilization in all its manifestations.

However, the forces opening a new path are intensifying in response to such challenge. A powerful movement for peace became one of the factors that prevented the sliding down to the third (and the last) world war with the use of weapon of mass destruction. Under the UNESCO's initiative the movement for culture of peace, tolerance and the ideology of non-violence is evolving. The UN has supported the idea of dialogue among civilizations, proclaimed the first year of the new millennium the year of such dialogue and adopted the resolution «Global Agenda for Dialogue among Civilizations». This document underlines that all civilizations celebrate the unity and diversity of humankind and will be enriched and will evolve through constructive interaction with other civilization. It has been taking place throughout the history despite obstacles of intolerance and aggression. Among the objectives of the dialogue between civilizations is «identification and promotion of common ground among civilizations in order to address common challenges threatening shared values, universal human rights and achievements of human society in various fields, development of a better understanding of common ethical standards and universal human values» [44, p. 6, 9].

Figure 10.1
Number of the Adherents of Different Religions in 1900–2025



Source: 99, p. 110.

Fourth, a disunion of people inherent to the industrial-market period and «reasonable» egoism reduced to extremity, setting of the individual in opposition to others based on the principle «dog eat dog» are signs of crisis of postindustrial system of values. Others are negligence to marital and parental duties, pursuit of carnal pleasures and delights. These tendencies that became widespread in the decay period of the industrial civilization must give place to a new type of interpersonal relations, which are based, according to **Pitirim Sorokin**, on altruist love and creative altruism. Pitirim Sorokin devoted the last decades of its creative activity to research into this phenomenon, founded the Research Center for creative altruism at the Harvard University. As a conscientious sociologist, he has generalized profiles of about 460 Christian saints and 500 known Americans. He came to the conclusion that the «grace of love» constitutes, along with truth and beauty, one of the three high energies known to man, that it serves as a source of longevity and health, has a salubrious force (especially maternal love), fulfills a placatory and harmonizing function, is the highest manifestations of people's relations. «Love is a powerful source of an absolute energy feeding all high values of freedom, good and happiness» [ibid, p. 294]. Accumulation and distribution of love is a necessary condition and leverage for altruistic transformation of society.

The Pitirim Sorokin's theory of creative altruism has turned to be alien to the pragmatically egoistical system of the western sensual society; it was viewed as the eccentricity of an elderly sociologist. It is not surprising that it seemed unacceptable for Russia and other countries, where vulgar Marxism with its ideology of class struggle and hatred dominated. But it is in the 21st century, when time comes for dissemination of new ethical theories, which are orientated at humanism, altruist love. One cannot overcome violence with violence, eliminate crime, terrorism. It is necessary to humanize the very fundamentals of interpersonal relations on the principles of creative altruism. One should hope that the Pitirim Sorokin's theory of altruistic love will be demanded in the near decades and will become one of the components of the genotype of the post-industrial ethics.

Russia has a chance to make a weighty contribution to this process. Although its historical way is full of warfare, violence,

hatred, the ideals of good, altruism and tolerance have still survived at the root of ethics and ideology. In the 90s a noticeable damage was caused to these ideals (as in the previous decades penetrated with hatred and struggle of the 20th century), but they have not been effaced completely, alien ideals are hard to instill. There is still hope that a new generation whose time falls on the 10s–30s years of the 21st century will revise critically the transmitted heritage and will choose consciously the path of preservation of their own system of civilizational values similar to what has been predicted by the great Russian-US scientist.

Part III

HISTORY OF CIVILIZATIONS

**Chapter 11. Civilizations of
Antiquity**

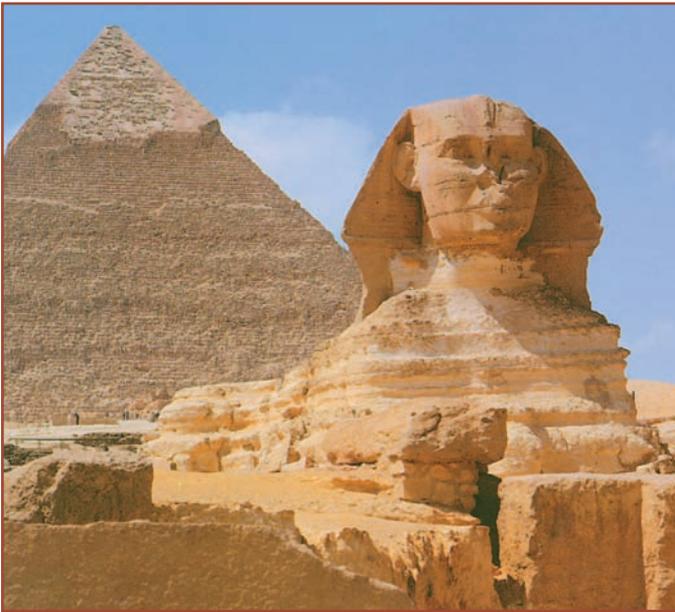
**Chapter 12. Civilizations of the
Second Historical Super Cycle**

**Chapter 13. Civilizational Dynamics
in the North of Eurasia**

Having researched into the theory of civilizations, cyclical-genetic regularities of their dynamics, having considered the manifestations of these regularities in the aspect of individual components of the genotype of civilizations, let's turn now to the research into the dynamics of global, world and local civilizations from a temporal viewpoint, by three historical super cycles. First of all we will consider the processes of germination, formation and prosperity of ancient civilizations; then we will turn to civilizations of the second historical super cycle when the industrial system germinated, spread and reached its peak, local civilizations of the third and fourth generation were formed and prevailed. A special chapter will be devoted to the history of the Eurasian civilization, cycles in its dynamics.

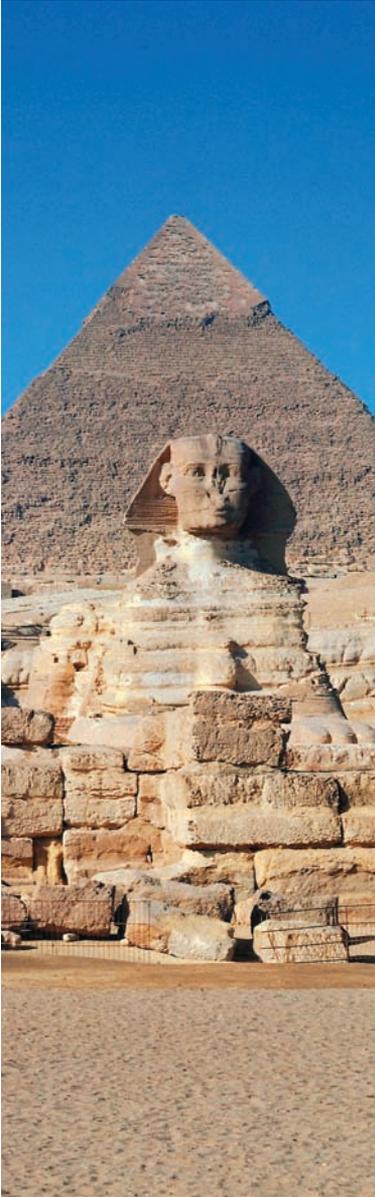
Chapter 11

CIVILIZATIONS OF ANTIQUITY



T*he first historical super cycle* includes the longest period of a life cycle of the global civilization – more than eight millennia of the Neolithic, Bronze and Iron Ages. In this period three world civilizations changed each other featuring Neolithic, Early Class and Ancient, two generations of local civilizations, the extant structure of society (the pyramid of civilizations) was formed (with significant modifications), the genotype (hereditary nucleus) of the global, world and local civilizations was determined. According to Karl Jaspers, the «axial age» falls to this period when the extant man's spiritual world was formed. We introduce the notion of the «preceding axial age» (beginning of the 3rd millennium B.C.) when the hereditary nucleus of local civilizations was formed and all floors of the civilizational pyramid were occupied.

11.1. Preconditions and Factors for the Emergence of Civilizations



11.1.1. Prehistory of Civilizations

Emergence of civilizations was preceded with the ***Old Stone Age (Paleolithic)***.

The Paleolithic is the period of great antiquity in the prehistory of man, when he learnt how to use coarse finished stone, bone and wooden labor tools for hunting and fishing, gathering plants, and then made fire serve. This made the conditions of existence of the primitive groups of people safer and more stable, which allowed increasing the sources of food, gave protection against cold and wild animals.

In the period of the Upper Paleolithic (from the 40th millennium B.C.) a javelin and a javelin throwing machine, bone heads of javelins and harpoons, stone axes, cutters and other labor tools were invented. Fishing developed concurrently with hunting. The nascence of articulate speech fostered communication between people, conveyance of accumulated experience from generation to generation. People lived in tribal communities, where the filiations on the maternal side prevailed (matriarchy), a pair

(monogamous) family formed. The primitive art developed: the whole galleries of petrolyphic drawings are found. The myths-tales and legends, animism – deification of nature – made the basis of spiritual life.

What are the major results of the prehistorical period? **Karl Jaspers** sees them in the following:

«1. *Use of fire and tools.* An animate being, who does not have either this or that, can hardly be taken for man.

2. *Nascence of speech.* The ability inherent only to man to express the sense of the objective world apperceived in speech and conveyed by it serves as an object of thinking and speech makes a radical difference from reciprocal understanding of animals through a spontaneous expression of their feelings.

3. The ways of *forcing self forming man*, for instance, by way of taboo. It is inherent in the very nature of human that he can't be only a part of nature; quite the contrary, he forms himself by means of art. The nature of man is his artificiality.

4. *Organization of groups and communities.* The main distinction of a human community from the groups and the relations of the dominance and subordination formed by the primates is in the apprehension of their sense-based significance...

5. Life formed by *myths*, formation of life by means of images, subordination of all existence, family order, social system, nature of labor and struggle to these images, which in their endless interpretation and deepening are in essence the carriers of self-awareness and perception of their being...» [252, p. 67–68].

In that period there was formed a social genotype of a modern man that manifested itself not only in making labor tools and technologies for maintenance of his existence and less dependence on the nature, but first of all in the development of means of communication and conveyance of thoughts, emergence of human communities, formation of standards of morality and spiritual life, conscious of self.

A transition from the Paleolithic to the Neolithic is known as the **Mesolithic** and embraces a period from 10 to 8 millennia B.C. A major invention of that period included the use of bow and arrows. Their significance was noted by **F. Engels**: «A bow, bow-string and arrow already make a very sophisticated tool, whose invention implies experience being accumulated for a long time and more developed mental abilities, consequently, a simultaneous familiarization with a plenty of other inventions» [238, p. 29].

Tiny stone tools (microlites), shafts, harpoons, dugs-out, nets were also used. Manufacturing of brown ware began. Wild animals were tamed from time to time, the beginning of farming appeared. All this increased considerably the labor efficiency, improved the nourishment of man and speeded up the population growth rates. More comfortable settlements sprang up, often fenced with a wall. Primary knowledge was accumulated, man's spiritual world developed, primitive art evolved.

By the end of the Mesolithic the drawbacks of an extensive way of development of society became apparent. A rapid extermination of large animals led to the first *ecological crisis*. The majority of the population starved and in their attempts to get food tribes fought with each other. It initiated the first *demographic crisis* that resulted in a considerable reduction of population. Contradictions aggravated inside the community. The preconditions for the Neolithic revolution brewed up. The prehistory period of society was coming to the end.

11.1.2. The Neolithic Civilization

The *Neolithic revolution* that occurred in 6-7 millennia B.C. may be viewed as the actual beginning of the history of society. Its contents is in the transition to artificial reproduction of food (farming and cattle husbandry). It increased the opportunities for survival and development of the primitive communities, increased labor efficiency many times, established real conditions for a population growth. The significance of this event was emphasized by **N.N. Moissejev**: «The Neolithic revolution qualitatively changed the nature of social development of the human race. And its consequences were such that they already permit to speak about the beginning of the history... The Neolithic revolution speeded up the development of society many times by creating qualitatively new stimuli for the development — stimuli that could not exist in principle in the previous period». He believed that the «Neolithic revolution served as the beginning of all extant civilizations» [136, p. 32].

The Neolithic revolution permitted to handle ecological and demographic crises of the end of the Mesolithic, to establish the conditions for survival and rapid development of society on a new basis, especially in the agricultural districts. The structure of society became more sophisticated, a stable division into groups (strata)

based on the development of social division of labor came into being. The unions of communities were established — tribes among which the dialogue developed, but military conflicts were often in struggle for better lands and pastures. Along with communal property the property of families expanded. Man's spiritual life developed and differentiated. Farming, cattle husbandry and then construction and crafts required various knowledge and skills. The beginning of sciences, which had practical significance, were formed — astronomy, arithmetic, agronomy and medicine. The world of myths, pictorial and music arts developed. Written language appeared that became the method for fixing and transition of knowledge, beliefs, myths and the rules of behavior. The system of standards of morality became more and more sophisticated, qualitatively new standards appeared therein.

The Neolithic civilization is the initial and longest period in the history of world civilizations; it laid the foundation for a further advance of humankind.

The steps in the development of a social division of labor underlie the advance of the Neolithic civilization, which increased its fruitfulness many times and made a surplus produce possible.

The first major division of labor is a *separation of farming and cattle husbandry*. It was necessary to create new labor tools — digger sticks (and then a hoe and a plough), grain-dryers, means for storage and processing of products of farming and cattle husbandry. The exchange of products of labor of farming and stock-raising tribes emerged.

The second division of labor — *separation of crafts* (mining and working of stones, producing of earthenware, ploughs, clothes, shoes and weapons) followed the first social division of labor (formation of farming and stock-raising tribes). A potter's wheel, looms, tools for leather working, processing of grain were invented. These became the germs of future industry.

The third division of labor comprises *separation of construction* of residential buildings, defensive and religious structures, public warehouses etc.

In the developed Neolithic society the fourth social division of labor occurred — *separation of the tribal upper crust* (leaders, priests, military commanders), who were professionally engaged in the activity associated with the management of tribes, their protection and exercise of worship. These are the germs of such future social institutes as the state, army and church.

Thus, as a result of the development of the Neolithic society a quite sophisticated structure of society and its stratification were already observed.

In the period of the Neolithic the *city revolution* occurred. It included the emergence of fortified settlements, where the tribal upper crust, craftsmen, a part of farmers settled. In the city a higher density of population contributed to constant contacts, the environment for sharing knowledge and experience, development of art. The cities became the catalysts for progress, seats where civilization was germinated. Some Neolithic cities with several thousand people: Jericho (Palestine 7th–2nd millennium B.C.), Chatal Huyuk (Asia Minor, 6th millennium B.C.) and Khirokitia (Cyprus, 5500 B.C.) are known.

In the 4th millennium B.C. the signs of *crisis of the Neolithic civilization* declared themselves. It is connected with the shortage of labour tools. This period is characterized as the *Eneolithic*. Along with stone tools (microlites) they began to use metal ones — copper, golden and then bronze (alloy of copper and tin). However, there were not many native deposits of metal, and the use of stone tools was low efficient, it could not meet the demands of the considerably increased population. The labor efficiency growth rates and population growth rates dropped considerably.

The second sign of crisis of Neolithic civilization was the system of *economic* relations tying the interests of producers: communal property and egalitarian distribution deprived skilled workers of the stimuli for the improvement in labor efficiency.

The third sign was *social and property differentiation* that increased sharply and impelled the tribal upper crust to change the very foundations of economic relations, fixing and demising of accumulated wealth.

The fourth sign of the crisis of the Neolithic society is worth noting: the structure of society which became more sophisticated and the *inequality* appeared could not already be regulated by prior standards of morality and traditions. The need in legal, coercive regulation of relations between people arose.

Finally, the fifth, external factor should also be mentioned. The density of population increased many times during the Neolithic Age, *military conflicts* between neighboring tribes intensified, professional detached units of warriors of protection and attack had to be formed. At the turn of the 4th and 3rd millennia B.C. these crisis processes made inevitable a transition to a new step in the develop-

ment of society — the early class civilizations. Thus the first generation of local civilizations emerged. It was a great historical transition that completed the formation of the civilizational «pyramid».

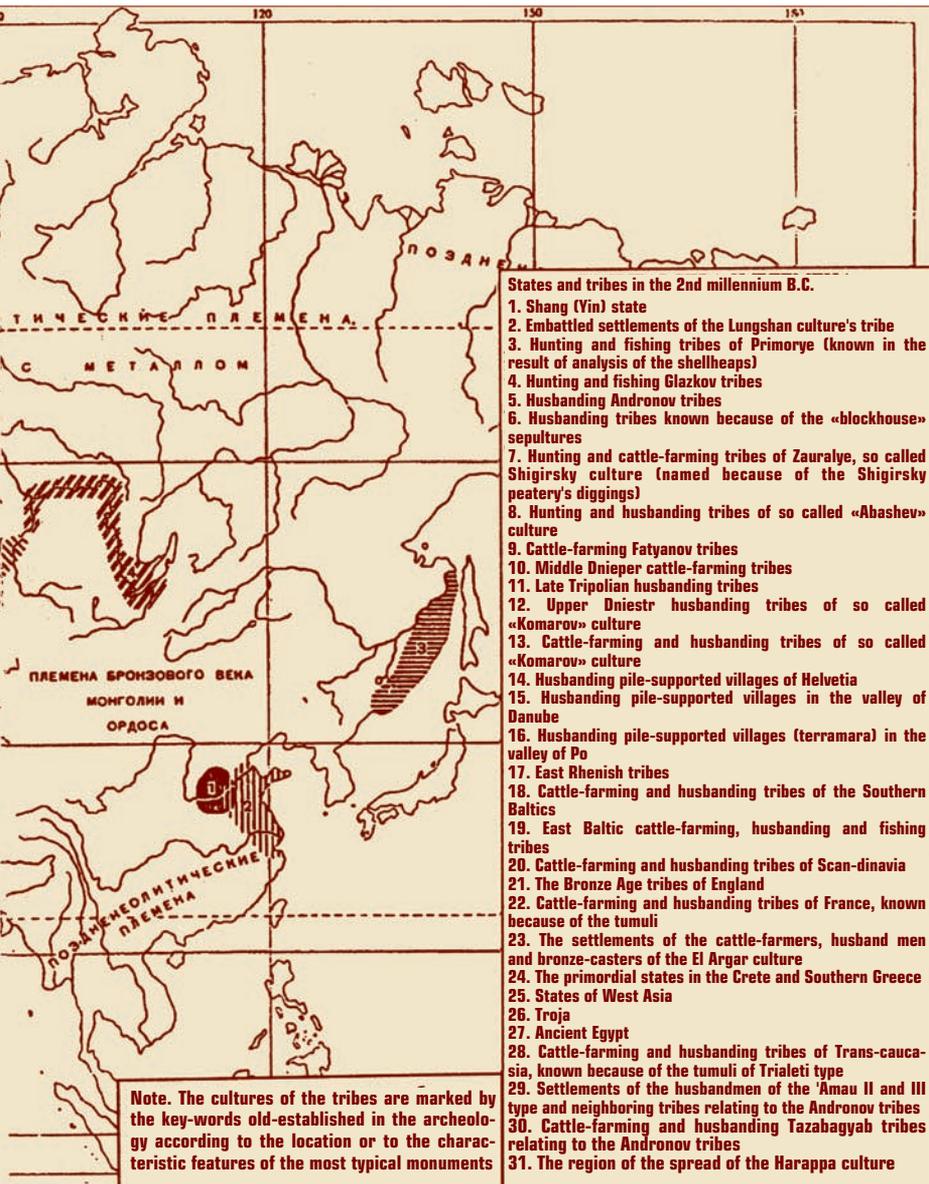
11.1.3. The Early Class Civilization (the Bronze Age)

The cultures of the Bronze Age, which became the foundation of the early class world civilization and the emergence of the first generation of local civilization, were located along a narrow strip around the Eurasian and African continents between 20⁰ and 60⁰ of latitude north (*fig. 11.2*).

The emergence of private property and classes. The emergence of *private property* and division of society into classes and the states — social institutes that determined the face of next generations — were the epochal landmarks in the formation of the second world civilization.

A transition from communal to private property demised to the members of one family, overcoming of equalizing distribution, private appropriation of means and results of production formed an economic interest to increase the property for self, own family based on the improvement of labor efficiency.

The changes in man himself who freed his hands from fetters of communal leveling and equalization became a precondition and effect of the changes in society described above. Knowledge, skills, the will of each man, intensification of communication, sharing knowledge and exchange of goods in the cities became the foundation for success and wealth of a person, separation of the active elite. Of course it caused suffering of other members of society: the poor and disabled became serves, members of other communities were enslaved and made to work with extreme forms of violence, but even in a rough form, it was an advance. The communal property continued to exist in the village for a long time simultaneously with the organization of the states, the property of the state and temples appeared. **N.N. Moissejev** highly appreciated the emergence of such social institutions: «The emergence of farming and cattle husbandry laid the foundation for the emergence of private property — a phenomenon not known before in the animate world. It has turned out to be a new and powerful stimulus of human civilization. Moreover, private property (land, and first of all cattle) turned out



to be such form of organization of productive forces of society that was the best to comply with the level of their development, was the most efficient form in the use of a new ecological niche for the benefit of man and community» [134, p. 222].

The property stratification of families and emergence of *classes* — large social groups of people that occupied a different place in the system of a social division of labor and distribution of wealth became a logical consequence of extension of private property. Classes emerged within tribes and their unions. At the one pole there was the tribal upper crust that became the dominating class and appropriated major wealth (tribal leaders, priests and military commanders). At the other pole there were poor farmers and craftsmen, a considerable part of whom lost freedom. A number of slaves grew fast and was constantly replenished by prisoners of war. So emerged two major classes of the early class society — slaveholders and slaves; however, there was quite a considerable share of free community members, craftsmen, merchants, warriors, and also scribes, musicians, artists, sculptors, architects — people of intellectual labor. A separation of this social stratum, *separation of intellectual labor from manual* became the next step in the development of a social division of labor, a civilizational advance.

Economic and social relations of the early class civilization were based on the system of foreign economic coercion, personal dependence. A slave was not viewed as human, had no property and family, could be killed unpunished, sold. Servile revolts occurred not once, but they were suppressed cruelly. Such form of social relations was rude, violent, immoral from modern viewpoints, but a necessary stage in the development of society.

A leap in division and enhancement of labor efficiency was reached. Irrigation farming was remarkable for its high yields. The rise of various crafts, manufacturing of bronze tools of labor, weapons, decorations, various fabrics, clothes, shoes, pharmaceuticals, objects of art was observed. The extant pyramids, ruins of palaces and castles indicate the development of construction. Differentiation of the types of business enabled to acquire skills, craftsmanship, to improve the tools of labor, to attain its better efficiency. This became the foundation for speeding up of a technological and economic advance.

The formation of the state and law. The institutes of communal government and primitive standards of morality could not support and regulate quite complicated and contradictory economic and

social relations based on private property, forced labor, property inequality and exploitation. It was necessary to form a special *machinery of the state* that would perform the functions of internal regulation and external protection (and attack) resting on the rules provided for by law. The *fifth major social division of labor* occurred: there separated the groups of people who performed professionally the functions of the state and supported the rules of law (pharaoh, king, the court, military commanders, judges, policemen etc.). The state also undertook certain economic functions: the arrangement of construction of irrigation systems, pyramids, temples, protection of property relations, regulation of monetary circulation (coinage) etc.

Unlike the primitive organization of the tribal system, the *veche* (people's assembly) democracy of the period of the establishment of the state, the power of the supreme ruler was unlimited — not only over slaves, semi-free community members, craftsmen, merchants, but also over the court nobility. Violence, personal dependence permeated into the entire state system, ensuring the functioning of society divided into various classes and social strata. Warfare became an integral function of the state, not only for protection and attacks, but also for replenishment of the army and slaves.

However, one should not reduce the emergence of the state only to violence of one class over another. It became the core of regulation of a sophisticated system of relations in the stratified, socially contradictory, multi-industry and multi-functional society, exercising significant economic functions of private property protection, regulation of market relations, construction and maintenance of irrigation systems, collection of taxes and tributes. The state performed these functions using *law* — system of mandatory rules of behavior and relations among people in various spheres maintained by a threat of punishment. The first codified rules of law — law code of Shulga, laws of Hammurabi — appeared. Special social institutions were established to support rules of law — courts, police and various branches of power. But there were no separation of powers: the whole power belonged to the supreme ruler who was viewed as the vicarious ruler of the supreme deity.

Development of cities, market and spiritual sphere. The establishment of the system of *cities* became the event of world-historical significance in that period: a rapid growth of population number, development of craft and construction, establishment of administrative centers of the emerged states, their fortification in case of war

and foreign invasions. In large cities tens of thousands of people settled. Thus, Mahenjo-Daro (India) occupied the area of 2.5 km² and numbered up to 100 thousand people. It was divided into a well-fortified citadel and a lower city, had grain depots, water supply systems and sewers. The accumulation of critical mass of population in the cities served as an impulse to rise in construction and craft, development of exchange, formation of diversified city culture. Each state sought to make its capital a large economic, cultural and religious center. And magnificent buildings in the cities of that period — fortresses, palaces, temples — still boggle imagination. Meanwhile the majority of citizens lived in a box of a room and clay huts.

The development of a regular exchange gave rise to the creation of the universal equivalent in which the value of multi-various goods found their expression, materialized. Having tried a plenty of various items for this role (bunches of shells, cattle etc.) in the Bronze Age humankind fixed the functions of the measure of value, medium of circulation and accumulation in *metal coins* — gold, and then silver.

The scale of the structure expanded and sophisticated, its orderliness increased. It was necessitated by the logic of regulation of irrigation systems in the valleys of the Nile, Tigris and Euphrates, Indus and Ganges, Huang He and Yangtze. The hierarchical structure of reproduction emerged at several levels: lower — farming, cattle husbandry or craft family, neighboring community, semi-commodity or commodity slave economies; regional — in individual territories, such nomes as Upper and Lower Egypt; state — the whole countries. A stable market established itself (admittedly, not covering food and clothes for most people, but embracing the sale-purchase of slaves). It developed inside of individual countries and between the countries.

The richest people in the state, supreme rulers could afford to invite architects, sculptors, artists, dancers, musicians, chroniclers, historians and astrologists. Enormous treasures were accumulated in the palaces of pharaohs, houses of the rich people, temples and other cult buildings.

The rise of spiritual sphere developed featuring pictorial and musical art and architecture. Invention and mastering of the written language became the *second information revolution* (the first being learning the articulate speech at the dawn of the formation of man). The formation of empirical foundation of natural and applied sciences made it possible to regulate irrigation systems, develop metal

making, various crafts, to build sea vessels, to make far trips and sea voyages. A solar calendar, water-clock and sundials were invented and the foundations of mathematics were laid.

The germination of private property, state, formation of local civilizations, germination of science, formation of a highly productive irrigated cropping, mastering of a wide range of iron tools and weapons – all these were so large epochal innovations in the history of humankind that the 3rd millennium B.C. could be viewed as the *first axial age*.

Crisis of the early class civilization. In the dynamics of the second world civilization three stages can be distinguished:

➡ formation and diffusion (the end of the 4th – first half of the 3rd millennium B.C.);

➡ maturity, prosperity (the second half of the 3rd – first half of the 2nd millennium B.C.);

➡ crisis, decay (the second half of the 2nd – beginning of the 1st millennium B.C.).

A typical feature of the last stage is the downfall of once powerful states, germination and formation of the new seats of local civilizations, shifting of the center of world advance to the Northern Mediterranean, where ancient Greek, Roman civilizations were formed, and also to the Middle East, India and China.

The early class civilization had its limits and geographical boundaries. Dependent on the valleys of fertile rivers, the opportunities to manufacture bronze tools, necessity to replenish constantly the resources of labor through wars and capture of slaves, the ancient slave states could not satisfy the needs of increased population, especially nobility. Confrontation of pharaohs, priests, local governors undermined the unity and military power of states. Ongoing wars and exactions undermined reproductive opportunities of petty households: peasants, craftsmen and merchants. The yield dropped on salted irrigable lands, natural population increase reduced. The states that were the centers of the retiring civilization were losing their economic and military might, disintegrating into independent parts, often suffered a defeat in struggle with militant neighbors.

Expansion of the oecumene (populated world), mastering of tools of labor and weapons made of iron, spreading of dry-farming gave rise to the new seats of a historical advance which became the epicenter for the formation of the ancient world civilization, formation of the second generation of local civilizations.

11.1.4. The Ancient World Civilization (the Iron Age)

The ancient civilization is the top of the «first wave» in the history of humankind, time of its difficult, but beautiful youth that formed the genotype of society in all its richness and diversity of components it consists of. Chronologically, the framework of the ancient civilization is the 8th century B.C. — middle of the 5th century A.D. — about thirteen centuries.

The heyday of spiritual sphere. The main attainment of the ancient civilization that completed the genotype of human society is the *heyday of a human personality, priority of spiritual life*, rise of science, art, mythology. It was then that the notion «freedom» appeared. Certainly, it was not freedom for everybody: «It is in the ancient society slave was the most slave; a free — the most free... The notion of freedom (eleutheria) appeared in the Greek poleis only as the state when there is no dominance of anybody over a given person — the notion willed to all humankind by the Greek poleis» [73, vol. 2, p. 24–25].

A leap in the labor efficiency, increase in a surplus produce due to the employment of cheaper and efficient iron tools established economic conditions for free people to get concerned with philosophy, art, mythology, politics, traveling, and history.

In the ancient period the greatest masterpieces of art — sculpture, architecture, literature, dramaturgy that still remain beyond example for generations of artistic intellectuals — were created.

The birth of the system of abstract sciences — philosophy (that acquired the all-embracing nature), astronomy, mathematics, mechanics, medicine, history, law and economy became the largest gains of that period. The schools of philosophers were established featuring the Plato's Academy, Aristotle's Lyceum and the Alexandrian Museum. The system of specialized education of the younger generation in sciences, art, various crafts, military science (from the schools of philosophers to the gladiator schools) was formed. However, the ascent of free thought was academic to a great extent, abstract science was separated from technology (although a lot of major inventions were made during that period). It was inevitable at the stage of the nascent science.

The development of spiritual sphere in the period of the ancient civilization gave rise to the emergence of the world religions, the beginning of a change-over from polytheism to monotheism, which

was determined by a crisis of the transitional period in many ways, intensification of centralization in economic and political fields. It concerns many civilization of that time. In the 6th-5th centuries B.C. the Buddhism came into being in India. In the 1st century A.D. Christianity evolved in the eastern provinces of the Roman Empire and after the period of persecution in the 6th century A.D. it became an officially recognized religion. The world religions marshaled the sphere of ideology, rendered influence on other fields of spiritual life, at the same time becoming a significant integration factor facilitating mutual understanding of various peoples and states which practiced the same belief.

Economy of the ancient society. The ancient society had mixed economy, although a specific weight of various structures was different in various local civilizations and changed with time.

The slave structure was prevailing in the civilizations of the Mediterranean and Mesopotamia. Not only war prisoners and peaceful citizens captured during campaigns were turned into slaves, but former free community members — incorrigible debtors. Slaves had no property, families, civil rights, were severely exploited making a surplus produce under minimum expenditure for their maintenance. However, slavery was not a prevailing structure in the civilizations of China and India.

Free community members and city craftsmen obliged to pay taxes and provide army with soldiers made the foundation of small-scale commodity order. The latter made the basis of petty economy. At the end of the ancient civilization the number of semi-free-slaves-freedmen (*coloni*) who had a plot of land and were obliged to pay rent to the ex-owner increased.

The development of money economy and exchange of commodities, market both local and international led to the emergence of a stratum of merchants, money-changers and moneylenders.

In economy, petty agricultural households of peasants and craftsmen prevailed. Along with that, especially in the period of the Roman Empire, large-scale slave *latifundia*, handicraft industries — *ergasteria* were established. However, forced labor, although it generated a surplus produce, was low efficient and required the maintenance of a considerable number of slave-drivers, and also armed units and army to suppress servile revolts. The most known of them is the revolt of Spartacus in Rome.

Economy was basically natural. However, an increasingly larger share of products was involved in exchange of commodities, mone-

tary systems regulated by the state developed. At times the governors of the states resorted to falsification of coins that caused the price growth and social explosions. The history of late Rome is rich in such episodes.

The birth of democracy and world empires. The ancient civilization played the prime role in the development of institutions that determined a sophisticated texture of social-political relations.

In the ancient society a special system of social-political relations was formed — *democracy* — that met the demands of the self-government of society of free people to a great extent. In expanded form this system is typical of Athens of the period of Pericles (4th century B.C.). Admittedly, this was democracy for the select, and not for slaves, women, the youth and aliens. But nevertheless, the fundamental principles of a democratic political structure formulated in the period of the rise of Greece could be found in the programmes of democratic parties and movements in all countries nowadays. In the Greece poleis, and then in Rome a complicated mechanism of functioning of the state system that was reproduced in the next generations variously modified was well-elaborated and survived till nowadays. The fundamentals of law-based relations were laid by the elaborated rules of the Roman law.

The peculiarity of political and economic life of the ancient civilization was in the formation of ***poleis*** — independent self-governed city-states with many features of community.

In the polis the state power could assume various forms: democracy, tyranny, aristocracy, oligarchy etc. But in any forms the equality and freedoms of citizens in such polis who were considered free by nature, did not allow any dominance over them (unlike slaves and aliens).

In the ancient period, local civilizations stepped over relatively narrow frameworks. ***World empires*** that comprised several allied civilization emerged — Assyrian (embraced the 9th—7th centuries B.C. all Front Asia), Persian Empire, Achaemenids stretched from the Aegean Sea to the valley of the Indus, from Egypt to the Syr-Darya (6th—4th centuries B.C.), the Empire of Maures in India (6th—2nd centuries B.C.), the Qin Empire (221—207 years B.C.) and Han (3rd—1st centuries B.C.) in China.

Establishing by force the world powers (empires) that included autonomous territories conquered and held subject, the

ancient states got manpower, necessary products, taxes. However, resting on a strong sole authority and powerful army the empires were short-lived, disintegrated after the death of their founder.

The immense world empire was established as a result of **Alexander the Great** III (356–323 years B.C.) campaigns. Having vanquished the Greek states, Persia, Egypt, Babylonia, Central Asia, India, a young student of Aristotle founded the empire that extended from the Danube to the Indus, from Caucasus to Egypt; only a sudden death prevented him from conquering Arabia and North Africa. The Empire of Alexander the Great existed for about 10 years, but it contributed to the spreading of the Greek culture, science, mythology, political and economic system on ample territories (*fig. 11.2*).

The Roman Empire became a more lasting and long-lived formation that at the peak of its bloom (beginning of the 2nd century A.D. when emperor Trajan reigned) embraced nearly all Western and Southern Europe, Front Asia, Black Sea regions and North Africa. In 395 it split into Western Roman Empire and Eastern Roman Empire (Byzantine); the latter existed more than one millennium (up to 1453), but within narrow territorial boundaries. The political and economic supremacy of the center (metropolis) over provinces could be clearly traced here, sustainable and varied trade relations, transport systems and a medley of cultures. In the next civilizations the world empires repeated much from the practice of the Roman Empire.

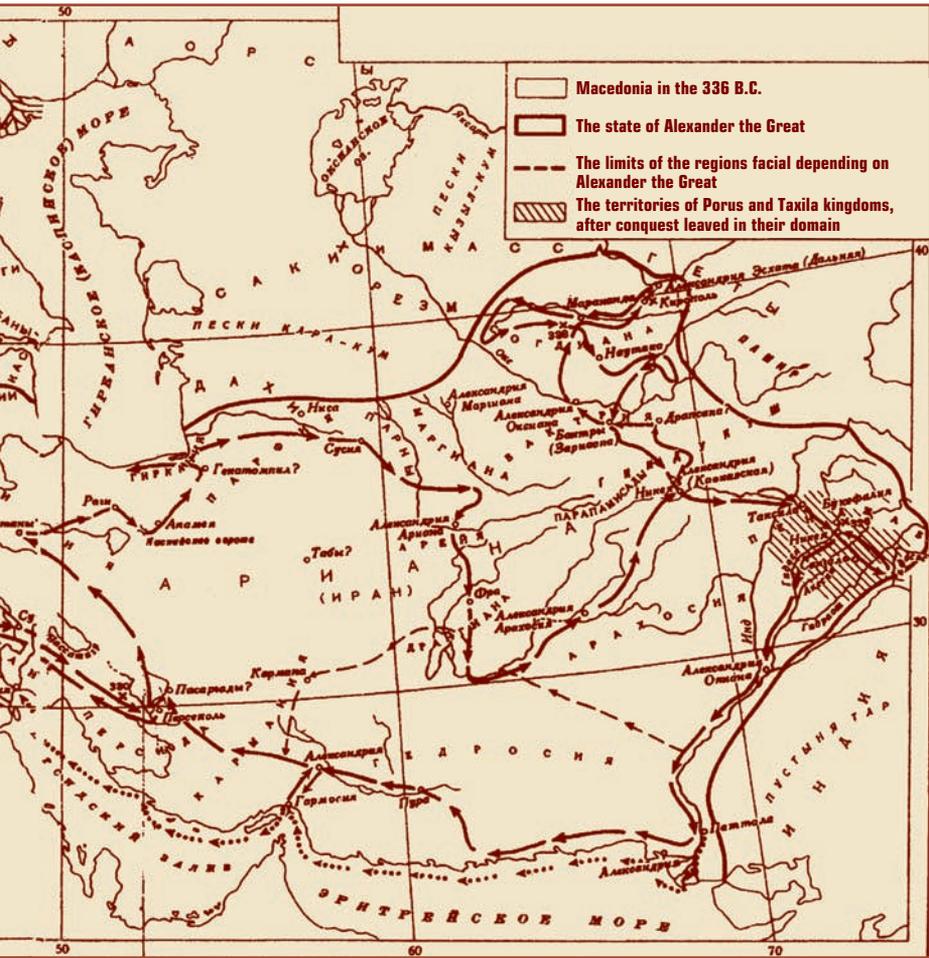
The crisis of the ancient civilization. In the first centuries of our era, the signs of the crisis of the ancient civilization and first of all of the Roman Empire were observed. Deep-seated roots of such crisis originated in the sphere of economy.

In the ancient society there formed (especially during the flowering of the Roman Empire) a diversified economy, which was orientated at the market to a great extent and combined petty production of independent peasants, craftsmen, semi-bonded colons and large-scale latifundia and ergasteria, which were arranged with the division of labor, and numbered thousands of slave workers, freedmen, and contract people. Ergasteria operated in the mining, manufacturing of furniture, ceramics, textile and metal articles and weapons. These were the precursors of future craft guilds and manufactories. Also such economic invention as the emergence of banks can't be underestimated (in the 5th centu-

Figure 11.2
The Empire of Alexander the Great



Source: [242, p. 94–95]



ry B.C. in Greece temple and private money banks extending interest-bearing loans appeared).

However, economy based on forced slave labor is low-efficient, suppresses the initiative of workers. Besides, the state has to maintain the army of slave-drivers, to conduct wars to replenish the manpower. A share of free peasants and craftsmen in population is reducing. Growing taxes, levies on the army deplete such economies. The number of city lumpenprole living on the doles from the state and patricians are growing. The regime of tyranny is established to maintain order, former democratic orders become the past.

The signs of decay embrace not only economy and social-economic sphere, but ideology. The standards of morality of political and military upper crust are undermined. The discontent of masses is intensified and they seek comfort in a new religion — Christianity. At first it is severely persecuted, however, in several centuries Christianity becomes the state religion recognized by emperor Constantine at the beginning of the 4th century.

A weakened state cannot already be successful in the resistance to the pressure of barbarian tribes that rush to the center of the immense empire. In order to replenish the army emperors grant the rights of nationality to an increasingly larger number of population on the periphery of the empire. The internal decay and external rush cause the downfall of the Roman Empire in the year 476. The Eastern Roman Empire (Byzantine) existed for nearly a millennium more until the capture of Constantinople by Osmands in 1453, but it was transformed into the medieval state. In the East (in China and India) a transition to the feudal structure occurred earlier than in Europe.

With the downfall of the ancient civilization *the first historical super cycle* was completed that embraced about eight millennia, three world civilizations and two generations of local civilizations.

Its main result is that the multi-floor, multi-layer pyramid of society, which major outlines had taken shape at the dawn of the history, during the first three civilizations, was completely developed; all «floors» and «apartments» occupied and mastered. In the Neolithic period a modern type of man was formed with his demands and abilities, initial scope of knowledge and skills, and also productive type of reproduction. At the second stage, in the Bronze Age, the formation of the next two «floors» was mainly completed —

a mixed economy emerged, various forms of ownership (government, private, communal and personal), classes, state and law. Completion of the «upper floor» of the pyramid, spiritual world (emergence of science, world religions and educational system) was a merit of the ancient civilization.

The formation of the planetary belt of local civilizations became another prime result of the development of civilizations of the antiquity. The Neolithic began on the various continents with a gap of several millennia. However, the gap was bridging between individual civilizations isolated before, a dialogue and exchange between them intensified, a single rhythm of the history of mankind in its entirety manifested itself more and more clearly. Each local civilization had its own rhythm, some civilizations blazed and passed into nothingness; they were replaced by others, younger, more active, aggressive civilizations. It ensured the constant renewal of the forming global civilization.

In the Neolithic world civilization *ideational, supersensual socio-cultural system* prevailed according to **Pitirim Sorokin** including belief in the omnipotence of various natural forces, worship to them, ancestor worship. Each tribe and even each community had its own system of beliefs.

In the period of the early class civilization polytheistic religions were formed, which were common for each local civilization and make up a component of its genetic nucleus. The hierarchy of gods reflected and blessed the hierarchy of life on the earth; religious bans fixed the rules of law and ethics. A well-elaborated scheme of relations between gods in ancient Egypt, system of rites in life on the earth and afterlife reflected in richly painted pyramids may be adduced as a vivid example.

The ancient civilization as it formed in ancient Greece and in early ancient Rome implied a freer democratic order of relations both between gods on the Olympus and their relations with people. It is possible to speak about the establishment of the integral socio-cultural system for several centuries, which synthesized harmoniously personal liberty, religion, science (philosophy) and esthetics. This period was accompanied by the efflorescence of science, culture, ethics and freedom (admittedly, for the free and not slaves).

In the period of maturity and fall of the ancient civilization the sensual socio-cultural system prevailed, where the priority was given to sensual values, culture and art assumed a more applied, earthly character, the decay of ethical principles, vicious practices

spread. This became one of the signs and reasons of a deep-seated crisis and the fall of the ancient world civilization and the second generation of local civilizations.

The key scheme of the dynamics of the world generations of local civilizations representing the first historical super cycle, change of the socio-cultural system is given in *fig. 11.3*. Historical time runs from the epicenters of civilizational progress.

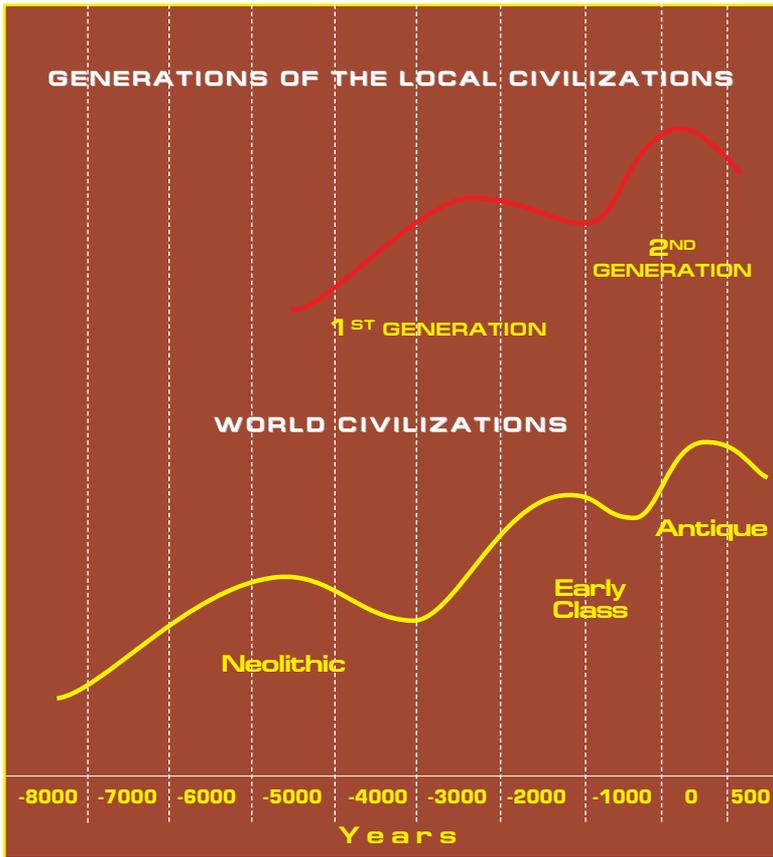
The following tendencies are obvious from the scheme: first the synchronicity of changes permeating all the structure of society, all «floors» of the pyramid of civilization; second, compression of historical time, acceleration of civilizational progress rates; third, a regular change of periods of rises and falls, upturns and crises in the dynamics of all civilizational institutions.

11.2. Dynamics of the Structure of the World Civilizations of Antiquity

The «pyramid» of civilizations began to form already in the Neolithic society. However, not all «floors and apartments» of this new «house» for humankind were occupied at once. First the lower «floors» were occupied — man with his demands and abilities, monogamous family (first as a part of the tribal community), density of population in the fertile valleys of rivers, division of farming and cattle husbandry, craft labor, specialization of labor tools and skills to make and use them, formation of artificial reproduction with the rudiments of private property and exchange of commodities. The upper «floor» of the pyramid also evolved — accumulation of empiric knowledge and transmission to next generations, development of art, myths and various beliefs. However, the middle «floor» that characterized the socio-political and state-legal structure of society was hardly occupied. It became increasingly complicated — and a lack of pattern in relations impeded a social advance. This contradiction was resolved at the next stage of civilizational development, when based on the increased social differentiation such social institutions as the state and its system of rules of laws came into being.

Let's consider why and how all «floors» of the pyramid of civilization were occupied, how the structure of society was formed, permanent in its basis to this day.

Figure 11.3

Dynamics of the Ancient Civilizations**11.2.1. Man, Family, Population of Early Societies**

The dynamics of demands and abilities of man of early societies. A social component of the genotype of a modern type of man was formed after the Neolithic revolution, which opened the way to various types of labor activity, which in its turn gave an impetus to the increase of knowledge and skills of man, diversity of cultures and traditions, emergence of cities and sophistication of the structure of society.

The growth of demands and abilities of man that allow meeting such demands not only due to physical exercise, but to straining of brain, inventing new ways and practices to improve its labor efficiency is the stimulus to historical progress.

What are the **major tendencies in the dynamics of demands and abilities of man** throughout the first three historical stages?

First, the *circle of man's demands increased many times in scope and became more diversified*. The emergence of private property, classes, state, efflorescence of science and culture formed a wide circle of economic, social and spiritual demands, there were few in the Neolithic society or they were underdeveloped.

Second, *the relation of primary types of demands changed – and proportions of social labor to satisfy them*. In the Mesolithic and at the beginning of the Neolithic the absolute priority was with biological needs. The Bronze Age formed a wide circle of economic, social and spiritual demands. In the ancient society it was they that began to play the priority role. It is enough to have a look at the Acropolis – a complex of marble temples and palaces dated back to the Pericles period (middle of the 5th century B.C.) on the mountain in the center of Athens that impress you by size and beauty. Huge palaces, temples, table-tombs decorated with painting and sculptures were built in the capitals of states – in Egypt, Babylon and Assyria, China, in the Cyprus, India, Greece and Rome.

Third, *a social differentiation of demands of various groups of population was formed*. While in the Early Neolithic a range of demands of people and families was approximately the same, in the Bronze Age, with a stratification of society into classes, demands became different. The ruling, religious and military elite had various and refined demands; a wide section of free citizens, craftsmen, warriors had much more limited demands; demands of a numerous section of slaves and the most exploited poor were reduced to minimum.

Fourth, *a territorial differentiation of demands increased*. While in the Paleolithic and the Mesolithic a gap in the level and makeup of demands of communities and tribes settled on different territories was relatively small and could be explained first of all by the differences in the environment, with the development of farming, cattle husbandry, crafts, exchange such gap in demands and level of their satisfaction was constantly growing and depended increasingly on the art of workers, technological and economic factors. The establishment of ample world powers, a growing volume of economic and

cultural exchange, contracting barbarians as mercenary contributed to the convergence of the level and makeup of demands and abilities of various nations.

Fifth, concurrently with the enhancement of demands the abilities to meet such demands increased, *a share of able-bodied population and its distribution between various types of activity changed*. The ruling elite, priests and military commanders considered physical labor as humiliating, it was the predestination of small farmers, cattle breeders, craftsmen and slaves.

Consequently, the fruits of historical progress of the first three civilizations were appropriated only by a part of society. But in some spheres (especially in spiritual one) the society reached such heights in the development of demands and abilities, that it surprises a modern man.

Throughout thousands of years, from generation to generation humankind was accumulating knowledge about the surrounding world, skills to use natural forces and phenomena. One had to know the habits and movement paths of wild animals, birds, fish in order to get them for eating; useful features of plants; practices for making tools of stone, wood, bones, construction of primitive housing and making food.

But a real breakthrough in knowledge and skills of man occurred as a result of the Neolithic revolution. People learnt to select and cultivate cereals and other useful plants, till the land, seed, harvest, process this harvest, learn the periods suitable for seeding, making diggers, hoes, ploughs and invented the system of irrigation. It was impossible to do crafts and construction without understanding the properties of necessary materials, technology for their working and use.

Economic and social differentiation of society in the Bronze and the Iron Ages, emergence of various forms of property, exchange of commodities, money, classes, social groups, states, system of legal norms and development of international trade — all this considerably expanded the outlook and required knowledge and professional skills in the new spheres and types of activity that had not existed before.

A man of the early class and especially ancient civilization had considerably greater scope of various knowledge and skills than a man of the Neolithic. Labor efficiency increased many times.

As a result of colonization, military campaigns, establishment of world empires, exchange of knowledge and skills with barbarian

tribes spread fast from the center of civilizations to the periphery. It fostered the speeding up of intellectual and professional progress of mankind.

With a transition to farming, cattle husbandry, crafts the circle of aims and motives for man's activity expanded. A more skilful labor of farmers, cattle breeders, craftsmen, construction became necessary. But to make product of skilful labor get to a worker and his family, to make him interested in a long training and intensive fruitful labor, a biological motivation mechanism should have been completed with economic based on private appropriation and equivalent exchange. It was a tremendous step up in the development of interests, aims and motives of man, his family, clan and tribe.

The increase in number and density of population, the emergence of the states and the system of rules of law, transition to the slave economy generated a new layer of social interests and motives for action associated with foreign economic coercion, violence and protection against it.

Finally, the increase of spiritual demands and associated with their satisfaction types of activities (performing of religious rituals, art, sculpture, architecture, music, literature) generated one more interest and motive for action inherent to man only and society established by him — infinite eagerness to cognize the world, creation of beauty.

Development and function of family. Reproduction and evolution of man was developed through a family. Its functions and significance changed considerably during the first three civilizations and increased considerably.

A *biological* function of family is in reproduction and continuation of the human race based on the change of generations of people. As a rule family unites three allied generations: actively acting (adults), coming (children), and passing (the old). Supporting and completing each other, they ensure the continuity of reproduction and change of generations in the primary unit of society.

An *economic* function of family increased with the transition to farming: hoe-based, and especially a plough-based farming became gradually, even within the community, a business of individual families. Farming passed from the hand of women to men, and a man — farmer and warrior — became the head of the family. The more men were there in the family, the greater surplus product the family could get. Each family increasing its property tried to save it for its members. They stopped to divide the product among community

members, and property began to pass from the father to his children; the foundations of private property to the means of production were laid. The maternal parentage gave way to paternal — the patriarchal family based on private property was formed.

In the family — the primary unit of society's economic structure — takes place reproduction of man as a prime productive force; production of the great bulk of products of farming, cattle husbandry, crafts takes place; knowledge and working skills are transferred from generation to generation.

In the Bronze Age and especially in the ancient society economic isolation and property differentiation of families increased. The rich families had as a part of their property, in addition to land and assets, slaves. The poor families of free citizens of poleis were engaged in petty production and paid taxes; slaves were forced to work. By the end of the ancient period inefficiency of slave labor became obvious. To stop mass uprisings of slaves and their flights to remote area, to fasten them to land the system of colonat was created: after they discharged their obligations to the landowners many of them got the plots of land, and they were allowed having families, maintain themselves and their families. The system of colonat became one of the channels for the formation of the class of bonded peasants in the feudal society — along with the turning of a part of former free members of community into such bondmen.

A *social* function of the family increased gradually. In communication and cooperative labor with other family members the younger generation got a necessary minimum of knowledge and skills, learned the rules of behavior in society. The family was the prime link in the maintenance and transmission of the social genotype. With the intensification of society differentiation, establishment of castes, classes, estates these social distinctions were fixed and transmitted using family.

Population of early societies. The population number on the Earth was small at the beginning of the history of civilizations, less than the number of residents in modern Moscow. This population was distributed quite unevenly throughout the territory of the Earth — mainly by narrow stripes on the shores of large rivers and seas in the moderate belt to the north of the equator.

In the Mesolithic and Neolithic Ages the mortality from diseases, hunger, in battles with hostile communities and tribes, during natural calamities was high. The average lifespan made 25–35 years, and the frequency of generation change (periods of their active

life) – 15–20 years. In the next civilizations the average lifespan somewhat grew. The mortality from diseases and hunger fell, but the number of those who died in the military conflicts increased sharply. In the second and third world civilizations a considerable part of population – slaves – were deprived of the right to start families, their lifespan was shorter, which also negatively told on the population number growth.

The population density, except narrow strips along rivers and coasts, was extremely low. According to estimates from the years 7000 to 2500 B.C. – the population number on the Earth increased 4 times only – from 10 to 40 mln. people. In the next 2.5 thous and years in the Bronze Age and at the beginning of the Iron Age natural population increase rates grew considerably. However, in the period of the decline of early societies of civilizations the population increase rates dropped again considerably. However in the period of the fall of ancient society they went down and for the first millennium of the new era they made 0.01% in general worldwide [264, p. 257].

By the beginning of our era, according to **A. Maddison**, the world population number made 230.8 mln. people including 174 mln. (67%) lived in Asia (mainly in China and India), 29 mln. in Europe (excluding Russia) and 16.5 mln. (10%) – in Africa, mainly in North Africa.

The early civilizations are characterized by high mobility of population, especially in the critical periods. The Great Greek colonization of the years 750–550 B.C. (*fig. 11.4*) may be adduced as an example and it contributed to the diffusion of high gains of the ancient civilization throughout the Mediterranean and Black Sea regions.

11.2.2. Technology and Ecology in the Antiquity

The evolution of tools of labor and materials. The genuine revolution in technology occurred in the transition to the Neolithic, with mastering of farming, cattle husbandry, crafts and construction. One may speak about the formation of the *Neolithic technological mode of production*, whose preconditions were laid in the Mesolithic Age. New practices for manufacturing of stone tools were mastered – using grinding and polishing, hollow drill. But

the major tendency is in the specialization of labor tools together with the development of a social division of labor. There appeared specific sets of means of tools for farming (digger, plough and then wooden plow, reapers and sickles; ceramic vessels for storing harvests, protection against rats and moisture), cattle husbandry, various kinds of crafts and construction. Along with flints, obsidian, more solid and hard to process kinds of stones — nephrite and jade were used.

The next general technological revolution dates back to the Eneolithic and the beginning of the Bronze Age. Its main contents were new practices for manufacturing of tools of labor, weapons and everyday articles from metals — copper and gold, and then bronze. The beginning of the *technological mode of production of the Bronze Age* was laid thereby. It was a major leap in the development of productive forces, in the improvement of labor efficiency. «Manufacturing of metal tools of labor and utensils was a technological achievement, which inaugurated a new qualitative change in the dominance of man over the surrounding world. Metal tools are more valuable and enduring than stone tools, and a metal weapon is much more efficient than stone in struggle against animals and enemies — other people. The metal making technology and the use of metal tools had a tremendous significance for other branches of technology... Thus, the use of metals tools, specifically a knife, chisel and a saw transformed the wood working thus establishing the carpentry and allowed applying brickwork practically everywhere. The creation of first machines, specifically wheeled cart and waterwheel became possible only due to metal. Even in farming — a hoe drawn by a team of bulls or a steel plow — are fully efficient only when metal replaced stone in the tillage» [16, p. 69, 70].

Appearance of copper and then bronze tools allowed changing over to the irrigation farming, first of all in the valleys of large rivers — in the lower part of the Niles, Tigris and Euphrates (4th millennium B.C.), Indus (from the middle of the 3rd millennium). An impetus was given to the emergence of crafts and their differentiation — manufacturing of copper and bronze tools of labor, weapons, golden decorations, metal utensils, mining and making ores, smith craft, cart manufacturing with metal felloes, ship building, first rowing, and then sails, construction of palaces, castles, magnificent statues and table-tombs. The opportunity to manufacture a regular surplus produce appeared.

The use of iron, and then steel became the core of the *technological mode of production of the ancient civilization*. The native cosmic iron was used before, but only with the improvement of metal melting and working practices it became possible to widely use the puddling iron, and then carbon steel. Although iron and steel are more difficult to process and suffer corrosion, they are more solid than copper and lead and their deposits are more common. That's why since the beginning of the 1st millennium A.D. they became the base for the bloom of local civilizations in Southern Europe. «Peoples of the Iron Age having become settled turned out to be able to create flourishing agricultural and craft communities on once barren land. The result was such reduction of political and economic superiority of river-valley civilizations that they did not act anymore as the main centers of cultural achievements of humankind, although many of their cultural, material and spiritual achievements were transmitted to next generations» [ibid, p. 90].

Another towering achievement of the Iron Age was the development of the maritime navigation that was many times cheaper than overland transport and fostered the expansion of trade, colonization of new territories.

Mastering of iron and a wide range of tools made of it became one of the primary sources for the displacement of the epicenter of the world progress from river valleys of the East to the coastal areas of the North Mediterranean, Southern Europe and Asia Minor.

Power resources of early civilizations. The major source of power setting in motion labor tools throughout the Paleolithic, Mesolithic and partially Neolithic was muscle force of man. This was a universal and renewable power resource. Cooperation of labor in construction of irrigation systems, palaces, temples and pyramids enabled to attain amazing results, which exceeded the force of an individual man many times.

But hand labor was not the only source of power. Having tamed wild animals, man began to use them for carriage of cargoes and own relocation. This was the first *energy revolution* that allowed completing and partially replacing the force of man with the force of animals. In Mesopotamia, already since the beginning of the 3rd millennium B.C., donkeys and bulls were harnessed to ploughs, carts and chariots. Later they began to use horses and in some regions — camels and tame elephants in farming and transport, and especially in soldiery.

Inventions of the Iron Age enabled to use natural power sources — the strength of wind and water. Already in the Bronze Age in sea voyages they began to use sailing boats and vessels. In the early period of the Iron Age waterwheels and mills powered by falling water appeared.

Consequently, the early civilizations made a large step up in the formation of the power basis of fast advancing humankind. From a muscular force inherent also to other animal world, man managed to make various natural power sources serve to him, which became the foundation of a many time increase in the labor efficiency.

Society and nature in the antiquity. In the Neolithic revolution man learnt to gain his daily bread, grow plants and animals, process received products into a necessary set of means of subsistence. This became a great benefit that opened the path of the nascent humankind to survival and advance. The *first ecological crisis* broke out at the end of the Mesolithic and put many primitive communities and tribes in jeopardy of the death from hunger. The reasons of this crisis were not only natural (a fast glacial retreat, and large animals with them such as mammoths, reindeer, buffalos — to the north), but historical — using a bow and arrows, people began to destroy large animals fast.

Having learnt to grow cereals and having tamed certain animals, man of the Neolithic period ensured independent sources of subsistence. «Agriculture led to the essentially new relations between man and nature. Man ceased to lead a parasitic way of life on account of plants and animals since the time he was able to grow the same amount of food on a small area which he could get by hunting and gathering on an vast territory. Farming, he set the dominance over animate nature due to cognition of the laws of reproduction and thereby he reached a new and even greater independence from the environment... A transition to farming led to a new type of society that was qualitatively different from previous due to a huge increase in the number of population who would be able to subsist on the same earth» [13, p. 60].

Nevertheless, a threat of violation of a fragile balance between society and nature was always within hailing distance. In some civilizations it turned into reality becoming a reason of their death.

The second ecological crisis broke out at the end of the Neolithic when the increased population failed to subsist on slash-and-burn farming and primitive cattle husbandry. The way to resolve this crisis was the formation of irrigation systems in the

valleys of large rivers (Nile, Euphrates, Tigris, Indus and Huang He), whereto the center of early civilization moved in the 3rd–4th millennia B.C.

However, by the end of the 2nd millennium B.C. a new threat of the *third ecological crisis* arose that was due to salinization of irrigated soils reducing sharply the yield so that there was no chance to feed the increased population in the fertile valleys of large rivers. And again humankind managed to find a way to resolve the crisis through mastering of dry farming soils, use of iron tools, expansion of the circle of natural resources involved in production. Thus in the ancient period (the Iron Age) the upsurge of farming, cattle husbandry, crafts and construction occurred. The achievements of agronomy and cattle breeding in Greece and Rome were impressive. But also by the middle of the 1st millennium A.D. the development potential was mainly exhausted here, and first of all fertile soils depleted and the population of the densely populated part of the planet faced a threat of a regular, *fourth global ecological crisis*.

Division of labor and organization of production. The Neolithic civilization inherited a flexible and mobile communal form of organization of production based on the labor of a small group of families. The division of labor existed only by sex and age and cooperation in hunting for large animals.

The birth of farming local civilizations, especially in the valleys of large rivers, required a considerable concentration of population (it was impossible to do irrigation work without it) on a restricted area, speeding up of the development of division of labor and its cooperation. The result was a regular surplus produce on a large scale, which was appropriated by a separated tribal, and then state upper crust, using economic and non-economic practices.

A diversified economy more complicated in structure and based on the system of a social division of labor replaced a comparatively homogeneous communal economy. Specializing in a certain type of business, applying special tools of labor, a worker was able to improve his efficiency many times. Cooperation of labor and exchange of its results developed so that various demands could be met in full a range. Society was formed based on division and cooperation of labor, mutual exchange of its results. The preconditions were created for higher and various forms of exchange in activity and economic relations.

A transition to the early class, and then ancient technological modes of production inaugurated essential changes in the forms of organization of labor. Large-scale diversified or specialized households were combined with a large number of small independent farming and craft households based on personal labor. By the end of the Roman Empire the system of colonat became a «runway» to the feudal forms of organization of production.

For thousands of years of the first civilizations humankind has walked a long path. From a small number of communities inconsiderable in number and scattered around ample territories, engaged in a relatively homogeneous labor of hunting, fishing and gathering, manufacturing of necessary labor tools and construction of primitive housing it moved to a sophisticated organization of society based on a social and professional division of labor, with a high density of population in cities and fertile valleys, using more and more complicated and various technological systems and forms of organization of production.

11.2.3. Economy of Early Civilizations

The emergence and development of private property. The Neolithic civilization inherited from the Mesolithic the economic system based on communal ownership to the means of production and egalitarian distribution of products received.

While a part of labor tools was a personal property and a part of product was consumed within a family, there was no private property yet as well as economic inequality.

The Neolithic revolution, especially in farming regions, improved the efficiency of labor many times. Worker sought to use the fruits of his labor, appropriate the instruments of labor and received product for self and his family. Communities and tribes increased in number. The tribal upper crust purported to get a larger share of product than in egalitarian distribution. A surplus produce arose, which caused the problem of its appropriation. Communal property and egalitarian distribution became the chains on the path of development of productive forces.

The emergence of private property, private appropriation of the means of production and its results became inevitable. It was the greatest economic revolution resulting in the overturn in all system of economic relations, in a spasmodic growth in labor efficiency in

next generations. An egalitarian distribution passed (it remained only within a family, and also in re-distribution of land in communities). Private property extended not only to the plots of land, labor tools, cattle, materials, generated products, but also to slaves, who were viewed as «speaking animals». From period to period a change of the forms of ownership making the nucleus of *economic mode of productions* occurred replacing each other. However, economy was mixed. Concurrently with large and small private property village communal, state and church (temple) and also personal property of individual families survived.

Dynamics of the structure of economy. For the early civilizations a considerable sophistication of the structure of economy was typical, which could be viewed in several aspects provided in the multi-dimensional reproductive-cyclical macro model that describes the structure of the past and modern economy (see [fig. 8.1](#) in *Chapter 8*).

➡ ***Reproductive structure of economy.*** In a primitive three-sector structure of reproduction in the Mesolithic with an absolute prevalence of procuring food by hunting, fishing and gathering, a minor specific weight of production of means of production (manufacturing labor tools of stone, bows and arrows, spears etc.) and procuring of primary raw materials necessary for that (stone, wood) prevailed. In the Bronze and Iron Ages the structure of production assumed a more complicated nature: a product for government needs appeared, although it had a minor specific weight (the maintenance of state machinery, army) as well as intellectual product (papyri, works of architecture and sculpture) and market services of merchants and moneylenders.

➡ ***Sectoral structure of economy.*** In the Mesolithic approximately 2/3 of labor and product fell to hunting, fishing and gathering. In the Neolithic a share of hunting, fishing and gathering dropped sharply, farming and cattle husbandry took the first place; a share of manufacturing of labor tools, pottery, production of materials and construction of housing increased. This tendency was intensified in the early class and ancient civilizations, where a considerable role was played by construction of palaces, temples, table-tombs, cities, production of labor tools and various weapons.

➡ ***Hierarchical structure of economy.*** In the Mesolithic an overwhelming share of product was produced in the communal economy and was meant for egalitarian distribution. However, the formation of family as a social institution resulted in the increase of a share of

product manufactured and appropriated by it. A minor share was occupied by general works requiring united efforts of several allied communities within a tribe.

In the Neolithic the hierarchal structure of economy remained three-level, but the ratio between two major levels became reverse: natural family households gave about 2/3 of products (for own consumption), 1/4 – communal economy.

In the Bronze and Iron Ages the gamut of hierarchical levels of reproduction became more various. With the development of commodity production and expansion of exchange small commodity and large slave economies emerged and expanded fast, and as a result a share of individual reproduction increased. The state economy connected with the maintenance of army, ruling establishment, performance of major irrigation works, construction of palaces and castles emerged. The volume of regional reproduction expanded: fortifications, water lines, theaters etc. were built in the cities. Natural family economy kept the leading role in satisfaction of demands of population; a share of communal economy was weighty.

➡ *Technological structure of economy.* The mode of production orientated at reproductive economy using a set of labor tools for farming and cattle husbandry, construction of housing, settlements became prevailing in the structure of economy of the Neolithic. But strong positions of primitive technologies remained, while new based on the use of metal began to emerge. They became prevailing in the Bronze and the Iron Ages. In the period of the downfall of the ancient civilization technologies and methods of labor organization inherent to the medieval society began to form. At each next stage of development the technological base of society resembled more and more a double pie, whose major layer was a set of technologies typical of a given civilization and combined with the remains of preceding complexes and serving in its turn as the base for future technologies and organization forms of labor.

➡ *Economic structure.* In the Mesolithic economic system inherent to the primitive society dominated and based on communal appropriation of means of production and egalitarian distribution. The system based on family property, egalitarian distribution within a patriarchal family and natural exchange prevailed in the Neolithic and ensured reproduction of manpower in the next two civilizations despite the fall of its specific weight. But concurrently systems based on minor and major private property and commodity (more precisely – semi-commodity) economy began to form, which

played a noticeable role in next civilizations. Simultaneously the system based on state property connected with the increase of the role of the state in soldiery, construction of irrigation systems, table-tombs, fortifications and roads appeared.

➡ *Value structure.* In the Mesolithic nearly all product produced (except a small part used for compensation of used tools of labor and materials) went to consumption — communal (collective) or individual (family); there was practically no surplus produce. In the Neolithic society a family personal consumption became major, a share of collective (communal) consumption reduced sharply. A systematic farming, cattle husbandry, and crafts increased a share of products directed at reproduction of used means of production. A surplus produce became regular and was spent on both expansion of production and maintenance of army, state machinery, temple and king palaces etc.

➡ *The level of economic development* was not high measured by the modern yardstick (according to **A. Maddison** in the 1st year A.D. USD 445 per capita of population on an average worldwide) and was poorly differentiated by local civilizations (from USD 450 in Western Europe, China, India to USD 400 in Eastern Europe, former USSR, Japan and Latin America) [264, p. 262].

Formation of market. The epochal economic innovation of the period of early civilizations, along with private property, was the formation of market — exchange of commodities with the categories inherent to it (value, price and money).

The primitive economy had natural character. The products gained, tools of labor manufactured went into consumption of family members and community without an equivalent exchange. Exchange between communities was occasional.

The development of division of labor and formation of private property required a regular exchange in products of labor both inside community and between communities. Although the major part of products was produced for own consumption, their growing share went into exchange. The need arose to weigh heterogeneous goods, especially with a transition from a simple form of value (goods were exchanged for goods) to the expanded and universal (goods were exchanged for money). With time the role of the universal equivalent was fixed in precious metals — gold and silver, which performed the functions of money. The money value of goods became *price*. A section of people differentiated who did not produce goods, but bought and sold them, counting

on *merchant's profit*. As the monetary system was not alike in various countries and civilizations, moneychangers appeared. The moneylenders lent money on interest; sometimes such interest was very high.

Consequently, as a result of the development of the first three civilizations commodity economy emerged, production of goods for sale. By river and sea routes, caravan tracks commodities did the journeys of thousands of miles at times. However, commodity production was not universal. A major part of products of labor was made and consumed in family and slave states in the natural form, not through the market. The natural-patriarchal economic structure prevailed, but ***a share of small and large commodity economies was growing fast.***

11.2.4. Formation of the Social-Political Structure of Society

Intensification of social differentiation. The primitive society was socially homogeneous. Only age-sex differences within a community were observed as well as anthropological differences — race and language.

The formation of civilizations resulted in the emergence and fast development of social differentiation, *stratification of society* by various social strata.

The patriarchs of community, tribe, clan, priests, military leaders and their families gradually appropriated the best part of cultivated lands, cattle, spoils of war; thus the tribal upper crust was formed, which became the initiator of fixing a larger and larger part of common property in private ownership. At the other pole there were most ordinary community members, whose property was common, but with time small private property was taking more and more clear-cut shape. The family head was considered the owner of such property, it was inheritable. In the Bronze Age classes emerged based on these groups.

Another type of economic differences was caused by a social division of labor. Individual tribes, communities, families were mainly specialized in farming, cattle husbandry, this or that kind of craft, construction, carriages etc. Admittedly, these differences were nominal, nevertheless, specialization, especially with the development of commodity exchange and increase

of cities, became more and more distinct. This or that type of occupation was fixed with families; the secrets of workmanship were transmitted from generation to generation. The groups of merchants, moneylenders, judges, officials, scribes, philosophers, ministers of religion etc. emerged. Property and professional differences were often fixed in the existing closed estates, castes (for instance, in India).

A social differentiation declared itself in intensification of *ethno-cultural* differences in society, especially in the Bronze and Iron Ages. New ethnic groups appeared from time to time, and old ones were destroyed as a result of wars. Each had its own language, religious beliefs, bridal and feast rites, ways to bury the dead and other cultural traditions.

Thus, *intensification of social differentiation of society*, deepening of stratification, more and more strongly pronounced difference of interests of various strata may be viewed as a *general regularity in its development*. This enriched the social genotype of society because the difference of potentials serves as the source of development, while being a cause of acute clashes, conflicts, revolutions and wars at the same time.

The emergence and functions of the state and law. Sophistication of the structure of society, intensification of contradictions between various social strata made the emergence of the state inevitable. It became the epochal social innovation of the early class civilization (Bronze Age).

In the Neolithic Age, the organization of social life was based on communal, and then tribal self-government resting on collective («veche», people's assembly) decision of major issues at the meeting of the family heads, elected patriarchs, on customs established by age-long traditions. However, differentiation of the property position of families, emergence of private property, social stratification and military conflicts, which became more frequent, led to the emergence of the section of people who undertook the administration of general affairs in the tribe, union of tribes, protection of property against encroachments, settlement of disputes and conflicts always arising inside society, protection against attacks from outside.

The state machinery, which stood out from society, included several branches: the supreme power — pharaoh, king, emperor etc., which rested on the group of people in attendance, who were responsible for certain types of activity (ministers, viziers, vicarious rulers in the regions, tax-collectors etc.); judicial branch — judges,

policemen and jailers; military power – military leaders and military units, which along with external functions (protection against inroads, attacks on other countries and tribes) performed also internal (suppression of rebellions).

The emergence of the **state and law** was a tremendous step up in the dynamics of the organization of society. Their **functions** are not reduced to the class violence, they are richer and more diversified.

First, the increase in the number of population and its social stratification made it necessary to *regulate social relations*, to remove legal chaos and the club law. Not only the tribal upper crust which became the holder of considerable wealth, but also ordinary farmers, cattle farmers, craftsmen needed protection of their property against the arbitrariness of neighbors. The mechanism of communal government that had been formed for millennia and blessed age-old traditions was not enough; it did not agree with newly-arisen contradictory relations, which were not in line with communal system. The state also undertook the arrangement of certain public works – construction and maintenance of irrigation structures, palaces, temples, table-tombs, water supply systems etc. It contributed to the expansion of state property.

Second, social progress led to the establishment of classes, social strata, estates etc. The privileged groups needed protection against encroachments of the majority of society members deprived of such privileges or exploited. *The establishment and protection of a new structure of social relations, property expansion, regulation of commodity-money, market relations* was vested in the state. The state became an instrument for strengthening the class dominance of the birth benefits.

Third, *protection from external encroachments*. With the increase of population density and accumulation of wealth, wars, which became more frequent, made it necessary to maintain the army, which could be replenished from the influx of free citizens or mercenaries.

Fourth, *the state was the initiator of the development of legal rules and ensured their enforcement*. Already in the 3rd–2nd millennia B.C. attempts to codify the rules of law were made. One could adduce as an example Mesopotamia, where **Shulga's** laws were already published in the 21st century B.C. The laws of the Babylonian king **Hammurabi** (1792–1750 B.C.) are the most complete extant corpus of the rules of law of the early class civilization

which are known to us. It incorporated several sections: major principles of justice; protection of property of the king, temples and the court; official property; real estate transactions, trade and commercial transactions; bodily injury; transactions with movable property and personal employment.

The top of the rule-making activity of early societies was the Roman Law, which comprised all fields of property and social relations (private and public law) and which became the foundation for the elaboration of legal rules in the next periods. The Roman Law was most completely codified in the Code (*Corpus Juris Civilis*) of the Byzantine emperor **Justinian I** (483–565).

Political life. The birth of democracy. In the Neolithic there was no need for political life; the rights of community members were equal, social order was relatively simple and homogeneous. It did not mean a lack of the hierarchy in family and community, but it did not assume the form of political power.

The emergence of the state, property and social differentiation of society gave rise to the *birth of policy* which expressed the interests of various groups of people, classes in struggle for the state power and rights and privileges. The history of slave states is full of descriptions of overthrows, clashes, rebellions, struggle of various groups for power.

In the ancient society there were born such popular extant categories as *democracy*, personal freedom, and rights of a citizen. In ancient Athens under **Pericles** (490–429 B.C.) the democracy mechanism was elaborated, which became widespread in other city-states (poleis).

The notion of a citizen associated with other citizens through the communion of interests, ancestors and traditions. However, it was the citizenship for the select. Slaves were deprived of civil rights; freedmen, colons and foreigners had limited rights.

The *administration mechanism of the state and world empires*, quite complicated in its elements, especially in the Roman Empire was polished. A vicarious ruler and a procurator, who were subordinated to the Emperor, headed each province. The economic unity was ensured through the unity of the monetary system — silver sesterterium, golden aureus (100 sestertia). Famous Roman roads with total length of 150 thous. km (big stone slabs in the foundation, on which there was a thick layer of gravel; road width — 4–5 m) helped relocate fast the troops, mail, served as transport thoroughfares of the unified empire.

War in the antiquity. While armed clashes periodically occurred between communities and tribes for possession of the best lands, pastures, accumulated wealth in the Neolithic and before it, the war emerged only together with states and local civilizations as a social-economic phenomenon, as a function. In such understanding wars are more than five thousand years old.

In the slave society the war was one of the prime functions of the state, determined economically and politically. A war was conducted for replenishment of the army of slaves, for capture of territories and riches, for defense from external attacks. Wars were most often conducted in the densely populated regions of the world, on the territories, where the first states and civilizations emerged. Wars broke out from time to time inside the states – when rebellions of slaves were suppressed, clashes among hostile political groups and ethnoses occurred.

One should not think that wars were conducted nonstop and were extremely bloody. The researches of **Pitirim Sorokin** showed that the number of peaceful years prevailed as a rule over the number of military years in ancient Greece and ancient Rome, and the number of military victims (killed and wounded) did not exceed 4.4–7.6% of the numerical force of the army [183, p. 632].

Wars intensified the creation of new types of weapons and military defense works. But they distracted the most active part of society from productive labor, led to destruction of cultural monuments and to the death of peaceful population. Military economy emerged – production of weapons, logistics of army, construction of fortresses and military defense constructions (the largest of which was the Great Wall of China).

11.2.5. Spiritual Life of Early Societies

None of historical processes in the early civilizations can be compared with the development of human spiritual life in the attained results. A savage entered the Neolithic, with quite vague notions about the world around and self, with the rudiments of culture, which were expressed in cave painting and ritual dances, with primitive animism. A civilized man ended the ancient age with the established system of scientific knowledge and reached amazing heights in arts, with the developed system of communication of knowledge and standards of morality, with a plant of major world religions.

The first whorls of the spiral of scientific cognition. The empirical base of natural and many engineering sciences was laid in the *Neolithic* period; it is possible to speak about the rudiments of applied arts. Mastering farming and cattle husbandry, various kinds of crafts (manufacturing tools of labor, clothes and decorations), building houses and settlements, curing wounds and diseases, tend to observations, generalization and invention, members of the Neolithic communities accumulated knowledge about the movement of heavenly bodies, solar and lunar cycles, the alteration of seasons (that permitted to make up the first calendars), learnt to count and measure (the rudiments of mathematics), cognized the properties of water, fire and employed materials (the empirical foundation for the emergence of physics, mechanics and chemistry), got to know the habits of living beings and own body (biology, medicine). In practical activities the primary base for engineering sciences — materials science, agricultural, and construction — was formed.

Having expanded the spheres of man's activity many times, the civilization of the *Bronze Age* gave impetus to the formation of the outlines of a whole scale of applied sciences, separation of the groups of people (mainly priests) and who were professionally engaged in observations and generalizations. Irrigation farming and seafaring demanded knowledge of astronomy; maintenance of economies, construction of palaces, temples, pyramids was based on the developed system of count and measurements (arithmetic, geometry), empirical basics of physics, chemistry, materials science, agronomy and construction science. Melting of copper and bronze laid the foundation of metallurgy. The advance in military technology was based on the empirical acquirement of the laws of mechanics. Significant steps were made in the field of practical medicine, learning of the anatomy of a human body.

The Bronze Age gave impetus to the germination of social sciences, accumulation of their empirical base: applied economy and statistics (maintenance of king's economy), geography, ethnography and the science of language. The invention of written language permitted to fix knowledge, to record events and to accumulate historical facts.

A real breakthrough to the upper floor of cognition occurred in the *ancient* society. In the 6th—3rd centuries B.C. a *scientific revolution* based on the observations and facts accumulated as a result

of the advance in technology occurred in ancient Greece, its content was in the establishment of the system of scientific views. One could name the largest scientific achievements of that period: materialism of **Thales**, dialectics of **Heraclites**, philosophical systems of **Socrates** and **Plato**, atomistic theory of **Democritus** and **Epicurus**, mathematics of **Pythagoras** and **Euclid**, mechanics of **Archimedes**, medicine of **Hippocrates**, geographical works of **Aristophanes** and **Stratton**, historical works of **Herodotus**. The natural philosophy of **Aristotle** that included the basics of biology, logic, elements of political economy and other sciences crowned the science of that period. The first system of natural sciences was formed, and the foundations of engineering and social sciences were laid.

The local civilizations of the East have contributed a lot to the formation and development of scientific cognition, and first of all China. The philosophical and ethical doctrine of **Confucius** (551–479 years B.C.); schools of «itinerant scientists» who periodically met in the Jixia Academy — the capital of the Qi Kingdom; doctrine of **Mo Tzu** (479–438 B.C.) about «universal love» and ideal state based on it; Taoism with its glorifying the harmony of the world and idea about the ideal king who rules through «omission of action», not interfering with a the natural course of events should be mentioned.

The science of ancient India flourished in the Gupta period, in the 3rd–5th centuries A.D. The outstanding achievement of the Indian mathematics was the invention of the decimal positional system of counting.

Thus, the ancient world passed through its first enormous spiral of cognition as a result of which man, realizing the potential of his intellect, plumbed the depths of mysteries of nature, established the system of sciences, which underlies the foundation of the magnificent building of modern science.

Culture of early societies. Culture serves as a great heritage of spiritual life of early societies — magnificent pyramids and palaces, various sculptures and immortal literary works. Only a small share of this spiritual wealth, which was created in the period of humankind's youth, has survived to this day, but what survived continues to astound us.

The preconditions for a rise in culture were laid in the *Neolithic*, although only few monuments survived, which date back to that time. The concentration of not numerous communities in settle-

ments and first cities, more settled way of life, increase in the labor efficiency, release of free time — all this gave impetus to the development of the Neolithic art. It found its expression in decoration of housing, ceramic vessels, paintings on the walls of temples and earthen posts.

New opportunities for the formation of culture and art as an independent type of activity in the system of division of labor opened in the *Bronze Age*. These opportunities were used to the full extent in the *Iron Age*. This was a real rise of culture, which has left numerous monuments on all continents, but especially in Mesopotamia, Egypt, Greece, Rome, Persia, India and China — the seats of culture of great antiquity.

The city revolution of the beginning of the Bronze Age opened the way to construction of architectural monuments — temples, palaces, table-tombs, and then theaters and communal buildings. The palace of the Assyrian kings in Nineveh and the Palace of Knossos in Crete were huge in size. The palaces and temples of the *ancient civilization* were equal to them in size and luxury. One of the most magnificent ones was a complex of buildings of the Acropolis of Athens built by **Phidius** under **Pericles** (in the middle of the 5th century B.C.).

In their desire to perpetuate their deeds, the governors of the antiquity allocated huge funds for building of table-tombs. The most known ones include Egyptian pyramids, pyramid of Cheops the height of which makes 146 m and the length of basis of each face — 230 m, is made of 2.3 mln. stone slabs.

Sculpture that has survived to this day occupied a large place in the cultural heritage of antiquity. It decorated palaces, temples central city squares. In the Bronze Age huge statues, which glorified gods, pharaohs and kings, were built. One of the masterpieces is the sculptural portrait of queen Nofretete kept in the museum in Berlin. In the ancient world, especially in ancient Greece, marble statues were created, many of them have survived in originals or Roman copies.

In the early societies and there was developed verbal folk arts, literary works, legends, myths, epics; the brightest monuments of such kind include the epic «Iliad» and «Odyssey» by **Homer**, the Bible, which included a number of antique literary works, chants of the Indian «Veda». The works of authors that have become the primary sources of information about history, culture, religion of antiquities appeared.

Formation of the system of education. An enormous growth of knowledge, skills and cultural heritage that should have been mastered by each next generation required radical changes in the upbringing and education.

In the Neolithic education was mainly in the family; labor training was inbuilt in the nascent social and professional division of labor. From early years a child watched natural phenomena, was involved in life of his family, community. When he became older, he began to work at home and in the field, ply a trade, do primitive or auxiliary operations. The period when a teenager having mastered a necessary minimum of knowledge and skills took a kind of exam before the adult family or community members and became its full member — a hunter, warrior, husbandman, cattle farmer and craftsmen — was inaugurated with the initiation ceremonies.

The situation changed at the next stages of the development of early civilizations. A separation of mental labor from manual occurred which determined two directions in education. For manual workers education still remained indivisible from production. At the same time for training intellectual workers it was necessary to establish schools of philosophers, scribes and priests. People professionally engaged in educating the younger generation appeared. The first educational establishments emerged. This was the *first revolution in education*.

The creation of writing fostered the development of education. Special intensive classes, teachers who had skills to communicate knowledge, teaching aids were necessary for learning the literacy.

The schools of scribes and other educational establishments existed in ancient Egypt as special knowledge was necessary for the performance of various jobs. Special educational establishments were set up where in addition to training the scriptures were composed, medicine researches conducted.

The schools of philosophers — informal groups of the young around prominent thinkers — fostered the efflorescence of free thought in Athens. Accumulated knowledge was communicated through free dialogues and new thoughts germinated, student learnt the art of cognition and reasoning. The school of **Socrates**, **Plato's Academy** and **Aristotle's Lyceum** are most known ones.

Much attention was given to education in ancient China where a major portion of time was given to learning hieroglyphs and Confucian philosophy. In the year 124 B.C. the Han emperor Wudi established a capital school. The students of the school who

took successfully the exams were appointed to official positions. The state system of training officials was created for the first time thereby.

Thus, the first revolution in education gave rise to the formation of a special type of activity assisting the younger generation to learn the basics of literacy, science, culture, management and military science. However, this system included only a narrow circle of young people who were engaged in various types of mental labor, functioned during a small period of man's life and was remarkable for an extremely mixed character in various countries. The family remained the major form of acquiring a required minimum of knowledge and practical skills and involvement in labor activity for the overwhelming majority of population.

Morals and religion in the early societies. The axial age. In the periods of the Mesolithic and Neolithic, standards of morality and religions views were closely intertwined, completed and strengthened each other. Developed by centuries, the rules of behavior within a community were slow to change and were appealed to the will and requirements of the supreme forces beyond man's control which punished man for a failure to meet these requirements.

Primitive man lived in a constant fear to violate many bans (taboos) and be severely punished. And as there were a lot of attacks of animals and enemies, illnesses, natural calamities, hunger etc., the number of all-mighty gods, totems etc. was considerable, then man sought to propitiate them using rites, ritual dances and offerings. The deification of nature (animism) dominated. The ancestor worship was supported by a strict observance of the rules willed by them, punishment of violators. It was inevitable and necessary, experience accumulated by many generations was transmitted like that, and without which it was impossible to survive. But it enchained the innovation; any deviation from established canons was severely punished. The priests, who looked to the compliance of religious-ethical rules and rites, performed a useful function, gathering grains of accumulated knowledge. Admittedly, all the spheres of spiritual life — cognition, art, education, ethics, and religion — were still indivisible.

The increase of man's independence from nature with a transition to productive economy, social differentiation, division into classes, emergence of the state and law, intensification of labor division could not but change the picture of the world. The flow of spiritual life uniform before separated from material production and broke into several independent, while interrelated, brooks, functions performed by special groups of people.

And the contents of the rules of behavior changed. That was inconsistent with communal life and was punished severely — a capture of a part of communal property, oppression, and even turning a tribesman into a slave began to get support by new religious and ethical rules: «Thou shalt not steal», «Thou shalt not covet thy neighbor's house». A separated group of ministers of religion demanded a considerable share of produced product and captured spoils so that to increase their wealth, sacrificing. Along with the state power religious power came into existence that often came into antagonism with a secular governor.

The overturn in religion and ethics that had occurred at the dawn of the early class civilization radically changed the contents and functions of these spheres of spiritual life and determined the paths for their further development for millennia.

Religion and mythology of the ancient Greeks was the closest to man, connected to his day to day life. The family of gods lived on the mythical Olympus was built in the similitude of community with a developed division of labor: it had its own Lord (Zeus); each type of business (blacksmiths, merchants, sculptors, warriors etc.), each community had its own god-patron. Immortal gods quarreled with each other, interfered with every day life matters on the earth, married humans and took care of their children. Service to gods required offerings, construction of magnificent temples.

In this sphere the overturn occurred at the turn of the new era. **Karl Jaspers** called it the «axial age». The major contents of its overturn is the *formation of world religions* (Buddhism, Christianity, Judaism, and a little later in the 7th century A.D. — Islam). The emergence of world religions was a historical necessity; it had deep-seated reasons as Jaspers emphasized: «This axis of the world history seems should be dated back to a period of 500 years B.C., to that spiritual process which was going between the years 800 and 200 B.C. Then the most drastic turn occurred in the history. Man emerged of such type that has survived to this day... In this period there were worked about the major criteria we think in to this day and the basics of world religions were laid that also determine people's life today... In the axial age there was discovered what got the name reason and a person» [252, p. 32–33].

This is time of the beginning of crisis of the first triad of civilizations — the first historical super cycle. The population of the Earth increased considerably, and the growth rates of production slowed

down. The discontent of oppressed masses, who aimed to seek common spiritual interests outside of odd polytechnic religions, which had lost their former force and sought to support a failing central power, grew. The moral decay of the ruling strata and their near circle became obvious. It also impelled to seeking for new ideals and rules of spirituality and morality.

The main shifts in the structure of society in the course of the first historical super cycle — three first world civilizations — are shown in *table 11.1*.

11.3. Local Civilizations in the Ancient World

The first local civilizations began to form more than five millennia ago, at the end of the 4th millennium B.C. based on large states and state unions in the densely populated part of the planet. In the periods of early class and ancient world civilizations local civilizations numbered more than tens, their two generations changed. Some civilizations were short-lived and soon left the historical scene, other passing through several periods of rises and downs have survived to this day (for instance, Indian and Chinese). A considerable part of the populated area did not make a part of the early civilizations, scattered tribes lived there and there were individual states. However, the «civilizational belt» of the planet was developed fast and synchronously in many ways. More and more active trade and cultural relations were maintained between civilizations, wars often broke out. Civilizational diversity of humankind became an indisputable fact.

What brought about the emergence of local civilizations? What are the specifics of individual civilizations and their groups? How did the interaction between them develop? These issues will be addressed in this section of the treatise.

11.3.1. Emergence and First Generations of Local Civilizations

Factors for the emergence of local civilizations. The emergence of local civilizations was one of the major watersheds in the world history. It inaugurated the unity of seemingly mutually exclusive historical processes. On the one hand it was integration of numer-

Table 11.1

Shifts in the Structure of Society within the First Historical Super Cycle

Data	Neolithic Civilization	Early Class Civilization	Ancient Civilization
Man, family, population	Growth of demands and abilities of man Monogamous family Speeding up of population growth rates after the first demographic crisis	Social and professional differentiation, new motivation to labor specialization of families	Efflorescence of spiritual demands Speeding up of population growth rates
Technology	Neolithic revolution, specialization of labor tools. Artificial reproduction, cut-over-land tillage	Mastering of copper, bronze, metal tools and weapons. Irrigation systems. Use of animal power (1st energy revolution)	Mastering of iron, dry farming. Construction, craft, military tools and mechanisms
Economy	Division of labor and the beginning of exchange between communities	Emergence of private property, market, money, prices. Mixed economy, prevalence of slavery	Development of commodity-money relations, international trade. Latifundia and ergasteria
Socio-political structure	Primitive communities, veche (people's assembly) system	Emergence of classes, state and law; wars between states	Рождение демократии. Города-полисы. Первые мировые империи
Spiritual sphere	Empirical knowledge. Education in the community. Rock painting. Worship of nature and ancestors.	Applied sciences. Schools of scribes. Uprising of literature. Monumental architecture. Polytheism.	Birth of the system of abstract sciences, educational establishments, schools of philosophers, Plato's Academy, Aristotle's Lyceum). Efflorescence of art, Axial Age, emergence of world religions

ous scattered tribes, ethnoses and states into large and stable socio-cultural, economic and military-political unions. On the other hand — establishment of the fact of diversity of cultures, religions, economic, social, political relations in various parts of the planet as a source of viability and development of humankind.

When and why did local civilizations emerge?

It was early to speak about local civilizations in the Neolithic. Tribes and tribal unions inconsiderable in number (pre-state, socio-political unions) were scattered around various continents and regions, poorly connected with each other, often moved about (especially cattle-breeding tribes).

And only with the formation of the states in the 4th–3rd millennia B.C., mainly in the densely populated valleys of great rivers (Niles, Mesopotamia, Indus and Ganges, Huang He and Yangtze), establishment of stable ties inside these states and a wide circle of various relations among them — from wars to dialogue and cooperation — it became possible to speak about the emergence of civilizations and interaction among them.

The first generation of local civilizations emerged approximately at the end of the 4th–beginning of the 3rd millennium B.C. in a comparatively narrow belt of Eurasia and North Africa to the north of the equator, in favorable climatic conditions that was noted by **A.L. Chizhevsky**: «If we trace the conditions under which civilizations emerged and developed, then we'll see clearly that great centers of mental life of humankind are originally localized in the places with an optimum temperature. It is true for the following cultures: Chinese, Babylonian, Egyptian, Indian, Ancient and Arabic» [229, p. 21].

Henry Thomas Buckle, the English scientist, researched into the factors of the emergence of civilizations and divided them into two groups: physical factors featuring a favorable climate, fertility of soils, rich and various food, general type of nature (that established conditions for the growth of wealth, emergence of rent); mental factors contributing to the development of science, technological advance. He assigned a mental factor a decisive role in the development of civilization and first of all to accumulation of knowledge [20, p. 30–31, 40, 100, 125]:

Yu.V. Pavlenko made distinction between preconditions and conditions of the formation of the first civilizations. He included in the *preconditions* [151, p. 257]:

➔ transition to a stable way of life with the beginning of a sweeping mastering of specialized fishery and spread of farming;

➡ growth in the increase, number and density of population that stimulated the intensification of production activity;

➡ re-orientation to reproductive forms of economy, mainly farming.

Yu.V. Pavlenko believed that the *conditions* for the successful formation of civilizations include [ibid, p. 258]:

➡ ensure the opportunity to produce a surplus product;

➡ emergence of a sophisticated hierarchy of the organized socio-political system, different attitude of social groups to the means of production and products of labor;

➡ the existence in social consciousness of a set to correlation of a higher social status and prestigious consumption (in other words – a refusal of egalitarian distribution, appropriation of a surplus product by the nobility).

Yu.V. Pavlenko distinguished early civilizations that emerged in the Neolithic, at the end of the 4th century B.C. (Lower Mesopotamia and Elam, Egypt and Haraisp civilization) [ibid, p. 280], a wider circle of civilizations of the Bronze Age and civilizations of the Iron Age. His ideas about a set and area of civilizational centers at the turn of the 3rd–2nd millennia B.C. (civilizations of the first generation) are shown on the map on the [fig. 11.4](#), and civilizations of the beginning of the 1st millennium (second generation) – on the map on the [fig. 11.5](#).

From our viewpoint, it is possible to define the following primary factors of the emergence of local civilizations:

➡ *demographic factor* – the attainment of a high level of concentration of population in certain regions of the world on relatively small territories;

➡ *natural-climatic conditions*, quite favorable so that to foster the development of man and at the same quite severe so that to intensify his mental activity to make a surplus product;

➡ *technological and economic factors* – advance of technologies and organization of production that permit to generate a surplus product on a regular basis and appropriate it by the ruling establishment;

➡ a certain *level of socio-cultural development* and first of all knowledge and skills, culture, ethics and religious views;

➡ *state-polyethnic factor*, the establishment of strong states on the ample territory that united a group of mutually connected ethnoses.

Civilizations of the first generation. Local civilizations of the first generation cover the period from the end of the 4th to the 1st millennia

Figure 11.4

Local Civilizations of the First Generation





- 1 — Ancient Egyptian;
- 2 — Sumerian;
- 3 — Minoan;
- 4 — Ancient Indian;
- 5 — Ancient Chinese;
- 6 — Elamit;
- 7 — Ancient Mesoamerican;
- 8 — Civilizations of Andes

Figure 11.5

Local Civilizations of the Second Generation





- 1 — Graeco-Roman;
- 2 — Persian;
- 3 — Indian;
- 4 — Chinese;
- 5 — Phoenician;
- 6 — Mesoamerican;
- 7 — Civilizations of Andes

B.C. i.e. the period of the early class world civilization, although life cycles of individual civilizations of great antiquity had various duration.

According to **Arnold Toynbee** the number of civilizations of the first generation may include:

➔ ancient Egyptian (the historians count the Early Kingdom from the year 3000 B.C., although there are data about an earlier period);

➔ Sumer-Akkad (Sumerian, Hittite and Babylonian);

➔ Minoan (the Mycenaean should be included);

➔ Indus (ancient Indian);

➔ ancient Chinese;

➔ Meso-American (Maya and Mexican);

➔ Andean.

It is possible to complete with Elamian civilization on the territory of modern Iran.

Two last civilizations developed in isolation in the New World and with a known lagging.

This was the period of the establishment of local civilizations, formation of their major outlines, instability. Some of these civilizations existed not long and left the historical scene, and their traces were discovered in millennia as a result of archeological excavations (as it was the case, for instance, with the Minoan civilization). It is possible that certain civilizations have not been discovered yet or have become the subject of legends (Atlantis). Civilizations of the first generation have laid the foundation of the historical development for millennia ahead.

If one takes a look at the map, then it is easy to find out that these civilizations occupied a narrow strip of land of the Eurasian and African continents to the north of the equator. And the epicenter of the historical progress of that time was exactly here.

The second generation of local civilizations. Local civilizations of the second generation are adequate to the ancient world civilization and occupy the period from the second fourth of the 1st millennium B.C. to the middle of the 1st millennium A.D. — more than a millennium (if the phases of formation and relict state of a life cycle of some of such civilizations are excluded).

The number of civilizations of the second generation which areal expanded considerably includes:

➔ Greek-Roman (ancient proper);

➔ Buddhist and Hindu;

- ➡ Chinese;
- ➡ Syrian;
- ➡ Persian.

Many of them were daughters of civilizations of the first generation. Close connection, various forms of dialogue, economic and cultural exchange reached a higher level. According to **Karl Jaspers**, it is exactly the period where the «axial age» is included when the great world religions emerged; the basics of spiritual world of modern man were established (4).

Second generation includes as well the proto-civilizations not yet finally formed, but occupying the large territories in Eurasia (Celtic, Scythian, Rakian, Phoenician, Etruscan, ancient Japanese) and also civilizations of America delayed in its development.

The middle of the 1st millennium A.D. was the period of the decay of the second generation of local civilizations and the germination of their new, third generation.

Civilizations of the second generation were more stable and expanded in terms of territory than civilizations of the first generation.

The first world empires which included several local civilizations – empires of Achaemenids, Alexander the Great, the Roman Empire – are most long-lived. The heritage of civilizations of the ancient time underlies modern civilizations, cultural-historical diversity of humankind of our period.

11.3.2. Civilizations of the Mediterranean

The Mediterranean, its African and Eurasian coasts became the seat of civilizational progress of the antiquity. We may believe that the cradle of civilizations is here, if we do not forget that such cradles were also in Mesopotamia, the Hindustan peninsula and in eastern China.

Ancient Egyptian civilization. The beginning of the emergence of the Egyptian civilization (*fig. 11.6*) in the fertile valley of the Niles is usually attributed to approximately 3000 B.C. when the Upper Egyptian and Lower Egyptian kingdoms united and formed a united state with the capital in Memphis headed by the pharaoh. However, there is information that the first cities-states, first in the Lower, and then in the Upper Egypt emerged several centuries earlier – Sam, Metelis, Leontopolis, Bouto, Busilie, Coptos, then the confederation was established headed by Nubs

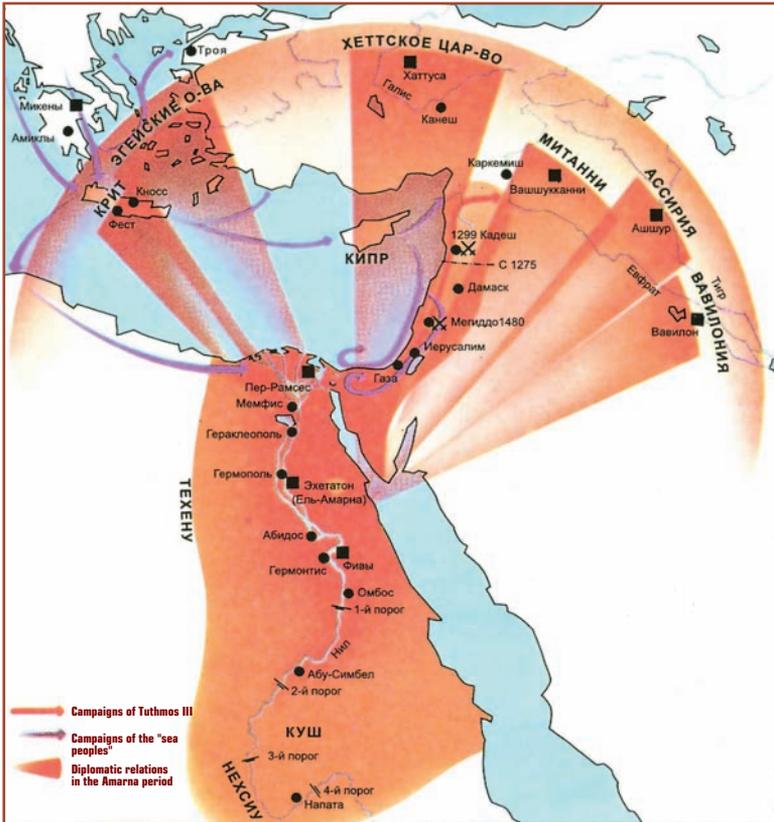
Figure 11.6

Ancient Egyptian Civilization*

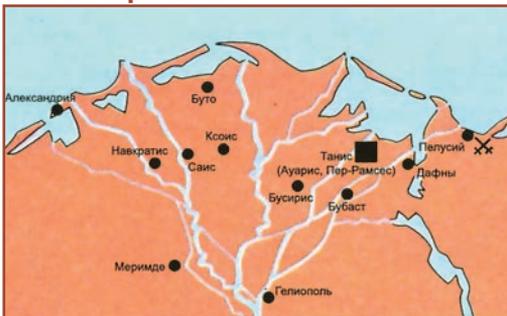
**Highly Developed Cultures/Egypt I.
3000–1570 B.C.**



**Highly Developed Cultures/Egypt II.
1570—332 B.C.**



New Empire



Region of Delta and Late Period



Middle Egypt

* Source: [82, p. 22, 24].

where the rulers were crowned, and then Hatagorian confederation headed by Nehen, and then Ablados. Therefore, it may be viewed that the beginning of the first local civilization dates back to the second half of the 4th millennium B.C.

Classification of the change of dynasties in ancient Egypt suggested by the ancient Egyptian historian-priest allows distinguishing the following cycles in its history [22, p. 675]:

Pre-dynastic period;

Archaic Kingdom (1st–2nd dynasties) – 3000–2778 B.C. (more than 220 years);

Old Kingdom (the 3rd–8th dynasties) – 2778–2263 B.C. (515);

First Intermediate Period (9th – a part of the 11th dynasty) – 2263–2160 (about 100 years);

Middle Kingdom (11th–12th dynasties) – 2160–1785 B.C. (375 years);

Second Intermediate Period (13th–17th dynasties) – 1785–1580 B.C. (205 years);

New Kingdom (18th–20th dynasties) – 1580–1085 B.C. (205 years);

Third Intermediate Period (21st dynasty) – 1085–950 B.C. (495 years);

Late Kingdom (22nd–26th dynasties) – 950–525 B.C. (135 years);

The period of the intermediate rule (17th dynasty) – Achaemenids) – 525–331 B.C. (about 200 years).

The Old Kingdom may be attributed to the period of the formation of this local civilization; the 3rd intermediate period and late kingdom – to the period of its sunset. Each transitional period as the historians observe is the period of hunger and depopulation of once flourishing towns, disunity and social upheavals, severance of trade ties, and external invasions. In the super long civilizational cycle, long-term cycles similar to the now Kondratieff cycles are well-defined, but longer.

Consequently, the overall existence length of the ancient Egyptian civilization (including the period of formation) is more than three millennia; it is possible to distinguish several super long cycles which rotation was expressed by transitional periods.

The ancient Egyptian civilization is characterized by a very high level of culture, refined religion that found its expression in the magnificent architectural monuments – pyramids and Sphinx in Giza, Necropolis of Thebes, Luxor temple, Colosses of Memnon etc.

that have survived to this day. And a high level of economy and yields of the fertile valley of the Niles also surprise that enabled to earmark so much labor and resources for construction of huge palaces, temples and pyramids under the level of technology then achieved.

The development of spiritual sphere – science, education and, polytheistic religion which occupied the priority place in life of ancient Egyptians – amazes. A strict hierarchy of gods was observed. Under pharaoh Ikhnaton (1372–1354 B.C.) the first attempt to establish a monotheistic religion was made – cult of God of the sun Aton. However, this religion was rejected by priests after the death of Ikhnaton.

In the period of the ancient civilization Egypt lost its former role of one of the epicenters of civilizational progress, made the sphere of influence of the Greek-Roman civilization. Alexandria was the cultural center of the Hellenic world for a short period, but then lost its leading position and found itself on the periphery of the historical progress.

The Egyptian civilization left magnificent monuments of high culture – pyramids, sculptures of gods and pharaohs, developed applies science, excellence of irrigation and construction, shipbuilding and sea-craft.

Cretan-Mycenaean civilization. The early class local civilizations include the *Minoan (Cretan)* civilization that had emerged at the turn of the 3rd and 2nd millennia B.C. and flourished in the 16th – first half of the 15th century B.C. The most famous monument of this culture is believed the palace of the legendary king Minos which was called the labyrinth: this is a complex of buildings, total area 24 thous. m², numbered about 300 chaotically located premises. A highly developed agriculture flourished on the island, a strong centralized state existed, and there was a powerful fleet. However, in the middle of the 15th century B.C. island met with a strong catastrophe (either natural – volcanic eruption on the Santorini island or the incursion of the Greeks-Achaeans), the palaces were ruined, the number of population reduced many times. The Crete was thrown back to the periphery of the progress for millennia; however, its heritage became one of the sources for the rise of the ancient Greek civilization.

The *Achaean (Mycenaean)* civilization became another source; its rise fell to the 15th–13th century B.C. It is famous by a number of palaces and magnificent king table-tombs («tolosses»), developed

palace and royal households, from which a rich archive has survived and was interpreted only in 1952. The Achaean kings united in the campaign against Troy described in Homer's «Iliad» (middle of the 13th century B.C.). However, at the end of the 13th century B.C. the Mycenaean civilization perished by several waves of invasions of the barbarian tribes from the north. Cities and palaces were ruined and burnt; crafts and trade fell into decay, the number of population reduced sharply. The Doric conquest that had followed thereafter thrown ancient Greece several ages back. It is observed primitivization of the technology of farming, crafts, construction, although the first signs of iron manufacturing appeared, and a little later (in the 9th century B.C.) its hardening.

Greek-Roman civilization. The summit of the ancient society was the Greek-Roman civilization of the second generation – the successor to the ancient Egyptian and Cretan-Mycenaean. In its life cycle three periods of the rise may be distinguished:

The 8th–3rd century B.C. – *ancient Greece* and the Pontic islands of Asia Minor populated with Greeks. In the period of the Great Greek colonization (the 8th–6th century B.C.) the Greek colonies extended to the whole Mediterranean and the Black Sea covering the south of Italy, north African coast, the coast of the Black Sea and partially the Sea of Azov. The colonies were the centers of farming, crafts and trade. Under the leadership of Athens there was observed the «Golden Age» of antique societies in the Mediterranean, also the period of the top creative rise in spiritual and political life, especially in the **Pericles** period when Greece won a victory in the Persian Wars, the Athenian Sea Union was established. However, the struggle of Athens, Sparta and other cities-poleis undermined Greece. The dominance of Macedonia established itself. The world empire of **Alexander the Great** (356–323 B.C.) was formed that disintegrated after the death of its founder.

The *Alexandrian Period* (330–220 B.C.) when Alexandria founded by Alexander the Great in the Delta became the capital of the Ptolemaic dynasty, international center of culture and trade, lasted not long. The Mouseion with a famous library was found in the downtown, on the Pharos Island the lighthouse of 110 m was built – one of the Seven Wonders of the Ancient World.

The *Etruscan sub-civilization* that occupied the central part of the Apennines Peninsula and flowered in the 7th–5th century B.C. when the Etruscans owned Rome (from 606 to 509 B.C.) preceded the formation of the Roman sub-civilization that apprehended the

heritage of ancient Greek. The confederation of 12 Etruscan cities-states extended its influence over almost all Italy, carried on the sea trade with the Mediterranean states. The Etruscans produced wheat, grape and flax, were engaged in cattle husbandry, mined copper and iron and stamped out coins. The Etruscan architectural monuments, statues, table-tombs, numerous written monuments have survived to this day. In the 3rd–2nd century B.C. the Etruscan cities were conquered by Rome.

Yu. V. Pavlenko speaks about the Etruscans as an independent civilization: «At the beginning of the 1st millennium B.C. Italy also reached a civilizational level: in the Toscana area the Etruscan twelve cities system was formed, where in the emergence of the Etruscan civilization a decisive role was played by their sea migration from the Near East – possibly from the southern part of Asia Minor» [151, p. 357–358]. We have had a chance to see the monuments of the Etruscan culture in Toscana. It appears that it is more correct to speak about the Etruscans as a *proto-civilization* that ended the formation of a mature local civilization.

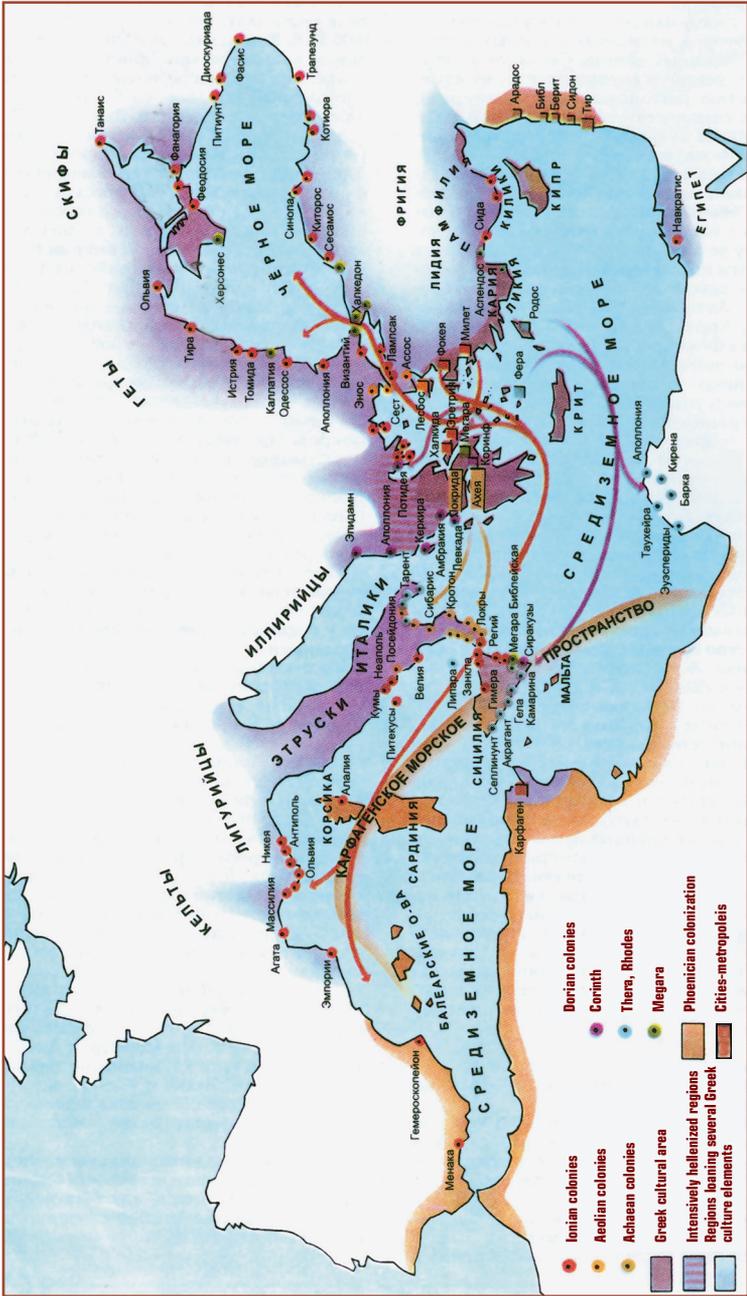
Rome was founded according to the legend in 753 B.C. and changed to the early class society in the 7th century B.C. In 510 B.C. there was established the republican political system under the rule of patricians who established the senate and elected consuls. By 265 B.C. the authority of Rome extended over whole Italy, and then, after a series of successful wars, nearly over all Western Europe, North Africa, Asia Minor, Mesopotamia, Balkans, Transcaucasia, coast of the Black Sea and the Sea of Azov. From 27 B.C. Rome became the Empire. Farming (latifundia), crafts (ergasteria), culture, art and education that was under a strong Greek influence rose to higher levels.

The period of the rise of the Roman empire dated back to the 2nd century B.C. – 1st century A.D., and the sunset ended with the downfall of the Western Roman empire in 476 A.D. Rome did not give creative outburst in art and science that distinguished ancient Greece, but it left a noticeable trace in the history by its magnificent architectures, system of the Roman law, arrangement of soldiery and administration of the immense Roman empire.

The Western Roman empire became the source for the formation of the western European civilization of the third generation, and the Eastern Roman empire – a source of the Byzantium civilization, and then Eastern Slavic.

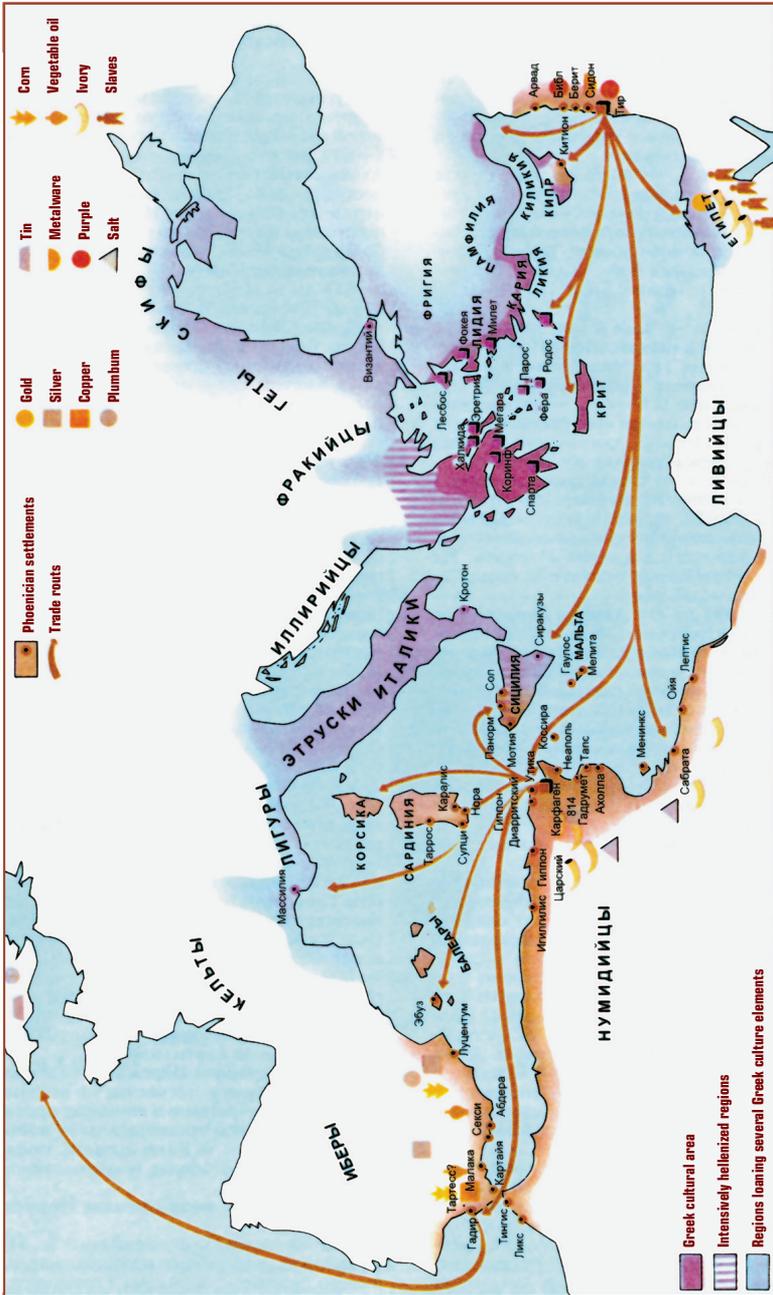
We do not dwell on in more detail on the description of the Greek-Scythian civilization as it is widely known.

Figure 1.1.7. Greek Colonization. 750—550 B.C.



Source: [82, p. 50]

Figure 1 1.8. **Phoenician Colonization. 539 B.C. — 133 A.D.**



Source: [82, p. 38]

The number of the Mediterranean civilizations of the second generation includes Phoenician (*fig. 11.8*). Their beginnings were the settlements, having appeared on the eastern Mediterranean coast in 4th–5th centuries B.C. and having grown in the 2nd century B.C. to the large cities — Sidon, Biblus and Tyre. Phoenicians were actively conducting trade with Mesopotamia and Egypt, with Mediterranean states, founded a number of colonies, the most important of which was Carthage (founded by the Phoenicians from Tyre in 825 B.C.) becoming one of the largest trade, handicraft and cultural centers of the Mediterranean. In the period of efflorescence Carthage possessed the huge territories on the North Africa's coast, a major part of Pyrenean peninsula, Corsica, Sardinia and Sicily. Getting into confrontation with Roma, Carthage had the worse as the result of three Punic Wars and was completely destroyed in 146 B.C.

11.3.3. Early Civilizations of the East

Civilizations of Mesopotamia. A wealth of civilizations of the first generation was observed in Mesopotamia, in the valleys of the rivers Tigris and Euphrates. In the 3rd millennium B.C. in South Mesopotamia the Sumer civilization evolved (at the end of the period Akkad became its capital), a number of trading cities sprang up, a pictographic writing was invented. A considerable number of monuments of the Sumerian literature have survived to this day.

In the 2nd millennium B.C. *Babylon* dominated in this area. Its top leadership fell to the rule of **Hammurabi** (1792–1750 B.C.) who united Mesopotamia, created the code of laws known as the Hammurabi laws. The second period of strengthening of Babylonia dated back to the rule of **Nebuchadnezzar I** (1126–1105). It is known by the development of science, establishment of schools for training scribes.

In the 16th–15th centuries B.C. the rising of *Assyria* began. The governor of its capital **Ashur Ashurubalit I** formed a strong power in central Mesopotamia and subdued Babylonia to his influence. Between the 16th and 13th centuries the law digest remarkable for its cruelty in the enforcement of the rules of law was made up. The second period of the rise was observed in the 10th–4th centuries B.C., when the territory of Assyria was considerably extended as a result of invasive campaigns.

In the 8th century B.C. Assyria conquered nearly all Front Asia and Egypt; Babylon was vanquished and fully destroyed. With a certain

convention it is possible to speak about the first short-lived world empire. However, at the end of the 7th century B.C. Babylon and Mede united and crushed the Assyrian Kingdom. Many architectural and written monuments have remained after the Assyrian civilization.

The **Elamian civilization** of the first generation was formed on the territory of modern Iran at the beginning of the 3rd millennium B.C. when immense state Elam with the capital in Susa was formed. In the second millennium B.C. in the heyday of this civilization it embraced central Iran, Sumer, Ashur and Babylonia. Numerous monuments of the Elamian culture are kept in the Teheran Archeological Museum. **Yu. V. Pavlenko** assesses the role of the Elamian civilization as follows: «Intensified trade between new social organizations of Mesopotamia and richness in raw material resources of the Plateau of Iran at the turn of the 4th-3rd millennium B.C. played a significant role in the rise of the proto-Elamian civilization that exercised control over these trade routes, where in respect of the late primitive societies Elam performed a role of the civilizational center» [151, p. 272].

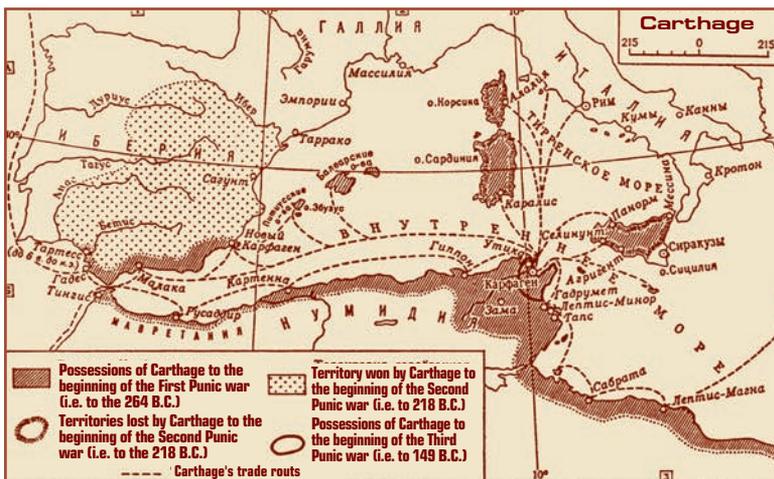
Persian civilization. The Persian civilization, the bloom of which found its expression in one of the first world empires — the state of Achaemenids established by Cyrus II the Great, belonged to civilizations of the second generations on the territory of Mesopotamia and the Plateau of Iran. By the end of the 6th century B.C. the territory of the Persian state extended from North Africa to Thrace, from Indus, Caspian and Aral Seas to Syr-Darya (*fig. 11.9*). It is exactly where one of the oldest religions — Zoroastrism — emerged.

«From the time of the conquest of Mede Persia entered a wide arena of the world history and played a leading role in terms of policy in the next two centuries... The Persian conquests and union of tens of peoples into a single power contributed to the expansion of intellectual and geographical horizon of its subjects. For ages Iran was a mediator in transmission of cultural values from the East to the West and vice versa, and not only continued its historical role under the Achaemenids, but also created an original and highly developed civilization» [ibid, p. 291, 311].

By 525 B.C. Persia conquered Egypt and Persian king **Cambyses II** was declared the king of Egypt. At the end of the 6th century B.C. the Persians subdued Armenia, Macedonia, Northwestern India, vagrant Arabic tribes. The system of administration of the immense territory of the empire divided into satrapies was established. Labor of the free farmers made the basis of agriculture,

Figure 1 1.9

Carthage



Source: Great Soviet Encyclopedia, vol. 11, p. 490

of the free craftsmen — in the cities. The number of slaves was relatively small; a part of them got plots of land (*peculia*). **Darius I** introduced a uniform system of money tributes adjusted to the sizes of tillable land and its fertility (in actual fact — rent), a uniform monetary unit throughout the empire. The caravan tracks were maintained, canals were restored and built.

As a result of numerous rebellions and wars with Greece the Achaemenid Empire was undermined and in 334-333 it was conquered by Alexander the Great. Magnificent architectural complexes of Persepolis, Suza, Pasargadae, ancient Persian wedge writing and the very exact lunar (354 days) and Zoroastra calendars (365 days a year) remained after it.

Ancient Indian civilization. In the valley of the Indus and its tributes emerged one of the largest local civilizations of the first generation (*fig. 11.10*). Here as far as the Eneolithic age relatively large cities sprang up — Mohenjo-Daro and Harappa, where crop plants and cotton were cultivated. By the beginning of the 2nd millennium B.C. a high level of craft and art was attained here. That's what **Yu.V. Pavlenko** says about the Harappan civilization: «Already in the high antiquity India established cultural and trade ties with many quite distant areas of oecumene. In the period of the Harappan civilization (the 3rd—2nd millennia B.C.) the goods of

Indian masters reached the areas of the Mediterranean, Central Asia, in the next centuries India established close contacts with the ancient world, areas of the Southeastern Asia. A many-sided exchange of cultural values took place» [151, p. 285].

The Veda period of the ancient Indian civilization (from the end of the 2nd till the middle of 1st millennium B.C.) is the period of the Aryan tribes in North India, establishment of the first states in the valley of the Ganges (9th–6th centuries B.C.). The period of the 5th–3rd centuries B.C. is described as the *Buddhist period*, time when the first of the great world religion – Buddhism emerged and spread; the Mauryan empire emerged. The period of the 2nd century B.C.– 5th century A.D. is viewed as a *classical period of the ancient Indian civilization*, the bloom of its culture, development of Hinduism, establishment of great schools in the field of art, literature, philosophy, mathematics, linguistics and logic.

Civilization of India of the second generation is characterized by two periods of its rise. The first of them is attributed to the *Mauryan empire* (4th – 3rd centuries B.C.) Under the third ruler of the dynasty **Ashoka**, one of the most well-known state figures of the Indian antiquity, the state formation sprang up that extended from Kashmir and the Himalayas in the north to Mysore in the south, from the areas of modern Afghanistan in the west to the Bay of Bengal in the east. A centralized system of administration that incorporated the elements of democracy and self-government of individual cities-republics and based on the spread of Buddhism and casta system was formed. Farming, craft, trade and culture achieved a sufficient success. Slavery was widespread in various forms, however the slave economy did not become prevailing, labor of free and semi-bonded farmers and craftsmen dominated. Written language spread wide; a lot of Ashok's edicts carved in stone have survived. The palace of Ashok was a magnificent architectural building, which included the hall of one hundred columns.

After the period of the dominance of the Kushan Empire that under king **Kanishka** in the first quarter of the 1st century A.D. spread its influence on the territories of modern Afghanistan, Pakistan, North, Northwestern and Central India, the peak of efflorescence of the ancient Indian civilization falls to a two-hundred year history of the Gupta Empire (4th–5th centuries A.D.) It covered a larger part of North India under King **Chandragupt II**. It was time of a new rise in economy and culture of the country, extensive development of external ties with the countries of the Mediterranean, South-Eastern Asia and the Far East.

It is interesting to note that the periods of the rise of the Indian civilization approximately coincided with the same stages in the ancient history of the Mediterranean (Athens – Alexandria – Roman empire). It indicates a similar rhythm of the development of the early civilizations in their epicenters. A long period of crisis, downfall of empires, internecine wars and external incursions, decline of economy and culture preceded each rise and followed it.

On the territory of Hindustan the *Buddhist civilization* in the last centuries B.C., which extended to the North (China, Mongolia) and the East (Indochina), was formed. It had common roots with the Indian civilization and was based on the world religion that spread wide in the world and has survived to this day.

Ancient Chinese civilization. The history of the ancient Chinese civilizations embraces the period from the turn of the 3rd–2nd millennia B.C. to the downfall of the Han Empire in 200 A.D. – it is the period of two generations of local civilizations (*fig. 11.11*).

The existence of the Shang-Ying early class state in the Huang He river basin, the development of culture of the Bronze Age, construction of cities with palace complexes and craft squares, development of trade, including international dates back to the 18th–15th centuries B.C. The base of society was free territorial communities, slavery did not become widespread.

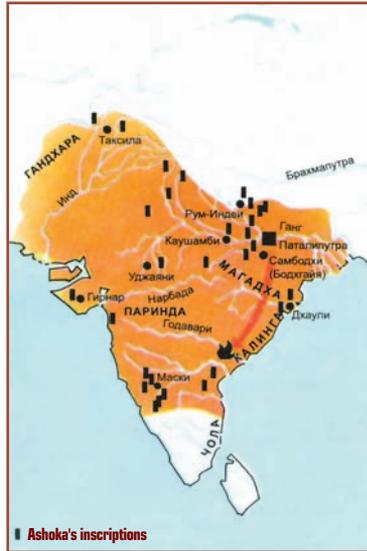
Yu.V. Pavlenko refers to the ancient Shang-Ying civilization in the middle reach of Huang He as the primary base of the ancient Chinese civilization: «With respect to Hindustan the formation of the Chinese early civilizational center of the priority development lagged behind for more than a millennium, and the emergence of the Shang-Ying civilization of great antiquity in the Eastern Asia in the middle reach of the Huang He dates back not earlier than the middle of the 2nd millennium B.C. This civilization became the base for a further socio-cultural development of the whole Eastern Asian region from the coastland and Japan to Viet Nam and Tibet» [151, p. 390]. The area of this civilization was gradually expanding and included both North and South China. And in the period of the Han dynasty (2nd century B.C.– 2nd century A.D.) the unity of the Chinese civilization was achieved to a full extent» [ibid, p. 394].

The periods of the empires of the Western Zhou (1122–771 B.C.), and the Eastern Zhou (770–249 B.C.) were characterized by territorial expansion, establishment of large complex royal economies along with communal economies, spreading of slavery, establishment of the cities fortresses, development of technology for bronze

Figure 11.11
Ancient Indian Civilization
3000 B.C. — about 700 A.D.



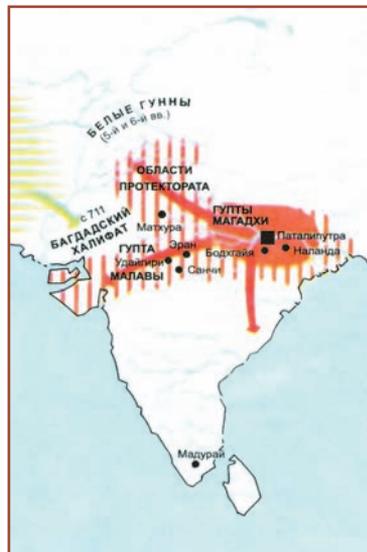
Early Period



Land of Ashoka



India about 150 A.D.



Land of Gupts about 400 A.D.

* Source: [82, p. 46]

casting and hieroglyphic writing, invention of new types of weapons (an arbalest).

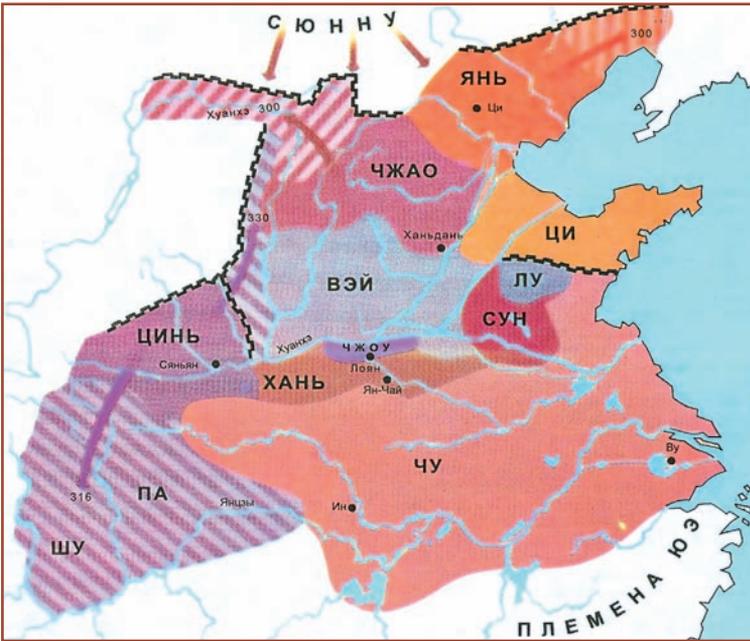
The beginning of the Iron Age was marked by the period of «warring states» (5th–3rd centuries B.C.) that was ended with a victory of the Qin Kingdom, whose head **Ying Cheng** proclaimed himself Emperor **Qin Shi Huangdi** in 221 B.C. («the first Qin emperor»). During ten years the emperor implemented radical reforms: began to build the Great Wall of China to protect the northern boundary of the empire, divided the country into 40 regions and abolished the privileges of the nobility by declaring all free population the subjects of the emperor, introduced uniform written laws, Table of Ranks, uniform pieces of money, built a huge palace with a park reserve. However, all these measures required a many time increase of taxes, which engendered discontent of all sections of population and led to the civil war after the death of the emperor. The leader of one of rebellions **Liu Bang**, ex-headman of a small village, became the winner. He became the emperor of the Later Han dynasty and implemented measures for a sharp decrease in taxes.

The rise of the Later Han dynasty fell to the rule of Emperor **Wudi** (140–87 B.C.). Under his rule irrigation systems were improved, the area of irrigable lands extended. Some innovations appeared: a plough with a seed funnel, two ploughshares, the system of «alternate fields» (two fields). Large craft enterprises emerged (some of them employed up to thousand people), trade flourished, the Great Silk Road began to function that ran from the Han capital through Central Asia and Front Asia to the Roman Empire. The Confucianism was declared the Emperor's doctrine and religion. The population of China increased several times and according to the census of 2 A.D. made 60 mln. people, the area of tillage made 56 mln. ha. However, at the beginning of the 1st century A.D. a sharp aggravation of contradictions and a series of rebellions led to the downfall of the Han Empire.

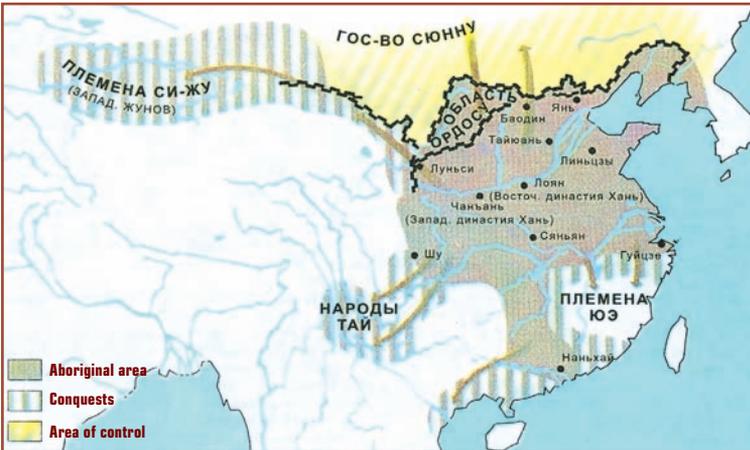
The closing stage in the rise of the ancient Chinese local civilization may be attributed to the dynasty Early Han, which began from the rule of Emperor **Guang Wudi** (25–27 A.D.) Under him the legislation with respect to slaves was somewhat eased (for the first time in the emperor's decree it was declared that a slave is a man by his nature), tax relaxation made, the boundaries extended. A network of large farming economies sprang up, where slave labor was replaced by labor of bonded peasants who had their own plots of land, under the prevalence of natural relations; these were the germ of the feudal system. Large landowners acquired political power, thus reducing the centralized imperial power. In a combination with a growing number

Figure 11.12

**Ancient Chinese Civilization
1500 B.C. – 220 A.D.***



Period of Warring Lands



China in the period of the Han Dynasty

* Source: [82, p. 40]

of rebellions, development of intestine wars, raids of neighbor tribes led to the overthrow of the last Han emperor in 220. The period of three emperors began that crowned a transition to the next stage in the development of the Chinese civilization.

The Japanese civilization. The formation of civilization occurred with a lagging in the history of Japan. Here the Neolithic dates back to the middle of the 4th millennium B.C., the Eneolithic – from 300 B.C. till 300 A.D. The period from 300 till 700 A.D. is called the time of burial mounds (or the country of Yamato in accordance with the name of one of the largest kingdoms), when the early class society emerged on the Japanese islands, a lot of kingdoms fighting with each other appeared. Economic and political relations with China developed. By the end of this period a federation was formed. It was headed by the chief of the tribe Yamato, who got the title tenno (later – the emperor). As the result of social differentiation different groups appeared: noble landowners, free peasants, dependant workers – *bemins* (who didn't have their own property and worked for tenno and nobility), household slaves. Irrigable rice fields, which needed common efforts, were considered communal property. The written language was formed based on the transformed Chinese hieroglyphs. Newly spread Buddhism got along with ancient Shinto.

As the results of «Taika reforms» (middle of the 7th century A.D.) and their realization lands were re-divided among the landowners and peasants (all of them were considered the owners of plots of land, which they got for state service), new administrative system undermining the power of clans was formed, unified taxes were introduced, *bemins* got equal rights with peasants, the opportunities for slavery got limited. The preconditions for formation of an early medieval state appeared.

The stages in the development of civilizations of India, China, Japan and Iran are dwelled on in more detail in *Chapter 19*.

11.3.4. Early Civilizations on the Territory of the Western and Eastern Europe

Celtic proto-civilization. The ample territories of Western Europe prior to their conquest by Rome – from the Iberian Peninsula to the Black Sea – were occupied by the Celtic tribes and state formations; it is possible to speak about a peculiar Celtic proto-civilization. Its history is full of mysteries as the Celts did

not leave written sources. Nevertheless, modern historians point to its significance: «The Celts occupy an important place in the history of ancient and even Medieval Europe; one may say that they are main characters in the pro-history of Western and Central Europe» [20, p. 14]

The Celtic proto-civilization hadn't managed to form into a real civilization, it had no strong statehood. It included a part of the Indo-European peoples relocated from the East and settled in Western Europe in the 2nd millennium B.C. In the first centuries A.D. the Celtic tribes were conquered by the Romans, however they retained their originality for the next several centuries in Britain and especially in Ireland.

Yu. V. Pavlenko says the following about the Celts: «Not only well-developed crafts, clear-cut social stratification, a sharp distinction between day-to-day culture of the nobility and ordinary people, numerous well-fortified centers (*oppida*) indicate the early class nature of most developed Celtic unions on the territory of Spain, Gaul and all Danube region, but also coinage of own golden and silver coins from the 3rd century B.C. A high efficiency of agriculture, concentration of its surplus in the hands of the aristocracy and a further transformation of natural surplus produce into prestigious values (first of all, due to trade with Greeks and Etruscans) ensured that the Celtic society attained the level of the early class relations» [151, p. 309].

Yu. V. Pavlenko also includes *Thrace* (an ancient country on the territory of the modern Bulgaria) in the early civilizational systems (according to our classification — proto-civilizations): «Thrace of the period of the Odruss Kingdom (5th — the first half of the 4th century B.C.) along with Scythia contemporary to it and Dacia, which strengthened several centuries later, was one of the most powerful states in Europe on the periphery of the ancient world. One can speak about the *Thracian early civilizational system*, including Dacia in it, and perhaps Illyria. Not only introduction of iron tools of labor and deposits of non-ferrous and noble ores contributed to a rapid socio-economic development of the Thracians in the second quarter of the 1st millennium B.C., but also close contacts with numerous Greek colonies on the coast of the Aegean, Sea of Marmora and Black Sea. Thrace of the Odruss Kingdom period was a social organism of the ancient European type» [ibid, p. 311].

Consequently, a civilizational process in Europe of the 1st millennium B.C. — beginning of the 1st millennium A.D. was not limited

to the framework of the Greek-Roman civilization and included a number of proto-civilizational formations that became later the dawn of the Western European and Eastern Slavic civilization: «They left the scene of the history themselves already in the antiquity, however, each had its own certain significance in the formation of further Western-Christian (Celts) and Eastern-Christian (latinized and hellenized descendants of Illyrians, Daks and Thracians, Dnieper area Slavs — distant descendants of the pro-Slavs of Forest-Steppe Ukraine) civilizations» [ibid, p. 333].

Scythian proto-civilization. The Scythian proto-civilization belongs to the same type of forming, and then disappearing civilizations as the Celtic one. In the 7th–4th centuries B.C. it occupied the ample territories in the northern Black Sea region, North Caucasus and Transcaucasus, Central Asia, Southern Urals, Altai and North Caucasus. In the last third of the 7th century B.C. the Scythians conquered Mede, Syria, Palestine and Asia Minor, but at the beginning of the 6th c. B.C. they were ousted from these territories. In 512 B.C. the campaign of Persian King **Darius I** against the Scythians failed. Scythian king **Atheus** at the turn of the 5th–6th centuries B.C. established a strong Scythian state from the Danube to the Sea of Azov. At the end of the 3rd century B.C. the capital of the Scythians was moved to the Crimea (the Scythian Naples in the outskirts of modern Simferopol). At the end of the 3rd century A.D. the Scythian state was utterly defeated by the Goths. The Scythians were mainly hunters and cattle breeders, but they also followed the plough. They established close contacts with the Greek colonies — Olvia, Pantikapaion and Chersoneses; had numerous wars with Assyria, Persia and Macedonia. Scythian culture is unique: a widely known «animalistic style» characterizes the style of ornaments found in the burials of rich Scythian nobility.

Early Slavic proto-civilization. The Slavic civilization was formed on the space of the Northern Black Sea and Eastern Europe may be included in the number of civilizations of the second generation, developing with a lagging for one historical cycle in the contacts with the ancient civilizations of the second generation.

In the 2nd–3rd millennium B.C. the signs of transition to the *Bronze Age* were observed — first of all in the North Caucasus, Carpathians region and the Black Sea region. All signs of such transition are present. Melting of metals and manufacturing of tools of labor, weapons, ornaments were mastered, the chain of settlements expanded and their sizes increased, exchange between agricultural,

cattle breeding tribes and tribes that mastered metallurgy assumed a regular nature (Triolet, Koban, Andronov and Fatyanov cultures). Communal property was mixed with private economy of large patriarchal families. Communities united in tribes, the tribal nobility separated and took in their hands a considerable part of wealth. The unions of tribes emerged, and they were the dawn of future states. However, on these territories unlike the centers of the early class civilization in the Near East it was impossible to get considerable yields by making the systems of irrigable husbandry and by concentration of population in the valleys of large rivers (other variants were impossible due to low technical development of society), that's why strong states did not develop.

In approximately the 1st millennium B.C. the *Iron Age* began in the Dnieper region, Volga region and North Caucasus, and from the middle of the 7th century B.C. — in Western Siberia and Altai (Dyakovo, Gorodets, Ananyin and other cultures).

The catalyst for the advance of society on the ample territories of modern Russia and Ukraine were intensifying contacts with the centers of the ancient civilization, mainly through Greek Black Sea cities and the Bosphorus Kingdom. It helped to enter the transitional period to the medieval civilization practically simultaneously with other local civilizations of Europe.

The development of civilizational processes in northern Eurasia is addressed in more detail below, in *Chapter 13*.

11.3.5. Civilizations of the Pre-Columbian America

The early societies of America developed in isolation and had their own way. According to modern archeological data, the settlement of the American continent by man occurred as a result of many waves of migrations from Asia through the Bering Bridge — 50–40 thousand years ago and 28–10 thousands years ago. The northern Asia had a moderate climate in these periods, and following the herds of mammoths and other large animals the tribes of hunters moved to the North American continent, and then migrated to the Central and South America. Favorable climatic conditions, abundance of large animals and plants suitable for food led to a fast increase in the number of population. As a result by the 7th millennium B.C. the mammoths were killed off, buffalo population

reduced sharply. From the 7th to the 5th millennium B.C. agriculture became the main occupation combined with hunting and fishery. The *Neolithic civilization* established itself.

Maize (corn) became the major culture; they grew beans, pumpkins, avocado and hot pepper. Farming culture formed in the north-east of North America, in contemporary Mexico, on the coast of Peru. Pre-Columbian civilizations occupied Central America and north-west of South America (*fig. 11.13*). From the 3rd millennium B.C. they began to master ceramics. A natural exchange developed and then the first signs of social stratification followed.

The first generation of civilization. About the 2nd millennium B.C. the development of farming and craft determined the possibility of a regular surplus produce. It resulted in the formation of the *early class* society, emergence of many states, especially in the Central America. Cities, irrigation systems were built, large cult constructions were erected. The Olmec culture, the state of Aztecs and Mayas flourished. Society was well divided into definite social groups: higher classes (governor, military leaders and priests); free community members, craftsmen and merchants; the lower class included the prisons of war and criminals turned into slaves. However, slavery was not a prevailing type of economy. In the rise period of the early class society (in the middle of the 1st millennium B.C.) large cities were built. Astronomy and mathematics, sculpture and architecture rose to high levels.

The second generation of civilizations. The next stage in the history of pre-Columbian America began at the turn of a new era. The Bolivian plateau near the lake Titicaca became the center for the spreading of the Tiauanaco culture from the 3rd to the 8th century. Metalworking — on gold, silver, copper and bronze — became widespread. Unlike their European «sisters» local American civilizations were not familiar with iron, therefore here the Bronze Age is typical not of the first, but of the second whorl of the civilizational development, which lasted practically up to the conquest of America by Europeans.

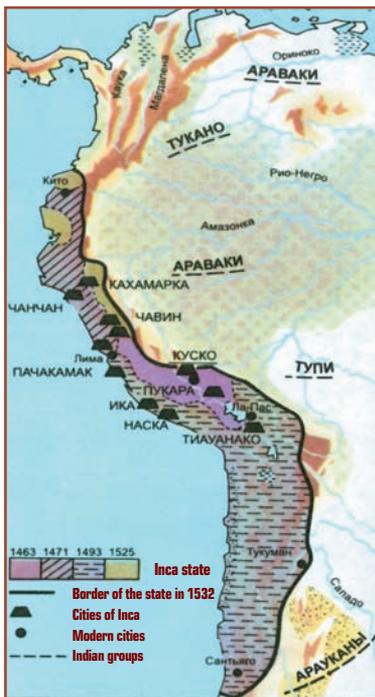
In this period a number of empires appeared on the American continent. The Incan empire is the most well-known of all, its foundation was laid in the 13th century. By the 15th century the territory of the Incan empire occupied 900 thous. km² (1.7 time more than modern France). Social relations in the empire made labor mandatory for each resident of the empire with no exception, even the supreme rulers had to work. Each

Figure 11.13

Pre-Columbian Civilizations of America*



Ancient Cultures in South America



The Land of Inca (1460-1532)



Indian Cultures in Middle America before 1520

*Source: [82, p. 222]

got a plot of land that was necessary for residence of himself and his family. For satisfaction of the needs of the state and priests everybody was obliged to farm lands owned by the Inca (state) and the Sun (temples) after they tilled their own family plots of land. A part of products got from such lands was directed to the establishment of insurance funds and maintenance of widows, orphans, elderly and disabled. The tools of labor and weapons manufactured by craftsmen were stored at the state warehouses. Cattle like land was divided into three parts: one – for family needs, the second – for the Inca, and the third – for the Sun. A strict control exercised over consumption, waste was prohibited. Exchange was natural.

All family heads participated in the management on the lower and middle level; however, the Inca had the supreme authority and it was hereditary. Nobility by birth played an important role. However, the poor, slaves and aliens didn't enjoy democratic rights and freedoms.

In the Incan state a high level of labor efficiency was reached, which enabled them to build large cities, the citadel of Machu Picchu striking one's imagination, well-organized roads and canals running for thousand kilometers, suspension bridges over abysses. The Incas also left remarkable monuments of culture.

Let's dwell in more detail on the formation and dynamics of the pre-Columbian civilizations in the Western Hemisphere as their history is less known¹.

The disappearance of the overland «bridge» between Asia and America approximately in the 13th millennium B.C. had a key significance for further fates of those human communions for which the lands of the Western Hemisphere became a new motherland. The many thousand year isolation from the Old World and, consequently, from the main flow of the history of civilizations became one more determining factor for the historical process here. Civilization as a special type of a socio-cultural organization described by a qualitatively higher level of complexity against the primitive state, emerged in the New World at least one thousand year later than in the Old.

As everywhere in the world the formation of producing economy in the course of the Neolithic revolution became the material base of the civiliogenesis in the New World. With respect to America the matter in question is mainly agriculture. Cattle husbandry (lama

¹ The author of the following text till the end of the §11.3.5 is Professor, Doctor of Historical Sciences **Ya.G. Shemyakin**.

and guinea-pigs breeding) played a certain role in the Andean region, but far smaller than farming. As for Meso-America there was actually no cattle husbandry.

Initially the mountain areas of the Central Andes were the nucleus zone of flora cultivation. The first attempts to domesticate plants date back to the 7th millennia B.C. In the 5th millennium B.C. a decisive leap occurred: corn, beans and cotton growing began. In the 4th–3rd millennia husbandry established itself gradually on the coast. The second type of man's activity here was sea economy: fishery, shellfish gathering, hunting for pelicans and penguins, seals and whales shooting. All this established conditions for a fast population growth. In the 3rd–1st millennium B.C., productive economy finally turned into the leading factor of economic development.

In Meso-America the first kinds of maize appeared in the Tehuacan valley (modern Mexican state of Puebla) in the 5th millennium B.C., in the 4th millennium B.C. it is already possible to speak about the rudiments of the system of the maize farming, in the 1st millennium B.C. they began to cultivate corn on the territories of the south-west of the modern USA. In the 4th–2nd millennium B.C. maize (corn) growing including beans and pumpkins laid the foundation of the food base for future Meso-American civilizations.

Although some Indian peoples came to the threshold of civilizations in other regions (chibcha-muiski on the territory of modern Columbia, cultures of the south-west of the USA and the basin of the Mississippi etc.), but Meso-America and the Andean region were the major centers for the evolvement of the civilizational processes in America.

The Olmec Civilization emerged in the 1st millennium B.C. on the territory of the modern states of Tabasco and Veracruz. 10 known Olmec centers were situated evenly along the coast of the Gulf of Mexico, but at a certain distance from the sea. The largest of them include: La Venta, San Lorenzo, Tres Zapotes, and Laguna de los Cerros.

The Chavin culture (its utmost expression is the monumental complex Chavin de Huantar found at the height of 3 000 meters in a small mountain valley in the northern part of the Peruvian Plateau) emerged about the year 1500 B.C. and existed till about the year 450 A.D.

Both in Meso-America and the Andean region one and the same scheme for the evolvement of civilization process is traced: the

Olmecs — in one case, Chavin — in other, formed the initial, base archetype of civilizational system, determined the spiritual-ideological, artistic (creation of the system of symbols by means of which the surrounding world and the world of own soul was mastered spiritually-practically) and a social standard. It was orientated at and reproduced to this or that extent in all next culture that were in relation of direct or indirect affinity (i.e. with the Olmecs and Chavin) and succession.

Nearly simultaneously with the Olmecs (but still a little later) the culture of **Zapotecs** emerged. Monte Alban founded about the year 500 B.C. in the Oaxaca valley became the main religious, administrative and trade center for the Zapotec civilization. During a number of centuries their neighbors **Mixtecs**, resided near the Zapotecs and gradually assimilated their culture. Finally they captured Monte Alban in the year 900 B.C. and turned it into the center of their own (although based in the Zapotec heritage) civilization that existed until the Spanish Conquista in the 16th century.

Probably, **Teotihuacán**, the largest city center of Meso-America, became the brightest direct successor to the Olmecs (their civilization disappeared by the 3rd century B.C.) that implemented to the utmost extent the concept of the civilizational system. The nucleus of the latter was the system of values embodied in certain religious-mythological ideas and determining the major behavioral orientations of the members of the Indian societies. Having emerged about the year 300 B.C. Teotihuacán reached the top of its might in the 2nd–6th century A.D., spread its influence on all Meso-America. In the second half of the 7th century A.D. Teotihuacán fell into decay. At the end of the century the city fell under the attacks of the barbarian invasion from the north (although certain researchers believe that the traces of fire remained on many buildings might indicate a social conflict that caused the downfall of the Teotihuacán civilization).

After the fall of Teotihuacán in the 8th century the period of «Dark Centuries» was established in the Central Mexico: the waves of barbarian invasions — migrants from the north — flooded into in the valley of Mexico and got a general name «chichimeca». However, these barbarians were fast to assimilate the major cultural standards of the lost civilization. The **Toltecs** turned to be the most successful conquerors and capable students. By the end of the 10th century A.D. the former space area of the Teotihuacán

civilization turned out to be under the power of the Toltec's center Tollan situated in the north of the Mexican Plateau. The power of the Toltecs purported to the role of a direct successor to the glory of Teotihuacán and actually acted became one. The «filial-kindred» connection of the Toltec civilization with Teotihuacán causes no doubts.

It is necessary to mention several cultures which in this or that way were the successors to the Olmec civilizational archetype. Thus, *Tahin* emerging at the beginning of our era on the territory of the Mexican state of Veracruz played so far the role of important independent cultural-religious center. The culture of *Totonacs* emerged and spread in the same place.

In the south of modern Mexico on the border with Guatemala, close to the coast of the Pacific Ocean the culture of *Izapa* became a significant continuation of the Olmec cultural tradition.

The fall of the Izapan culture coincided with the formation of one of the most significant civilizations of pre-Columbian America — *Maya*, whose space area embraced the territories from the south of Mexico to the north of Honduras and Salvador. The period of the rise of the Mayan civilization fell to a so-called «classical» period (3rd—9th century A.D.). From the end of the 9th century the Mayan civilization entered the period of a deep-seated crisis caused by a number of factors, the main of which was the mass raids of invaders from the north that began in this period. In the 10th century all major Mayan cities emptied in the tropical forests. In the 10th century, the lands of the Maya were conquered by the Toltecs, which led to certain transformations (a change of ideological guidelines, influence of the Toltec tradition in art, change in the administrative system — the emergence of the confederation of the city-states on Yucatan etc.). However, despite the emergence of socio-political and cultural formations under Toltec influence, the Mayan civilization did not disappear and survived on Yucatan and mountain Guatemala, where the aliens were mainly assimilated by local population. Although certain guidelines changed in ideology and art, the base archetypes that underlay the basis of a civilizational model remained the same ascending finally to the Olmec heritage and the «post-classical» (900—1520 A.D.) period of the Maya, up to the Conquest.

In the Central Mexico the period of the Toltec dominance in the 10th—11th centuries ended about 1200 A.D., when their center Tollan was ruined by a new wave of barbarian migration from the

north. After that the period of a social chaos occurred, which was replaced by the establishment of a new order. Its carriers were the **Aztec**. This Indian people, having left their fore-motherland Astlan (at the beginning of the 13th century), reached the valley of Mexico in the second half of the 10th century and rooted there, establishing its capital Tenochtitlan on the shore of the lake Texcoco in 1325. In the next two centuries of their history the Aztec constantly conducted wars on neighbors in their struggle for the hegemony and establishment of a powerful state. They actually reached this objective by the beginning of the 15th century having subordinated nearly all Meso-America in this or that form. On the threshold of the coming crisis they were apparently on the path to the establishment of the imperial structure of a regional scale. However, this process was terminated by the Spanish invasion in 1520. The Aztec civilization shows the features of succession with respect to its predecessors by all its major parameters.

In the Andean region the culture of **Paracas** is likely to be called the first of direct historical successors of Chavin (the 1st millennium B.C.). The culture of **Nazca** became its immediate successor in its turn (southern coast of Peru, 3rd millennium B.C. – 1st millennium A.D.). Nearly concurrently formed (on the northern coast of Peru) and widely spread one of the brightest civilizations of pre-Columbian America – **Mochica**. Its heritage became an extremely bright landmark expression of the civilization archetype that had been formed by the Chavin. Approximate chronological framework of existence of this culture – the 2nd–1st century B.C. – the 8th century A.D. The end of the Mochica is typical of the fates of early civilizations. The society of Mochica must have been ruined as a result of the invasion from outside. It is likely that natural factors contributed to its fall (reducing of rainfalls that ruined the Mochica irrigable farming).

Practically simultaneously with the Mochica one more independent and very bright civilization emerged in mountain Peru on the shores of the highland lake Titicaca, and it also was mainly a successor to Chavin and rendered a considerable influence on its contemporary and further Indian cultures. Its approximate chronological framework is 200 B.C.–9th century A.D. The main center is **Tiuanaco** city.

It should be noted that the cultural tradition of Mochica was not discontinued after the disappearance of this civilization as a special

socio-cultural formation. The Mochica cultural stratum was blended in the culture of *Chimu* (northern coast of Peru, the first half of the 2nd millennium A.D.), whose carriers established a powerful state that really purported to the hegemony in the Andean region and that was a dangerous rival of the Incans. The capital of this state, Chan-Chan was quite comparable with Teotihuacan in its scale.

In the 10th century the *Incans* appeared on the scene, who by 1400 A.D. established the largest state of pre-Columbian America, the first and the only empire of a continental scale, which comprised the territories of modern Peru, Bolivia, Ecuador, north-western part of Argentina, northern part of Chile and a part of Columbia. The Incans became the creators of the civilization of pre-Columbian America that was the most considerable in its scale. And it was based on experience and gains of the preceding cultures of the Andean region.

Certain differences existed between two major civilizational centers of pre-Columbian America. These are the major of them.

The Andean region is characterized by a greater degree of the development of material-technical base of civilizations (first of all, it is a more developed metallurgy – the Bronze Age) in comparison with Meso-America (manufacturing of tools only from stone, bone and wood survived until the 9th century A.D., the Stone Age; an inconsiderable role of metal after the 9th century). It is also possible to note a higher level of the development of food and raw material base of civilization for the Andean region (a combination of farming with cattle husbandry, even if it was considerably less developed than in the Old World, and also with an active all-round use of bioresources of the sea in the Andean cultures as a contrast to a lack of cattle husbandry and an inconsiderable role of fishery in Meso-America). At the same time the highest level of development of abstract thinking in pre-Columbian America was reached exactly in Meso-America, first of all, with the Maya that found its major expression in the existence of writing (most developed – chirographical – and again with the Maya) that hardly existed in the Andean region, where its functional replacement was elaborated – the so-called quipu.

And nevertheless all pre-Columbian civilizations had much more common features than differences and first of all with respect to all major civilizational centers. The following features of this kind may be distinguished.

All pre-Columbian cultures are characterized by one and the same approach to the solution of key problems-contradictions of human existence between the secular and sacral spheres of being of Homo sapiens, between man and nature, individuum and socium, traditional and innovative aspects of culture. A complete dominance of mythological («pre-axial», according to **Karl Jaspers**) mode of thinking is typical of all of them with the same mythological picture of the world in its base (under multiple differences in details). It's most significant that the myth was not only reality of conscious of representatives of the Indian world, but ontological reality: such type of thinking orientated in a certain manner the behavior of people, formed a certain way for their interaction. Its major characteristics included: a rigid subordination of all Indian societies to natural rhythms, unconditional prevalence of adaptation tendencies to the environment over attempts to adapt it to own demands; and as a result a full dominance of a natural component over human element of productive forces; the dominance of communion naturally formed (in different aspects – from community to despotic state) over individuum, well-manifested tendency to assimilation of a personal identity in such communion; the prevalence of a communal archetype as a base and a system-forming principle of all pre-Columbian societies; orientation at the maintenance of established tradition unchanged to a possible extent, prevalence of tradition over innovation in the system unity of culture, which found its visible expression in a total ritualization of all sides of life of the Indian cultures in pre-Columbian America.

A social structure of pre-Columbian civilizations was identical in its foundation; its base elements included community and despotic state similar to the ancient eastern despotisms of the Old World in its nature and functions. Finally, a similar nature of major forms of sign-based self-expression of culture should be noted, and first of all the monumental architecture

One more feature is akin to all high cultures of pre-Columbian America: they attained a comparatively high level of civilization under a comparatively weak developed material-technical base against the Old World: pre-Columbian America did not know iron, draft-cattle, wheeled transport, horses, plough, cattle husbandry played incomparably minor role here (except the Andean area).

In the civilization process of pre-Columbian America a certain *cyclical dynamics* is well-traced, which is determined by a social

genotype of local civilizations originally formed. In general, it is quite adequately described in the terms of **A.J. Toynbee's** concept. In the history of all pre-Columbian civilizations (except the last ones in this row swept by a wave of Conquest) there are traced of all the stages that were distinguished by Toynbee: genesis, growth, breakdown, decline due to these or those reasons: more often barbarian invasions or as a result of internal social cataclysms or environmental catastrophes or as a consequence of a cumulative action of a number of factors. After completion of each civilizational cycle the «Dark Centuries» come as a rule and then they are followed by a life cycle of a new civilization that reproduces the same stages and what is more important the same civilizational quality.

Reproduction of one and the same socio-cultural quality in each new cycle does not mean that no changes at all occurred within the given quality. Advance was observed in some things: for instance, the Incans undoubtedly excelled everybody in the improvement of administrative practices. On the contrary, an obvious regress is traced in other spheres. Thus, while the Aztecs had inherited certain astronomical and mathematical knowledge from their predecessors, they lost considerably their depth and volume.

If a general look is cast on the history of pre-Columbian America, it is possible to observe a gradual increase of space scale of civilizational communions from cycle to cycle – to the extent of the establishment of the first civilization of continental dimensions by the Incans. However, such increase in the scale did not lead to the change in the foundational characteristics of civilizational structure. By the time of the clash with Christian Europe all pre-Columbian civilizations that had existed by that time had a set of major features that were referred to above.

Original local civilizations of the New World with all their technological and cultural achievements were barbarously destroyed by the European colonialists at the end of the 15th–16th centuries. The unique historical experiment of isolated development of local civilizations was terminated.

11.4. Dialogue and Interaction among Civilizations of the First Two Generations

Civilizations of the first and second generations settled on ample territories of the Old World didn't develop in isolation from each

other. The contacts in various forms — from dialogue and exchange to warfare — existed and intensified between them. The interaction between civilizations included different spheres: trade, exchange of cultural and scientific achievements, migration of peoples, political unions and warfare. The dialogue and interaction among civilizations contributed to the speeding up of their development rates and social progress. Civilizations of the New World developed in isolation, lagged behind and perished in the clash with the western civilization that was far ahead.

Trade-economic exchange between civilizations. Civilizations of the first and to a great extent of the second generations carried on intensive trade in various commodities between them and neighboring tribes not yet formed into the independent civilizations. The establishment of numerous Greek, and then Roman colonies in the Mediterranean and Black Sea regions contributed to it.

Long trade routes both by sea and by land were developed, which were used for active exchange of commodities. Famous Roman roads served for a fast relocation not only of the army, but of caravans of merchants with their goods. A considerable part of the fleet was used for carriage of goods. The states took steps to encourage international trade, protecting of merchants and merchant vessels against the attacks of robbers and pirates. As a rule the size of customs duties at the border-crossing was minor not to hamper trade. The diversity of natural conditions of various states and civilizations, their specialization on production and export of certain goods, high level of merchant's profit fostered the development of international trade, diffusion of production experience and skills in agriculture, craft and construction. A network of cities was established along the rivers and sea coasts, and trade and production of goods served for accumulation of wealth there.

The trade-economic exchange became a significant factor for a speedup of the development, technological and economic advance of all the belt of civilizations of the first and second generations.

Exchange of technological achievements. The demands of fast growing population of local civilizations of the first and second generations, diversified demands of higher strata, expansion of trade exchanges, development of river, sea and overland transport required a considerable increase in labor efficiency based on technological innovations, cross-civilizational exchange of more advanced technologies and forms of organization of production.

As a result of technological exchanges between civilizations more advanced practices of agriculture spread fast, new sorts of cultivated plants were brought under cultivation, metal melting practices and making various tools of labor, weapons, decorations of it, construction of palaces and cultural buildings developed.

The clashes among civilizations, invasions of barbarian tribes resulted in a partial destruction of developed economy. But the barbarians usually adopted advanced technological experience of civilizations conquered by them.

An active exchange of production expertise and innovations fostered a technological advance of all mankind, of the global civilization.

Mutual enrichment with spiritual values. The contacts of civilizations in the sphere of spiritual life — in the field of culture, science and education, ethics and religions — were especially multi-form and fruitful.

The phases of the rise and maturity of each civilization were accompanied by the efflorescence of culture, emergence of new art schools, construction of magnificent architectural monuments, creation of works of sculpture and literary works. These cultural achievements became the assets of other civilizations. It is known what influence rendered a high culture of Greek city-states on cultural life of the ancient world. The palaces of ancient Egypt, Assyria and Babylon were used as examples in construction of magnificent building in Greek, and especially in the Roman empire. The conditions for spreading of cultural attainments throughout the empire were formed within ample world empires.

Scientific attainments of eastern civilizations served as a base for the outburst of scientific creativity in ancient Greece in the 6th–7th century B.C. Scientific discoveries made in Greek and Rome, India and China were spreading fast over interactive civilizations.

A mutual exchange of experience in education took place; the schools of scribes, schools of philosophers were set up. The contents of education of the intellectual elite reflected new scientific knowledge gained in various countries and civilizations.

With migration of people, establishment of world empires, emergence and advance of world religions conditions for dialogue among civilizations in the field of ethics and religion were established. The standards of morality supported by world religions were similar. The history of the spread of Buddhism in the East and Christianity in the West indicates the intensity of dialogue among civilizations in the antiquity.

Political contacts and military conflicts of early civilizations.

The emergence of states and legal systems in the early class society, increase in their scale and population number generated constant contacts between states and civilizations in the political field, which were terminated by periodical wars.

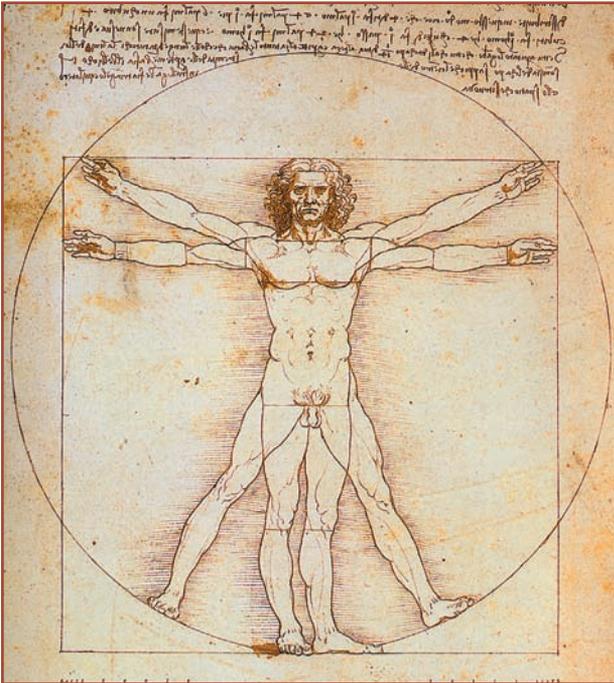
With all diversity of forms of political structure changing each other – from eastern despotisms to the Athenian democracy – there were a lot of common features in political systems of the first two generations of local civilizations. Not only similar tendencies in social differentiation (stratification) contributed to it, but also sharing experience and borrowing of the forms of political structure as a result of the dialogue among civilizations. A similar structure of the state administration in many ways and the system of rules of law, and also the existent status of «free cities» (craft-merchant) in various civilizations may be adduced as examples.

Quite often political unions that contributed to sharing experience were concluded between various states and civilizations. Military clashes and conquests led to a rapid proliferation of types of weapons and defenses, practices of military actions (warcraft). But sometimes they finished with the subjection of one civilization to others, and even the death of vanquished civilizations.

Consequently, as a result of the first stage of the formation and development of the global civilization humankind did not only form the structure of civilization that has survived to this day, but ensured the diversity of local civilizations and active interaction among them.

Chapter 12

CIVILIZATIONS OF THE SECOND HISTORICAL SUPER CYCLE

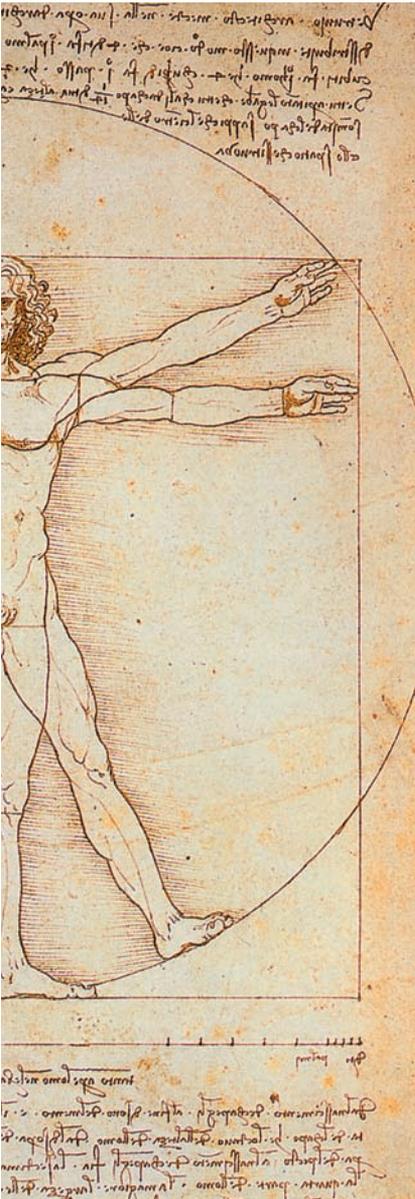


Approximately from the middle of the 1st millennium A.D. the global civilization entered the second super long cycle of its historical existence, which embraced approximately a millennium and a half — until the end of the 20th c. Three world civilizations (medieval, early industrial and industrial), two generations of local civilizations (third and fourth), two social-economic formations (ideational that is super sensual and sensual) changed during that period; they passed the phases of extension, of dominance and of retreat, and at the end of the period — world religions revived.

Hundreds and thousands of treatises were published about the history of this period. Tens of scientific schools have studied it and will study in future. Our task is simpler, but at the same time more complicated and special: to research this great period in the life of mankind in three dimensions — in the simultaneous evolvement of global, world and local civilizations, in a wealth of the gamut of the fine elements making the civilizational genotypes, their interrelation and a heritable variation.

We are lucky to be witnesses and participants of a great historical rift, a change of historical super cycles and world civilizations. This is an uneasy time of sweeping changes that alter radically the state of the world and our ideas about it. That's why it is important to look into the depth, historical roots and the essence of such changes in order to understand possible scenarios of the future of civilizations.

12.1. World Civilizations of the Second Historical Super Cycle



A millennium and a half now elapsed was the period of increasingly accelerating changes. The rate of a historical advance, which slowed down in the middle of the first millennium of our era, was increasing again. Life cycles of world civilizations changing each other — medieval, early industrial and industrial — were reducing. They had a lot in common in their economic, technological, state-political and socio-cultural structure and at the same time they were successive steps in the evolvement of the global civilization, enhancement of its hereditary nucleus.

12.1.1. Medieval Civilization

After a long and trying transitional period that accompanied the change of historical super cycles, time came for the next — medieval world civilization. Let's consider the ways of emergence, distinctive features, stages of development and the signs of the decline, when historical time of this civilization elapsed.

The genesis of feudalism. The genesis of feudalism followed different paths. Several types (models) of its formation may be distinguished:

1. The ***Byzantine path*** taken by the Eastern Roman empire. It succeeded in preserving all major elements of the heritage of the preceding ancient civilization (large cities with the prevalence of craft and trade, slavery in combination with the communal landownership, developed culture where the Greek elements prevailed, a strong state with the developed Roman law) gradually transforming them and increasing the elements inherent to the feudal relations. Moreover, at the end of the 9th–10th c. the slave system even strengthened in Byzantium. However, it could not stop the establishment of the feudal system.

In the cities corporations of free craftsmen, merchants, sailors, ship owners were formed. A network of cities developed, Constantinople was number one among them.

A transition of Byzantium to the medieval world civilization was less painful than for other cultures. However, a long persistence of slave relations, prevalence of conservative elements determined a slow progress; a transition to feudalism completed only in the 15th c., Byzantium lost its leadership, weakened and left the historical scene in the middle of the 16th c.

2. The ***Italian model*** of the genesis of feudalism was destructive and painful, but shorter than Byzantine. Weakened Rome became the bait for the incursions of barbarian tribes, which swept wave by wave over Italy burning cities, capturing lands and conquering them. Mixing with local population, they were gradually imbibing the heritage of the ancient civilization transforming it in their primitive way.

Despite all destructive actions, the barbarians eventually put new steam into the remains of the Roman empire. The upper crust of conquerors became large landowners, a part of warriors from the armed force – small free landowners who gradually lost their independence and mixed with colons. The city craftsmen and merchants, who had curtailed production for the time being and had lost former large customers, gradually found new buyers, restored commercial relations, actively using great trade roads by rivers and seas. On the Apennine Peninsula the feudal relations were mainly established in the 9th c. But unlike the feudalism in other European countries, the territory of Italy was not a unified state with a strong center.

3. The French path to feudalism was incident to certain countries that were provinces under the Roman dominance. These countries assimilated some achievements of antiquity (including production technologies and law system), but kept the fundamentals of the communal-tribal system. The chiefs of tribal unions distributed land with succession to their vassal on condition that the latter would meet some requirements: they would organize detachments for protection of their overlord, would give him a certain part of their profit and would provide administration of these territories. These lands, which were distributed on condition of service to the overlord, were called feuds. Upper vassals distributed land among lower ones, thus the system of vassalage was formed. As the result, each plot of land had several holders of possessory rights, which created the so-called scale of rank of the feud. The peasants according to this system were not the owners of land, but only holders of their plots, that's why they gradually got into land and legal dependence form rich landowners.

4. The Scandinavian-Russian path as is clear from its title, belonged to the peoples who did not know slavery on their territories. They transferred to the genesis of feudalism directly from the primitive-communal system (in its developed, modified type with respect to technology of the Iron Age). The tribal and military leaders (dukes, sea-kings etc.) and their near associates turned into landowners-feudalists, and former free community members — into bonded peasants. At first communal property was retained, but the peasants had to pay a regular tribute, which is the primitive form of a feudal rent. This permitted the peoples of Eastern and Northern Europe to considerably speed up the advance rates, to complete the genesis of feudalism simultaneously with most of peoples of Western Europe and to establish strong states.

5. The Moslem model of the genesis of the early feudal civilization was associated with the emergence of Islam (7th c.). The dogmas of this religion were taken by a number of the Near-East, Middle-East and North African peoples and became the banner in their rapid expansion. In the 7th c. the Arabs invaded the Middle East, Iran, Egypt and Khorasm; at the beginning of the 8th c. they spread their influence to Spain, at the beginning of the 9th c. they conquered Crete, Malta and Sicily. Despite of a considerable mutual damage caused by the ongoing struggle between Moslems and Christians, the Arabic conquest had its positive sides: it fostered the synthesis of western and eastern cultures, expansion in

trade and craft, development of cities and establishment of feudal land relations.

6. The Eastern model of the transition to the medieval civilization was chosen by China, India, Persia and Central Asia. There was no classic form of slavery-based relations here inherent to the ancient civilization; the development of feudal relations occurred gradually and in various forms.

According to **I.M. Diakonov**, a transition to feudalism completed in the 2nd c. A.D. in China, under the Junior dynasty of Han. Rich landowners («strong homes») took under the patronage peasant economies getting natural exaction (feudal land rent) and paying state taxes for them; peasants became personally-bonded, attached to the land, subject to the court of magnates [62, p. 72–77]. In Japan such system was established much later – since the 9th c. [ibid, p. 77–78].

In India a transitional period from early societies to the medieval civilization fell to the 5th–7th cc. A.D. A share of slave labor reduced, a part of slaves got freedom, while bondage remained. At the same time many previously free community members were turned into feudally-bonded peasants. A part of lands were given into succession or «for feeding» to dignitaries in reward for service. The cloisters that owned ample economies with land-bonded peasants played a significant role in feudalization of society. The specific feature of India was the maintenance of estate-caste system little modified in the medieval period.

In Iran the signs of a transition to the Middle Ages were observed in the period of the Sassanid Empire (3rd–7th c.) when the «magnate» land ownership established itself as well as a division of society into estates and bondage of the peasantry.

Thus, a transitional period to the second triad of civilizations was characterized by a variety of forms of transition, a wide coverage and plurality of directions, and also the convergence of the levels of development of many local civilizations, which came to the next historical step – medieval civilization that embraced an ample area of the populated earth, nearly at one and the same time.

The Great Migration Period. In the period when the medieval civilization (6th–7th) was formed the regularity declaring itself in a sharp increase of the mobility of population, migration of peoples at the turn of epochs vividly manifested itself. The increase in a number of population and depletion of natural resources on the territories developed before, military clashes impelled enormous masses of peo-

ple to risky trips of thousands kilometers in search for better lands. This mobility assumed a tremendous scale in the transitional period from the ancient world to the Middle Ages. This period is known as the Great Migrations. Barbarian tribes — Goths and kindred vandals, Varangians and Burgunds, Angles and Saxons, Hungarians and Avars surged wave by wave to the weakened Roman empire from the east and the north (*fig. 12.1*). These and many other tribes were at the stage of the formation of the early class society, but mastered military equipment of the Iron Age, which helped them seize more and more lands from Rome.

On their way the invaders robbed and destroyed the cities and villages, killed their residents, destroyed monuments of culture, collected a huge tribute from the people. Finally the barbarians settled on the conquered lands, founded their kingdoms there and with time assimilated in the native population taking over its economy and culture in a primitive form. It was a regress against a high level of the ancient world. However, in terms of the history of humankind it was an advance — a step back in order to make two steps forward — to the medieval civilization.

At the end of the Middle Ages, in the 13th c., a wave of migrations renewed, but already on a less scale. The Mongolian flow flooded from the East involving the Eastern and Central Europe, Central Asia and Transcaucasia. The flow of crusaders and pilgrims from Western Europe set out for the Near East, Byzantine Empire and Slavic states (*fig. 12.2*). But with the establishment of early industrial civilization it stopped. The period of the rise of each world civilization is characterized by the increase in stability of population, while it does not exclude external expansion, wars for conquering new territories. Bright examples include the conquest of the New World, formation of the British Empire, colonial expansion of the period of the 18th—19th c.

Characteristic features of the medieval civilization. What are characteristic features of the medieval civilization, its contribution to the historical, material, economic and spiritual heritage of humankind?

1. This was the *period of the dominance of world religions* — Christianity, Islam, Buddhism and Hinduism. They became the dominating factor in the development of society. The impact of religions on the civilizational advance was contradictory. On the one hand, religion acted as an integrating (under the feudal disunity) and stabilizing factor, a single shell of the formation of, according to

F. Braudel, the world economies on the whole continents with the accelerated development of market relations. It supported the development of culture (though only those directions which were necessary for its propaganda — theology, rhetoric, spiritual music and temple architecture).

However, it was obvious that the religious dictate chained free thought, slowed down the development of science, became the cause of fundamentalist intolerance, called for destruction of «unbelievers». Numerous wars were directly or indirectly initiated by church. A vivid example is eight crusades (from 1096 till 1270) which led to destruction of tens of cities, death of hundreds of thousands people. But along with that the crusades fostered the recovery of the Mediterranean trade and shipping, mastering of many technological and cultural achievements of the East.

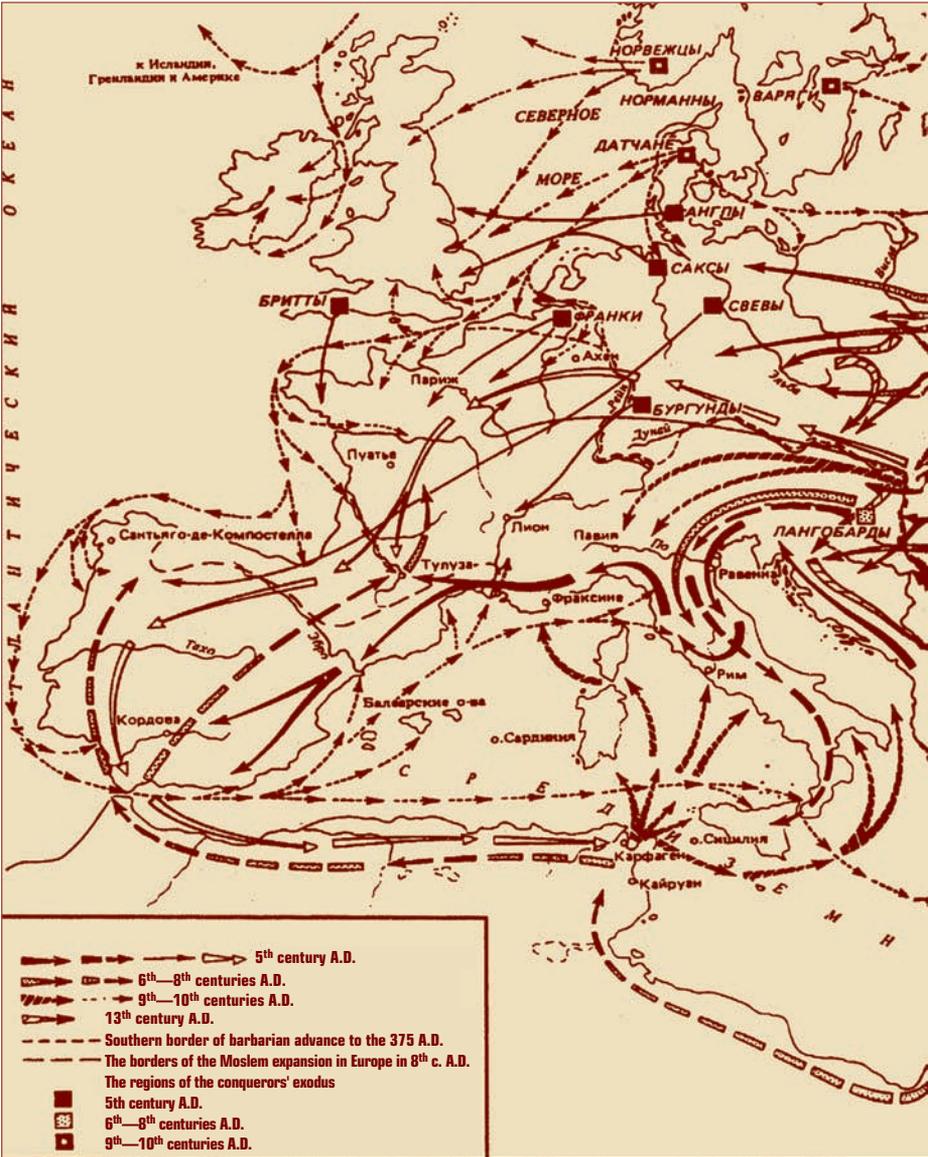
2. The second distinguishing feature of the medieval civilization — *a larger personal freedom and economic interest* of peasants and city craftsmen against rigid non-economic coercion of the slave system. Multi-link-hierarchical property in land and bondage to it of the peasants in this or that form made a prevailing background of economic relations in the village. Hence, poorly restricted rights of suzerain, numerous feudal exaction and homage caused peasants rebellions. A rigid regulation in the cities (craft guilds and merchant guilds) was similar to such relations.

Many cities became the seats of freethinking and «heresies», the upsurge of commerce and science. Here with the appearance of universities the next revolution in education began.

The north-Italian city-states — Venice, Genoa and Florence — reached the greatest success in the Middle Ages, where the republican system established itself. Venice and Genoa struggled with each other for the dominance on the seas, established a number of colonies on the Mediterranean and Black Sea coasts and used them for trade with the eastern countries. Venetians, who became wealthy through commerce could build unique palaces and temples in the lagoon, which still make the world cultural heritage. Florence, which had no outlet to the sea, specialized in crafts (the woolen manufactories were set up here first in the world), became famous for its magnificent architectural ensemble, fine arts, became one of the centers of the Italian Renaissance.

Expansion of trade, transition to a market economy, next demographic rise were determined not only by the development of crafts,

Figure 12.1
Irruptions in the Europe. 5th—8th Centuries A.D.



Source: [242, p. 150—151]

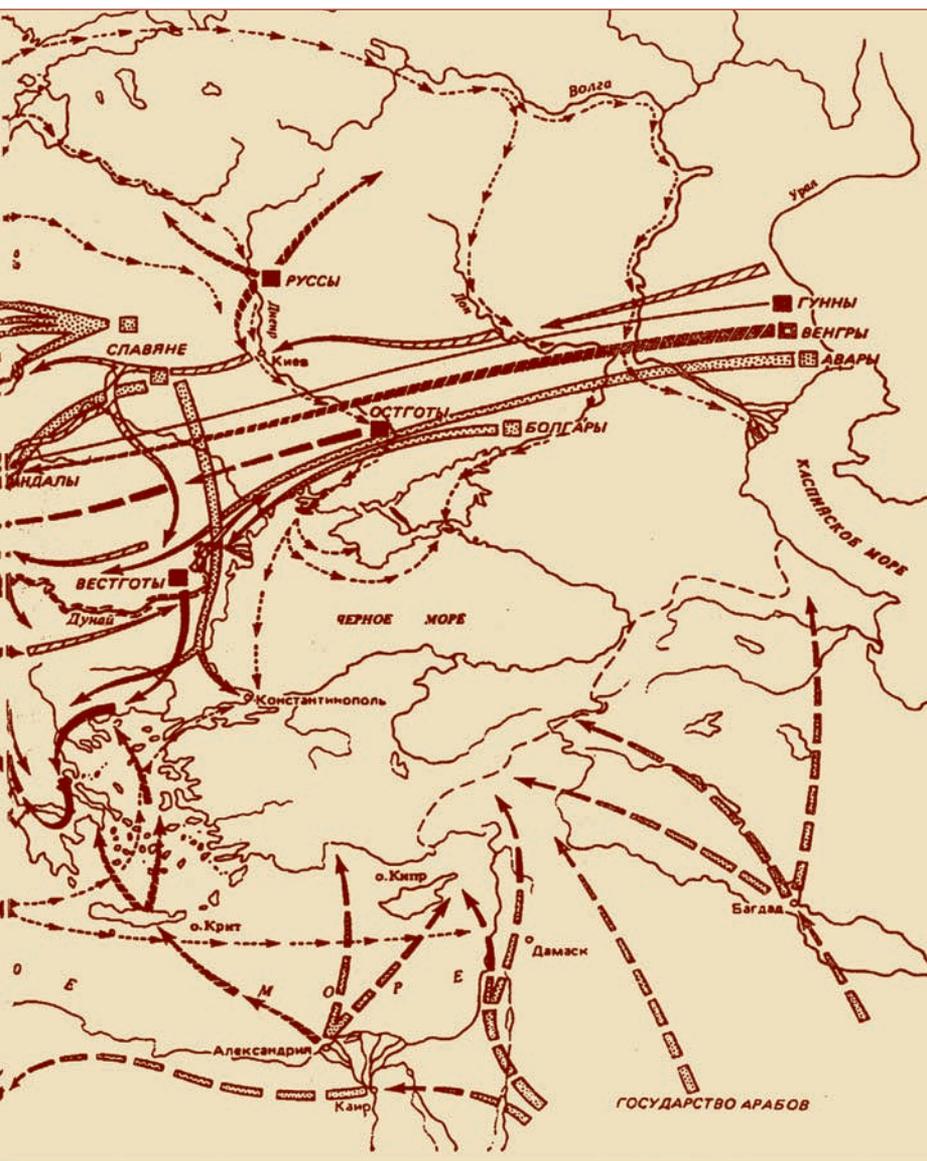
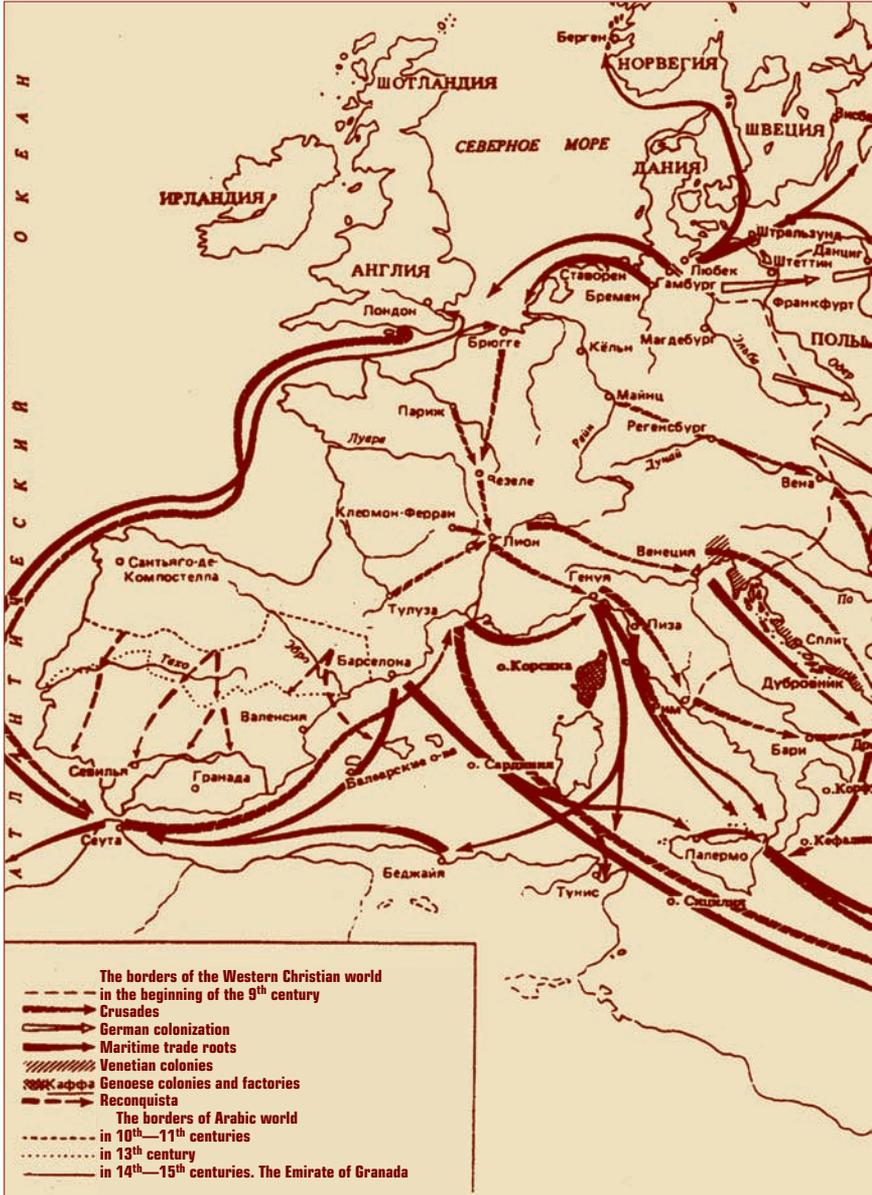
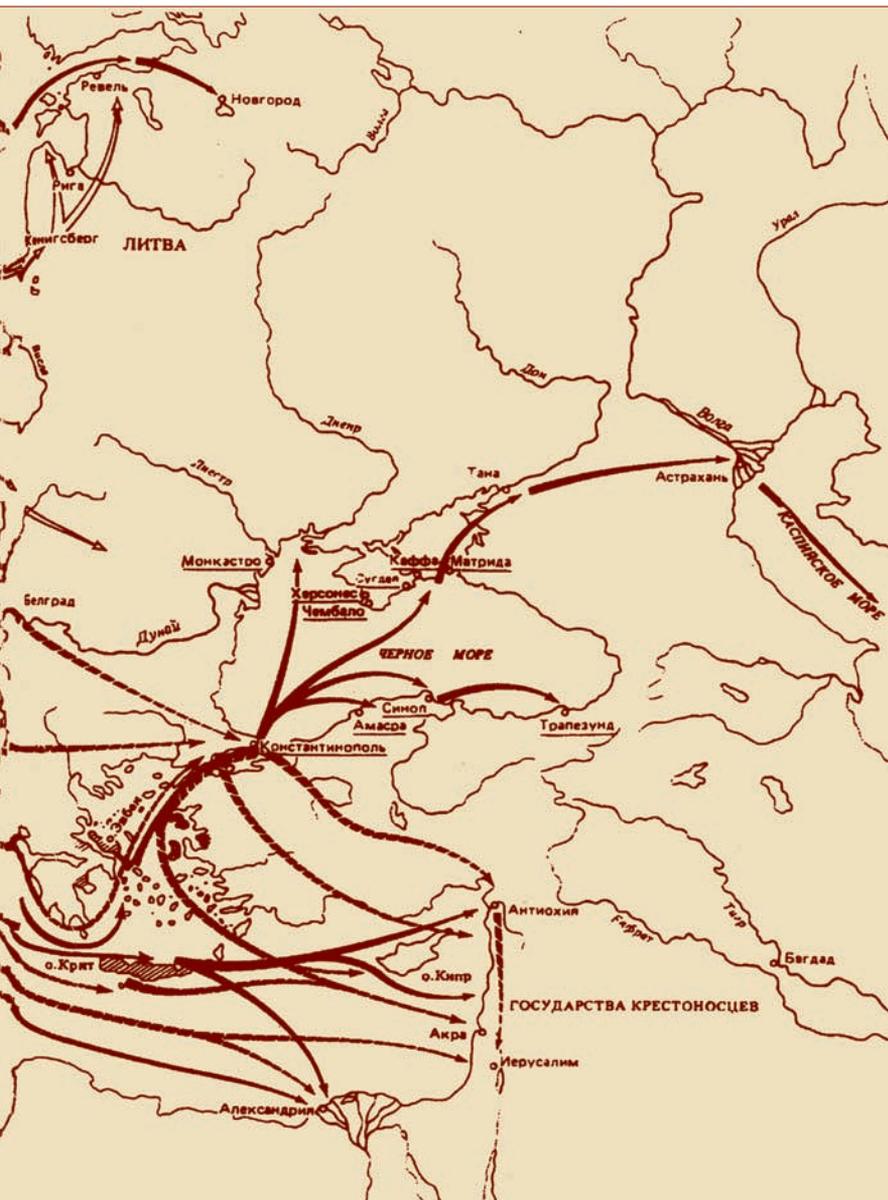


Figure 12.2

Expansion of the West. 10th–11th Centuries A.D.



Source: [242, p. 152–153]



achievements of craft organization of production, but also by the advance of agricultural equipment, improvement of horsed plough, three-field system of rotation of crops.

3. In the political field this transition was characterized by *a struggle of feudal monarchies with despotism of numerous vassals*, feudal disunity, which generated numerous bloody fights and wars.

The place of world empires of the ancient society based on military conquests was taken by the trade-political empires and unions supported by this or that religion. The ideological base of the Byzantine Empire was the Orthodox branch of Christianity. Based on its western, Catholic branch repeated attempts were undertaken to revive the Holy Roman empire. Large medieval empires emerged in the East. Due to the Moslem conquests the Arabic caliphate existed for several centuries — under the Umayyad dynasty (with the capital in Damascus) in 661–750 and the Abbasid dynasty (with the capital in Baghdad) in 750–1258. The Mongolian empire reached enormous sizes, whose beginning was laid by the conquering campaigns of Genghis Khan (1227–1255). The Golden Horde was one of the successors to this empire; it extended from the Irtysh to the Crimea, lower reaches of the Dnepr to the Danube, the Russian principalities paid tributes to it until the end of the 15th c. In India the empire of the Great Mogul existed more than three centuries (1526–1857); its outstanding representative was **Akbar**, who had implemented a number of radical economic and political transformations.

The trade-political unions formed in Europe, which, as **F. Braudel** observed, was remarkable for its bipolarity. One pole formed in the center and on the north of continental Europe and was headed by Brugge (then Lübeck). The rise of the Hanseatic cities was promoted by trade routes, which ran worldwide. Another pole was headed by Italian cities, the mighty Republics of Venice and of Genoa, which all the time struggled with each other for the dominance in this region. Due to powerful fleet, developed trade, diversified craft, rich culture Venice extended its influence on nearly all Western Europe and Mediterranean. Venice was a model of the formation of the market infrastructure and a relatively democratic political system tolerant to various beliefs. The beginnings of the nascent capitalism concentrated there.

4. If we speak about *technology of the medieval civilization*, *there was no such an impressive breakthrough* as in the period

of the early class civilization. The agricultural equipment, although providing for a three-field system and application of a better plough, developed slowly. The revolution of mills — wind and water — became the base of power engineering. The use of paper and powder, development of watch-making, use of magnifiers, spectacles and color glass may be included in major innovations of that period. The sea compass and stern rudder expanded the opportunities of shipping

5. Despite endless destructive wars and religious persecutions *in the medieval period a significant improvement in the life conditions of population*, especially city, was observed. The advance in agricultural, craft, construction and transport equipment, power revolution fostered it. The number of population increased fast. Thus, in Europe it grew from 27 mln. people in 700 to 73 mln. in 1300 — 2.7 times (while for the previous 500 years it reduced 2.5 times). This encouraged construction of many large and middle cities, their building up, development of new architecture.

The crisis of the medieval civilization. Approximately from the middle of the 14th c. the signs of the crisis of the medieval civilization in Europe were observed. «This huge market of Europe crashed with an incredible recession of the 14th–15th c. (1350–1450) together with the Black Death that was possibly both the consequence and reason at once; weakening of economy at the moments of corn crisis and hungers of 1315–1317 preceded the epidemics and favored its sinister work» [23, p. 564].

The number of population in Europe reduced in a hundred years (between 1300–1400) from 73 to 43 mln. people — by 42%. Fallowing and development of new lands stopped, a part of ploughland was abandoned, city population reduced sharply. Heavy crop failures of 1313–1317 produced a rise in prices and hunger. A wave of rebellions, city outbreaks swept across.

The crisis of the medieval civilization had economic, political and ideological roots.

Economic — as feudal bondage of peasants, growth of a feudal rent and exaction from the city craftsmen undermined the interest of workers in the development of production.

Political — endless feudal wars, lawlessness of peasants, craftsmen and merchants, self-will of aristocracy determined the instability of society.

Ideological — the dictate and fanaticism of churchmen impeded the development of science, culture and education.

12.1.2. Early Industrial Civilization

The formation of the early industrial civilization. From the middle of the 15th c. a new long period of the rise began that continued developing in Europe by a bipolar scheme. One pole was in Italy of the Renaissance (with the center in Genoa). The other was on the north of continental Europe (with the center in Antwerp), and then in England (with the center in London). The peak (a turning point) of this cycle, according to **F. Braudel**, fell to 1650, completion — to 1733—1743.

It appears logic to call this world civilization *early industrial*. It expressed the major tendency in the dynamics of society in the countries that were in the vanguard of the historical advance, a transitional nature of this stage laid the foundation for the top of the second historical super cycle — industrial civilization.

The great geographical discoveries of the end of the 15th c. together with the increasing threat of Turkey (after the downfall of Constantinople) led to the shift of a part of trade roads to the Atlantic, North and Baltic Seas. Due to overseas conquests and sea might Portugal rose, then Spain and next great Britain. Antwerp became the center of the world trade and economic might in the 16th c., in the last third of the 16th c. — the first quarter of the 17th c. — Genoa, then Amsterdam, and at the end of the period — London (it numbered about 550 thous. people by 1700 and was the largest city in Europe).

Concurrently it was the period when the struggle of bourgeoisie for political power began, which most vividly found expression in the Netherlandish and English bourgeois revolutions.

The Italian Renaissance, Great Scientific Revolution, Reformation in Germany became the signs of the period. The beginning of the industrial revolution was connected with the dominance of manufactories, mastering of coal, development of mining and metallurgical industries.

The countries of Western Europe — Italy, Great Britain, the Netherlands, France and Germany — were in the epicenter of the formation of the early industrial civilization. It is here that the new ideas and social-political movements germinated, capitalist economic relations established themselves, and the bourgeois democracy began to form, absolutist states emerged that basically finished with feudal civil discords, ensured a better political stability and protection of the private capitalist property formed as a result of the original accumulation of capital.

Approximately at the same time a strong absolutist state was established in China. It rested on the accelerated growth of cities, regional division of labor, which led to the emergence of large manufactories, development of trade and monetary circulation (from the 12th c. paper money was printed). The summit of this period was reached under the Ming dynasty (1368–1644). However, in China a section of radical bourgeoisie did not form. The Manchu conquest, and then the incursions of western colonists cast back the country for a long time. Turkey, Iran, Mongolia and Southeastern Asia did not step over the framework of the Middle Ages. Russia and Japan began to change over to a new historical period with a certain delay. India led by the GDP output that produced one fourth of the world GDP by 1500; by 1700 – the end of the period the leadership was taken by China that produced one third of the world GDP according to **A. Maddison**. In this period 23% of the world GDP fell to Western Europe, ex-USSR – 5.4%, Japan – 3%, the USA – 1.8% [264, p. 25; 260].

Major achievements of the early industrial civilization. What did the period that may be defined as the early industrial civilization enrich the historical heritage of humankind with?

1. A signal milestone was the ***rise of spiritual life*** brightly embodied in the Italian Renaissance (14th–16th c.). It is equal in its historical significance to the first intellectual revolution of the 6th–4th c. B.C. in ancient Greece; the Renaissance, period of humanism that lasted approximately up to the middle of the 19th c. began from the revival of the ancient Greek heritage.

Humanism brought to the forefront Man who had become free from rigid restrictions of the Middle Ages, a free creative Personality enjoying zest for life, perception and cognition. This found its expression in the Great Scientific Revolution that laid the foundation of modern science. Discoveries in astronomy, in a number of theoretical and engineering sciences, in philosophy, in medicine became the heights of this revolution.

Not less impressive success was reached in literature (Dante, Petrarca, Boccaccio, Erasmus and Cervantes), theater art (Italian comedy, dramaturgy of Lope de Vega and Shakespeare), painting, sculpture and architecture (Leonardo da Vinci and Raphael, Giorgione and Titian, Michelangelo and Dürer).

2. A scientific overturn of the Renaissance was connected with the ***general technological revolution*** nourished by the achievements of practice and satisfied its demands. Based on the division of labor

and increasing its efficiency many times against the craft system manufactory was the base for making various industrial products cheaper.

Production of fire-arms – cannons, manual harquebus, muskets was especially developed. The advance of the marine permitted to make seagoing, fostered the development of international trade, dialogue among civilizations. Not much progress could be observed only in agriculture where labor of bondmen and praedial serfs prevailed, although a number of improvements became widespread here, too.

3. Economic relations of the early industrial civilization were characterized by strengthening and expansion of boundaries of the market, establishment of capitalist relations. First in Italy, and then in Amsterdam, Paris and London the market infrastructure formed, bills functioning mechanism, bank and stock exchange activity. The economic power gradually passed from landowners, aristocracy and church to trading, financial and industrial capital. Capitalist relations permeated into the agriculture that got involved more and more in the market turnover. The boundaries of personal bondage narrowed; the wage-labor system became spread not only in the city, but in the village as well.

It may be said that this was the period of the glorious pace of bourgeois economy around the world. It was exactly the period when numerous local and regional markets formed into single national markets, closely connected by international trade.

Western Europe was at the head of economic advance where a historical turn to capitalist society occurred, in its first phase – «manufactory capitalism». The achievements of eastern civilizations – Indian and Chinese – are less known, but not less impressive.

4. In the socio-political field the early industrial civilization was characterized by heterogeneous tendencies.

The major achievement was the formation of absolutist national states. As the result riotous behavior of self-willed feudal lords governed by the right of force was reduced, better conditions for production and trade inside the country were established.

The struggle for political equality, overcoming of feudal hierarchy, absolute power and self-will of suzerains intensified. In the cities merchant republics established themselves. As a result of the Netherlandish and English bourgeois revolutions political influence of the «third estate» intensified. However, the power still belonged to the monarch, aristocracy and the upper crust of the church hierar-

chy on the state level; only in England a hole was made as a result of the strengthening of the parliament. In Venice a traditional republican system survived.

Along with that it was time of a sharp aggravation of social conflicts, rising of the people, bloody civil and religious wars. Monarchs and feudalists conducted endless wars (the Hundred Years' War between England and France in 1397–1453, the Thirty Years' War in 1618–1648 in all Europe). The ruling crust needed the increased influx of funds, which they could get by intensifying a pressure of taxation on the nascent bourgeoisie and peasants. It led to frequent rising of people, most telling of which were Jacquerie in France and Peasants' War in Germany.

5. Sea voyages and great geographical discoveries led to the formation of the **world colonial empires**. Portuguese and Spanish ones became first of them as a result of conquering America discovered by Genoese **Christopher Columbus** under the sponsorship of the Spanish Crown. Britain purported to be the colonial empire. Endless wars were conducted for the seizure and repartition of colonies. The establishment of the bourgeois system was based on violence, terror, extermination of whole nations and cultures. A very tragic fate awaited the early civilizations of Central and South America. These civilizations, their population and a larger portion of their cultural heritage was destroyed by European conquerors, who established feudal and partially slave relations on the violently subdued territories.

The crisis of the early industrial society. The potential of the early industrial society largely based on colonial seizures and original accumulation of capital began to run out by the middle of the 17th c. The second half of the 17th c. and two thirds of the 18th c. may be characterized as the period of crisis and the decline of the early industrial civilization and the germ of industrial civilization.

The opportunities to meet the increased demands of quickly growing population, and especially the luxury of royal courts and nobility on a narrow basis of the manufactory production and colonial trade were reducing. The population of the world increased from 1500 to 1820 from 438 to 1,042 mln. – 2.4 times while in the preceding 500 years – 1.6 times [264, p. 256].

Western colonialists stopped getting huge profits from rapacious trade with India, Indonesian islands, Africa and America. Besides, Europe suffered a row of catastrophic crop failures. The overturn in the technological mode of production became inevitable.

The development of agriculture and manufactory industrial production came into collision with the growth of parasitism of the feudal upper crust, with destructive effect of feudal and colonial wars, first bourgeois revolutions in the Netherlands and England. The bourgeoisie («third estate») which had gathered economic strength remained rightless in terms of politics. The society matured for a revolutionary transition to the next world civilization.

12.1.3. Industrial Civilization

The industrial overturn and formation of the industrial civilization. The industrial civilization that transformed all the world became the top of the second historical super cycle, implementation of the potential inherent to it.

The phase of the formation of the industrial world civilization embraced the last third of the 18th – beginning of the 19th c., when the industrial revolution started. The epicenter originally was in England with a further shift to continental Europe and North Africa. The phase of fast spreading in the vanguard countries (mainly in the western civilization) lasted until the middle of the 19th c. After that is possible to speak about the phase of stable development of the industrial cycle. It appears that the industrial civilization went through the phases of the rise and maturity approximately before the beginning of World War I, and its downfall phase began thereafter, and transformed into the post-industrial civilization in the transitional period from the end of the 20th c. However, in the 50s–60s a short period of the last rise of the industrial civilization was observed on the wave of a scientific-technological revolution (STR), which ended with the crisis of the 70s. It was the third bell before the beginning of a new historical super cycle.

Characteristic features of the industrial civilization. In terms of regularities of the historical progress the following features of the industrial civilization may be noted.

1. Growing mechanization and concentration of production, spread of the systems of machines linked in one technological chain – not only at an individual enterprise, but in scale of the country, a number of countries (international monopolies) with time, and then – in global scale (transnational corporations). It transformed society into a total of intertwined large, medium and small technological systems working in a single rhythm, experiencing synchro-

nously the phases of rises, crises and renewal. The industrial society gives priority to technologies. A technological advance underlying economic growth and competitiveness of products is based on the achievements of science.

2. In the industrial system man is the creator of machines, builds and operates them. However, machine-based production created to satisfy his needs subordinates man more and more, enforces the rhythm of his life, while the change of generations of equipment threatens with unemployment. Demiurge of machine world becomes its slave.

With the triumph of machine production the epoch of humanism ended. It also found its expression in culture. Standardized, devoid of national differences and spirituality admass culture emerged.

3. Contradictory tendencies were observed in economy of the industrial period. Its achievements are indisputable in a powerful and long rise of productive forces, growth of life level of the broad masses of population in the developed countries. According to **A. Maddison**, GDP output grew (in comparable prices) 53.5 times from 1820 to 2001 (under a growth of the number of population 5.9 times), including in Western Europe – 46.9 times, the USA – 637 times, Japan – 127 times [264, p. 252]. Due to a large-scale technological application of science, more powerful industry, labor efficiency increased ten times. Most families in the developed countries got an opportunity to live in comfortable homes, to use different household appliances, to regularly change makes of cars and to travel around the world.

However, such impressive advance was reached at a heavy cost. It becomes more and more clear that deformed structure of national and global reproduction has no prospects. Welfare and prosperity of rich countries are based on a ruthless exploitation of labor and natural resources of the rest of the world.

Only reminiscences have been left from the period of a free competition. Through the establishment of joint stock companies, economy has come to the dominance of monopolies, which then merged with powerful state machinery. In the second half of the 20th c. a rapid rise of transnational corporations, which have become powerful integrators of world economy in its leading spheres, was observed. Capital has become more democratic on the surface, growing sections of population own shares and bonds. But under this deceitful democratic screen economic might of a narrow section of economic elite (also political) hid itself.

Figure 12.3
Great Geographical Discoveries



Source: [242, p. 160–161]



4. Increased homogeneity of society in national and world scale has established conditions for a clearer manifestation of **regularities of cyclical dynamics of civilizations**. With the periodicity one time in a decade economic crises hit the developed countries since 1825. The outlines of semi-century (Kondratieff) cycles are taking shape as well as the rhythm of the renewal of generations of equipment, technological orders, and also tendency in a wave-like spiral dynamics of other spheres of social life.

5. The tendencies are not less contradictory in the **political and state-legal** system of the industrial period. The boundaries of bourgeois democracy expanded. But concentration of economic force led to concentration of political power, to the dictatorship, covered by screens of democracy. It found an extreme expression in the establishment of totalitarian regimes, which under the conditions of a deep-seated crisis and chaos came into power sometimes by a democratic way (for instance, in Germany in 1933). Powerful industrial means of ideological influence and «brainwashing» established the base of such regimes, unification of political views of people and formation of mass political parties.

In the industrial society a legal order established itself, which was based on the recognition of equality of all nationals and social strata before law, on the priority of law in the regulation of legal relations. However, the all-might of capital was behind it.

In the dynamics of the institutions of political life several phases take place throughout the industrial civilization: establishment and diffusion of bourgeois democracy as a result of a number of bourgeois-democratic revolutions (Netherlandish, English, North American, French etc.); the triumph of democracy in the second half of the 19th c. in the developed countries; its decline and transformation into its reverse in the totalitarian states since the end of the 20s of the 20th c.; a new wave of democratization at the end of the 20th c.

The industrial civilization has reached unprecedented heights in the development of production forces and wealth of society, in ensuring the unity of world economy and development of culture, in the improvement of the level of life of most of population in the vanguard countries.

But concurrently it has opened the path for new contradictions, deepened the gap between the rich and poor countries and civilizations, unleashed world wars unprecedented in its bloodshed, put humankind on the brink of ecological catastrophe and self-destruction as a result of the use of the weapons of mass destruction.

The decline of the industrial civilization. The World War I revealed growing signs of the decline of the industrial civilization. What are these signs?

1. The industrial system unleashed the two bloodiest wars in the history and in the course of «Cold War» it accumulated the stock of weapons of mass destruction enough to self-liquidate all humankind, and even all flesh on the Earth. The maintenance of such system became dangerous for the fates of human race and biosphere.

2. Having accumulated enormous wealth, capitalism concentrated it on the one pole — in a handful of developed countries and civilizations. Enormous majority of humankind turned on the brink and beyond the brink of poverty and impoverishment. Initiative and mammonish spirit of competition made such a global gap between the wealth and poverty that had not existed before in the history of civilizations.

3. Having proclaimed its ideal the conquering of nature, having included natural resources in reproduction on unprecedented scale, the industrial society has reached the brink of their depletion, has extremely polluted the environment and thus has led the world to a global ecological catastrophe.

4. Having reached a lot of success in propagation of democracy, equality of rights and obligations of nationals, industrial civilization has made democracy formal at the last stage of its life cycle, generated such monsters as fascism and totalitarianism, terrorism and extremism, made huge and corrupted in many ways state machinery which tries to stand above society and subdue it to its interests and influence.

5. The universal crisis has hit spiritual sphere — science and culture, education and ethics, ideology and mass media. Science is made to serve the military-industrial technologies and has lost its creative prognostic force in many ways. Commercialization and ideologization of culture, especially under the conditions of the global development of telesystems and Internet, has led to the formation of admiss anti-culture, threatens cultural diversity and civilizational originality. The propagation of the cult of violence, terrorism, permissiveness, pornography, irresponsibility to the past and future generations has become widespread through mass media.

However, the end of the industrial period does not mean the end of the history of humankind, and only the threshold of the entrance to a new historical period. This was clearly expressed by **Pitirim Sorokin**: «All significant aspects of life, order and culture of the

western society experience a serious crisis. Flesh and spirit of the western civilization are ill... We are as if between two periods. A night of this transitional period begins to sink on us, with its nightmares, frightening shadows and heartrending horrors. However, the light of a new ideal culture greeting a new generation may already be discerned» [184, p. 427].

12.2. Dynamics of the Structure of Civilizations of the Second Super Cycle

The structure of society underwent deep changes in the period of the second historical super cycle, embraced all «stages» of the «pyramid» of civilization. With small breaks a rapid growth of population that found its expression in a demographic explosion in the second half of the 20th c. was observed. Technological overturns occurred one after another, which resulted in creation of the world industrial machine, excessive load on natural resources and environment. The capitalist market economy covered the entire globe, led to the excessive accumulation of wealth by the owners of TNC and the ruling crust of the richest countries and to poverty of the majority of population of the planet. The waves of revolutions shook the world and more and more bloody wars. A rapid growth of science and education, creation of latest means of communication and transfer of information was accompanied by a loss of many national, cultural and civilizational traditions. The paradoxes of the society development became more and more evident. By the end of the 20th century mankind had found itself in the state of a deep crisis.

The basic diagram of the dynamics of civilizations of the second historical super cycle is given in *fig. 12.4*.

12.2.1. The Growth of Population Numbers, Demands and Abilities of Man

The growth of population number and demographic explosion. The second historical super cycle is characterized by a rapid growth of population number, especially in the industrial society. While its increase made from 238 to 1,042 mln. people for 17 centuries — from the 1st A.D. to 1820, then it grew up to 6 bln. people — 5.9 times for

the next 180 years. Unprecedented growth rates of population occurred as the result of reduction of mortality and a considerable increase in lifespan, unprecedented growth of labor efficiency. The latter allowed to feed a fast growing number of consumers under a considerable reduction in the share of the employed in material production, to increase the number of material benefits and services many times, falling in average per capita of population in civilizations with a high level of economic development.

However, this tendency had also negative sides, especially in the densely populated countries due to the scantiness of resources. The matter was not only in the total growth of population, but in its unequal distribution: for 50 years (from 1950–2000) the number of residents on the earth increased by 3,534 mln. people 2.4 times; 80% of such increase fell to the developing countries, poor civilizations.

The demographic explosion of the second half of the 20th c. involved largely the countries and civilizations with a low level of income per capita, intensified sharply the load on the environment, and aggravated the problems of unemployment and poverty, illiteracy of a considerable part of population in the developing countries. However, by the end of the 20th century a growth rate of population on the Earth went down a little. The peak of a demographic explosion is already behind.

Dynamics of demands of man and family. Changes occurring in man's life throughout the second historical super cycle are incomparably smaller than for 7 thousand years of the first three civilizations. But nevertheless, it was a huge advance, full of dramatic sinuosities; modern man with various demands and varied abilities was moulded as result, with a considerable bulk of rapidly aging knowledge and skills.

A refined man of the late antiquity of Europe was replaced by a young, energetic barbarian full of vital force although more primitive. He quickly imbibed all viable that had remained from the ancient society. Christianity that became a kind of a carrier of transmission of scientific, cultural ethical genotype from civilization to civilization contributed a lot to it. And Islam, which emerged in the 7th c., played a considerable role.

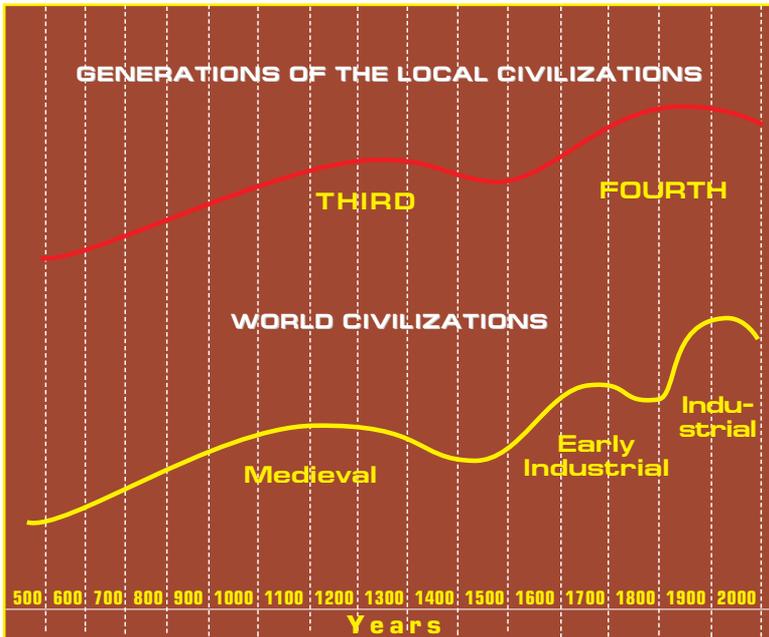
The path to modern man ran more smoothly in the East – in Byzantium, India, China, Persia and Central Asia. The downfall came later when these countries became colonies or semi-colonies of aggressive capitalism of the western European civilization. It conquered the cultures that once were in the vanguard of the advance of

world progress, impeded their development for millennia. Colonization of America was deadly for early civilizations.

Expansion of personal freedom and dominance of market relations undermined in many ways the spiritual values, especially family relations. Family lost former economic significance, especially amidst proletariat and intellectuals, activity and independence of women increased. Family ties were stronger in rural areas and in the countries of the East where they were supported by Islamic traditions.

The dynamics of *demands* of man initiated progressive shifts in the development of society and experienced their influence on itself. The relation of biological and social demands changed wave-like. In the transitional period from the ancient society to the Middle Ages a shift in favor of biological, material demands occurred. The destruction of productive force, annihilation of a part of people, material and cultural values, a fall of labor efficiency — all this resulted in primi-

Figure 12.4
**Dynamics of the Second Historical
Super Cycle Civilizations**



tivization of demands. The primary aim became the elementary survival of man, family, rural commune and city. Naturalization of economy led to reduction of a circle of economic demands; interests connected with realization of land property and appropriation of feudal rent came to the forefront. Socio-political demands were restricted to the boundaries of community, shop and vassalage. Under the influence of Christian and Moslem asceticism and dogmatism the spiritual demands narrowed and simplified.

Formation and development of local, national and continental markets, fast development of craft, manufactory and machine industry from the end of the 18th c., growth of a section of people whose wealth depended on the market conditions, tightening competition and removal of barriers on its way, development of credit and banks ruined the narrow framework of natural economy and brought economic interests to the forefront. It was the time of Homo economicus. Socio-political demands were subjected to economic interests. Political freedoms and civil equality that were so hard to get should have ensured equal conditions for competition and safeguard property acquired or inherited. The state machinery, courts, laws served the same aims.

Spiritual demands were also subordinated to economic, although often stepped over its boundaries. The growth of wealth, diversified types of activity, development of international ties increased the role of socio-cultural demands.

Changes also occurred in the family institution. A large patriarchal family comprising as a rule three generations was spread in the feudal village and guild city. Large families were also inherent to the ruling upper crust that generated conflicts in the partition of heritage. Marriage and family were blessed and supported by church.

Development of abilities, knowledge and interests of man. Cyclical dynamics was observed in the development of man's abilities, his knowledge and skills. Sophistication and increase in the types of business in the early industrial and especially industrial society, wider and wider application of achievements of science in production, management, warcraft required a new level of abilities, knowledge and skills from a wide circle of workers. It required formation of the system of general and special education, vocational training. These were primary and cloistral (church-parochial) schools, gymnasiums, lyceums, universities, and then a network of various vocational schools and institutes that trained engineering

and technological personnel. In the manufactories and enterprises the institute of apprenticeship connected with production survived.

Functional illiteracy and professional incompetence of workers increased considerably in transnational periods when the conditions of production and life changed radically. Millions of people changed their professions, because skills acquired before turned out obsolete. It served a stimulus to a qualitative change in the system of education, coming of a new generation of workers meeting the demands of the period by level of intellectual-professional store, abilities and skills.

A share of people who did not participate in the production of material benefits and services, but made an increasing demand for them based on the right of ownership, economic and non-economic coercion grew. Another motivation mechanism acts here — pursuit of accumulation of wealth, political and military might on account of intensified exploitation of production workers. Non-economic and economic coercion to labor exists in various periods completing each other; however, their ratio is not equal. For feudal society, along with economic dependence (ownership of feudal to land), personal bondage of a peasant remained a prevailing element. It found its expression in different forms from a comparatively mild render to strong manifestations of serfdom. Various forms of economic coercion and hired labor existed.

In the early industrial society the significance of economic forms for compulsion to labor increases when a worker is deprived of own means of production and has to sell its working power to make a living for himself and his family. The original accumulation of capital is connected with various types of violence, and in the village serfdom or softer forms of feudal bondage prevailed. In the industrial society economic coercion becomes major, though it does not exclude the instances of forced labor (slavery in the USA before the Civil War of 1864, death camps in fascist Germany and Stalin's GULAG, various forms of feudal and semi-feudal exploitation in colonies etc.).

Religion also impels man to labor, there are such lines in Orthodox Christianity and Catholicism, while Protestantism (Calvinism) view it as sin, if man fails to implement the skills given to him by the supreme will through active labor. Creative stimuli to labor increased gradually, although they lost their positions in crisis, critical periods.

In the countries of the East where Islam, Buddhism, Confucianism (China), Shintoism (Japan) prevailed, there was own

specific in the development of demands and abilities of man, his knowledge and skills, and motivation mechanism. Here individual vocations, abilities and interests, personal freedoms played a subdued, secondary role. The interests of the state, team were brought to the forefront, a family institute was stronger. All this inhibited the manifestation of individual abilities and talents and became one of the factors impeding social progress of these countries.

12.2.2. Technological Overturns

The technological revolution of the medieval civilization evolved in Europe in the 11th–12th c. from the overturn in agricultural and military equipment. During this period a transition from a hoe-based tillage to ploughlands using an improved plough completed. A three-field system and an improved plough became widespread, which together with the use of organic fertilizers contributed to the maintenance of lands fertility, more stable yields. The advance in agricultural equipment gave more surplus produce, which served as a source for the development of cities.

Warcraft became another stimulus to a technological advance. Feudal wars were conducted nearly non-stop. Human mind was targeted at the invention of lethal weapons of attack and protection against them. With the advent of arbalests the range and power of heavy arrows was increased many times. Powerful knightly swords, sables, Danish axes, daggers were used. The invention of powder in China and its spread around Europe generated a new class of weapon – fire-arms – that improved fast. For a siege of fortresses a wide range of siege weapons – ballistae, catapults – were invented; the Byzantines used «wildfire» that filled the besieged with consternation. Powder charges began to be used for blasting fortress gates and walls. This impelled construction of more powerful fortresses and castles.

A fast growing demand for agricultural, military and construction equipment led to a breakthrough in mining, metallurgy, production of labor tools. Copper, iron ore and then coal were mined using pits. The practices for making cast iron, steel, copper, making necessary alloys, Damascus steel-making was invented. Forge welding, hot forging, heat treatment, art forging, inlaid work, bell casting were used. The development of trade and long-distance military cam-

paigms impelled to make carts, coaches for the nobility, construction of paved roads and bridges across rivers. Multi-deck sailing vessels fitted with cannons were built. The use of compass made long sea and ocean voyages safer.

A mass application of water and wind mills the design of which constantly improved became the base of power revolution of that period; they were used in various productions as power sources. Europe, especially its northern part was dotted with windmills. A mechanical watch — from tower to clock — became the apex in the technological advance of that period. The invention of printing that followed the advent of paper became an overturn in technology for education and culture.

A widespread of craft guilds that united family craft workshops fostered the advance in crafts. The guilds promoted specialization of tools for craft labor, standardization of technology and manufactured items where the art of craftsmen took shape as well as expansion of cooperation in trade. However, a tough regulation and technological conservatism resulted in their impeding the advance of technology in the 10th c. Guilds gave place to the manufactories, whose advantage was the use of division labor in production.

The general technological revolution of the manufactory period. The peak of the general technological revolution of the manufactory period that formed the early industrial technological mode of production fell to the 16th c. Great geographical discoveries, development of international trade gave impetus to a rapid upsurge in shipbuilding that contributed to the revolutionary changes in the allied industries. Mastering of blast-furnace process and the application of coal ensured the abundance of cheaper metal. The influx of new sources of raw materials from the overseas colonies, mastering of efficient technological practices for its processing, expansion of markets with the increase in the number and income of population determined a fast development of woolen, cotton, glass, porcelain and other manufactories. The printing developed swiftly: the scholars already knew forty thousand editions by 1500, which became one of the tools for speeding up a technological advance, application of new scientific knowledge in practice.

The manufactory production of fire-arms, especially artillery, various guns and pistols was based on a new technological base. The armories, arsenals were set up. The navy fitted with powerful side artillery was formed.

A manufactory based on division of labor and specialized implements of production became the main form of organization of production. It prevailed till the end of the 18th in Europe and ensured a leap in the labor efficiency, development of mass manufacturing (the guilds could not cope with it), became the primary form in which capitalism was establishing itself, opened space for the application of technological improvements and a number of scientific thoughts.

The development of shipbuilding, great geographical discoveries, intensification of international exchange expanded the territorial borders of diffusion of technological innovations, fostered the convergence of the technological development level of major regions of the populated world.

The technological revolution of the early industrial civilization contributed to the approach of science and technology, practical implementation of a number of scientific ideas and development of efficient ways of scientific cognition.

The forms of organization of production developed from family peasant and craft economy through the guild system to the manufactory established on the base of the division and cooperation of labor and specialized tools, which established preconditions for the emergence of machine-based production and a net of factories.

The industrial revolution and technological overturns in the 19th c. The industrial civilization with the technological mode of productions inherent to it originated from the industrial revolution of the end of the 18th c. The advent of the spinning-machine, mule and mechanical loom in the textile industry in England inaugurated the beginning of its overturn. A wide application of textile machines required the development of an engine. In 1784 **James Watt** created a steam engine with a flywheel, throttle and automated control, which could actuate textile machines with a constant speed. It enabled to improve sharply the labor efficiency, cut the cost of yarn and fabrics. From 1785 to 1850 the production of fabrics grew 50.6 times in England, and the price dropped 5.5 times; fabrics made a half of the British export. It is clear that handicraft industry could not compete with the industrial production, thousands of craftsmen were ruined.

The creation of machines opened opportunities for mastering new practices for making cast iron and steel using coke, mining of coal, the advent of rail transport and shipping.

In England the beginning of the *second stage of industrial revolution* was laid when machines began to be manufactured using

machines. Machine engineering appeared and began to develop rapidly, industrial technology acquired its own base, which made a technological structure of the industry more homogeneous and fostered its rapid growth.

In England *the machine factory* emerged as an adequate form of the application of machines which replaced the manufactory. A new technology of machine production extended to all agriculture especially as it alone could become the source of additional hands for a vigorously developing industry.

Thus, England became the center of the technological revolution that transformed fundamentally the technological base of all spheres of economy and then spread rapidly in North America and Western Europe. It increased a gap in the technological level of economy between the leading countries and many countries of the rest of the world, where the pre-industrial technological modes of production prevailed.

The next *technological overturn evolved in the middle of the 19th c.* and became a logic continuation of the industrial revolution. Heavy engineering industry, production of steam-engines, construction of rail roads and shipping canals, steamboats became its core. Construction of railroads and navigable canals developed at high rates. Electromagnetism was discovered, telegraph, dynamo, gas engine were invented. The chemical industry developed vigorously. However, a previous technological mode of production still prevailed in many countries.

The *technological revolution of the end of the 19th – beginning of the 20th c.* was much greater in scale. *Power engineering* became its core: a transition from steam and coal to electricity and liquid fuel, mastering of practices for large-scale generation and transmission for distances of electric power, its use for actuating machines, means of communication and lighting, vigorous development of electric engineering, means of communication and lighting. Electrification of production processes and everyday life opened new possibilities for improvement of labor and rest conditions.

As a result of mastering of production and refinery of oil, getting a number of liquid oil products and their use in internal combustion engines, carriages of cargoes and passengers became considerably cheaper, new kinds of transport emerged (motor car, airplane). In their turn they revolutionized transport, gave impetus to the transformation of a number of allied industries. It was necessary to organize production of various type of quality steels and profiles of

rolled metals, to develop non-ferrous metallurgy, which encouraged mining industry, prospecting, production, enrichment and processing of various types of mineral raw materials, increased the value of its deposits.

The advance of chemical industry permitted to set up a large-scale production of dyes, catalysts, medicines and mineral fertilizers. The application of the latter in agriculture together with tractors and a set of more advanced agricultural machines and agrotechnics became the basis of a technological overturn, enabled to considerably increase the yield of major crops, livestock yield, to increase the labor efficiency in the agricultural sector of economy and to release a considerable number of hands as a vigorously developing industry was in an acute need of them.

Achievements of science and technology became the basis of the next *military-technological revolution*. The advent of military aviation and tanks, creation of powerful navy, new types of explosive agents (dynamite), toxic gases, use of the means of radio communication — all this contributed to the escalation of arms race and established a material-technical basis of the First, and soon Second World Wars, where tens of millions of people died and great damage was caused to economy and culture of peoples of the world. The inventions of human genius turned against its creator.

Technological advance and machine-based production required qualitative changes in the structure and level of *qualifications of manpower*. The number of scientists, engineers, technicians who were directly involved in the development, production and employment of sophisticated equipment increased sharply. Manpower qualifications requirements increased. All this led to the next *revolution in education*.

Technological overturns resulted in *the increase of labor efficiency*, many goods became cheaper (especially in new productions), the range of goods expanded sharply and the quality of goods improved considerably. The increase in efficiency of reproduction, life level of most of population in developed countries occurred, although uneven by civilizations, countries and branches.

The scientific-technological revolution of the 20th century. For technological overturns of the 20th c. a close intertwining of two major driving forces of renewal of society's material-technological base — scientific intellect and its materialization in new generations of equipment — was typical. This enabled to speak about a *scientific-technological advance* and its implementation in regular waves of

transformations — *scientific-technological revolutions* (STR). Any essential advance in technology was nearly impossible now without new scientific ideas and their technological elaboration. But also a scientific advance was unreal without latest instruments, means for processing of obtained data. The trend to a mutual penetration, merging of science and production, their integration prevailed.

The regularity of a cyclical dynamics of science and modes of production of equipment, change of generations of machines and technological modes manifested itself more clearly. The structure of a single scientific-technological cycle — medium or long-term organically included the phase of birth and technological elaboration of a new scientific idea (scientific discovery, major invention) underlying the innovation, new generation or direction of technology.

The first scientific-technological revolution that has become the base for formation and diffusion of the fourth technological order evolved in the 50s–60s years of the 20th c. in the developed countries, although its initial scientific base had been established as a result of a number of major scientific discoveries and inventions several decades before. It originated from major discoveries in chemistry, biology and engineering sciences. The first STR was based on the leading scientific-technological directions: atomic energy; quantum electronics, creation of laser technology, electronic energy converters; cybernetics and computing technology, creation of first generations of computers.

The machine tools with a stored-program numerical control and processing centers, automated lines and automated production and enterprise control systems were created. Atomic power engineering began to force out or narrow heat-and-power engineering. Synthetic materials — synthetic resins, plastics and chemical fiber — developed vigorously. Jet engines were mastered that led to a breakthrough in aviation. The technologies for continuous casting of steel were invented. Conquering of space by man as a result of synthesis of a number of scientific-technological directions: mathematics and astronautics, control theory and computers, metallurgy and instrument engineering, rocketry and optics became the top scientific-technological achievement of the 20th c. A technological advance began to be widely assimilated in a day-to-day life.

Successes of chemistry found expression in the discovery of new ways for synthesis of materials with pre-designed properties, creation of herbicides and pesticides. The achievements of biological and medical industries became the basis for production of vitamins

and medicine. The creation of atomic and thermonuclear weapon of enormous destructive force, carriers of such missiles that are able to deliver them to any point on the earth, production of new generations of aircrafts, helicopters, tanks, artillery, automatic small-arms weapon, more sophisticated classes of naval vessels, nuclear submarines — all these achievements of the military-technological revolution of the middle of the 20th c. brought humankind to the brink of annihilation.

The second scientific-technological revolution that evolved in the last quarter of the 20th c. and inaugurated a transition to the fifth technological order became the base for overcoming crises (energy, ecological, economic) in the 70s.

The synthesis of three base scientific-technical directions — microelectronics, biotechnology and informatics — became its nucleus. The creation of large-scale and super large-scale integrated circuits opened the path for microprocessor technology, miniaturization and increase in the independence of technological systems, resource saving. The opportunity to decipher and change the structure of hereditary substance through gene technology enabled to design the stock of bacteria with properties beneficial for man, to create fundamentally new technological processes and matters. New information technologies, sophisticated means of gathering, processing, transmission and use of information opened new horizons for cognition of sophisticated processes in nature and society and their regulation.

The base directions of the second STR underlie qualitative transformations in all spheres of production equipment. The development of programmable production, robotic technology, flexible production systems, automated designing opened the way for complex automation. The depletion of conventional power resources and their extreme environmental hazard impel to search for and master non-conventional power sources (solar, wind, high and low tides etc.).

The age of iron that dominated as a major structural material almost within three millennia is coming to an end. The priority was given to the materials with pre-designed properties — composites, ceramics, plastics, synthetic resins, items of powder metal. Fundamentally new technologies were mastered — geobiotechnologies in production of raw materials, which are low-waste and non-waste in their processing, membrane, plasma, laser, electric pulse etc.

The radical changes occurred in the technology of communication and transport. Optical fiber communication lines, satellite, facsimile, cellular communications are making a real overturn in this

sphere. A number of fundamental innovations appeared on transport (air cushion vessels, airfoil boats, electric cars etc.).

The second STR determined radical changes in the forms of organization of production. Small and medium businesses with a flexible and fast convertible production that unite in consortiums, associations, finance-and-industry groups find their niches. This facilitates the quick response to changes on the market, reduces overheads.

The application of computers (especially of personal computers) and information technologies allowed to automate refined and sophisticated production control processes, economy and social processes, improve the validity of decisions made, assure control over quality of products and implementation of decisions made.

Fundamentally new means of medical equipment and medicines are obtained using biotechnological methods, perfect means of diagnostics and treatment are created. Computerization and informatization helps to intensify educational process, promote attention of students. Various means of household radio electronics changing everyday life of families are created.

A technological advance and environmental crises. Each subsequent technological mode of production meant the next step of mankind towards incorporation of natural productive forces in reproduction, a greater impact on the environment.

In the periods of the genesis of feudalism and medieval civilization these tendencies declared themselves to a less extent, although numerous feudal wars caused damages to the environment. However, in the periods of the early industrial and especially industrial civilizations the picture changed drastically.

New natural productive forces were made to serve man. Coal and steam power, then oil products, natural gas and electric power became the source of energy. A range of products made of mineral raw materials and timber, the scale of the involvement in production expanded. Mining industry and agriculture that stood near the cradle of productive economy got the second wind.

At the same time the aim to harness nature bore more and more tangible negative results. The best mineral deposits were depleted predatorily, forest areas were deforested, water sources and air were polluted. Environmental catastrophe threatened a number of industrial areas. It caused the government and international community to take steps for toughening environmental standards, reducing industrial emissions, replacement of most scarce types of natural

resources. A technological gap between local civilizations increased. It was noted by **Paul Kennedy**: «As a result the incommensurate benefits between countries that have wealth, technologies, high level of health care, and other population that has no or nearly has not such benefits increases. A demographic explosion in the one part of the planet and a technological outburst in another do not contribute to the establishment of a stable world order» [80, p. 387].

12.2.3. Economic Transformations

Feudal economic system. The feudal economic mode of production that replaced ancient was characterized by a greater independence and interest in the results of his labor of the major figure in production — *bonded peasant*. He had a small plot of land and means of production for its farming, but he had to give a surplus produce to the feudalist as a feudal rent (as work, natural or money), and also to pay taxes to the state and church («dime»). In the village, a natural-patriarchal order prevailed.

Feudal property was multi-level. Small feudalists and warriors of the armed force served to large, and in their turn, they deemed the king (tsar, shah, emperor) as their suzerain, supreme proprietor. In the period of absolutism centralization of property relations intensified.

Free cities occupied a considerable place in medieval economy. They were carriers of a specific system that may be viewed mixed, feudal-capitalist. Feudal nobility and church, the influence of state power were strong here, but at the same time small craftsmen and merchants prevailed, economic power was with big merchants, heads of guilds, bankers; a freedom-loving spirit was maintained by scientists, writers, actors and artists. In free cities petty economy prevailed.

The nascent and spread of capitalism. In the cities the elements of capitalist order germinated — trade, bank and industrial capital based on manufactories. Hired labor was used more and more widely at the manufactories. In the early industrial society the original accumulation of capital occurred on a large scale.

The final victory of the capitalist system over feudal was reached at the beginning of the 19th c. in the developed countries of Europe. It became possible as a result of the industrial revolution and a series of bourgeois revolutions. This was the century of the flourishing of

capitalist mode of production. Capitalism established itself in many countries of Europe, North America, involved many countries of Asia, Africa and Latin America as colonies and semi-colonies.

Sweeping all barriers on the way of accumulation and mastering of machine technologies resting on powerful impulses of entrepreneurship and competition, having ensured a high mobility of capital that in pursuit of profits flooded to new industries and regions, capitalist system ensured high economic growth rates and ultimately essential improvement in the level of life in developed countries. The GDP increase rates grew from 0.32% in 1500–1820 in average in the world to 0.93% in 1820–1870, 2.11% in 1970–1930 and 4.9% in 1950–1973 [264, p. 260].

The capitalist order passed several steps in its development, flexibly changing its forms and mechanisms. First it germinated in the sphere of circulation (trade and usurious capital) and through the original accumulation therein, then capital swept into production, thus transforming radically its economic conditions. First *individual private capital* prevailed when capital property and capital function were merged into one; the owner was an active entrepreneur himself. But then the demands of large investments (in metallurgical and engineering plants, rail roads, canals etc.) exceeded the opportunities of individual capitalists. The time of *share capital* came. Capital property and capital function divided: hired managers began to manage production bringing profits to owners-shareholders.

Monopolistic capitalism, which permitted to concentrate huge capitals in new capitalist branches to ensure the conditions of expanded their reproduction and to gain high profits using monopolistic prices, became the next stage. Making monopolistic profits in a number of leading industries due to re-distribution of added value became an economic necessity; otherwise it was impossible to implement large scientific-technological and investments projects and to satisfy the demands of expanded reproduction. But negative sides of monopolism immediately become apparent: monopolies are not interested in base innovations until the invested capital is returned; monopolistic prices allowed to get super profits even under a low efficiency of production. In the period of the downfall of industrial society *state-monopolistic capitalism* became spread, which included merging of monopolies with the state machinery, using of the budget for the maintenance of monopolies in the priority industries. The formation of *transnational capital* became the finishing touch of transformation of property — hundreds and thousands of powerful

transnational corporations (TNC), which under globalization conditions control more than a half of the world's GP and generate huge profits, not taking national interests into consideration.

Dynamics of the structure of feudal-capitalist economy. In the period of the medieval, early industrial and industrial civilizations radical changes occurred in the structure of economy, major reproductive and sectoral proportions, relations of technological and economic orders.

The dynamics of the structure of economy of world civilizations of the second historical super cycle based on a reproductive-cyclical macro model (see *chapter 8, fig 8.2*) manifests the following tendencies [16, p. 133–134].

1. In the *reproductive structure* there was a considerable drop of a share of products intended for personal consumption, mainly due to increase in the share of intermediate product, services of market infrastructure and products for government consumption (militarization of economy, a growth of state property and bureaucratic machinery). A share of an intellectual product increased due to a many-time increase in the number of people engaged in science, education and culture.

2. The *sectoral structure* of economy changed sharply. While agriculture and the branches processing its products had dominated in the transitional period in the medieval society, then by the middle of the 20th c. a share of agriculture had dropped sharply, while labor productivity in agriculture had increased. It allowed releasing a large number of workers, who moved to cities and worked on plants and factories. In the developed countries a specific weight of mining industry reduced considerably.

3. In the *hierarchal structure* of economy a share of home economies dropped many times, on the account of which a major part of family demands in foodstuff was satisfied in the middle of the first millennium. A share of individual production increased at small and large enterprises producing goods and services. A share of national production began to grow rapidly in the period of the medieval civilization, and from the end of the industrial period — international (transnational) capital.

4. Dynamics of the *technological structure* of economy reflects a change of technological modes of production and orders. In the transitional period relict technologies prevailed inherited from previous civilizations.

In each next civilization a technological mode of production inherent only to such civilization prevailed, while the remains of the previous survived and the beginning of next modes of production emerged. The dominating technological orders changed periodically.

5. *Economic structure* changed radically, the relations of various forms of property. While a transitional period to feudalism was characterized by a recrudescence of communal and petty private property, then a share of large private property increased. A share of state property first dropped, but in the period of state-monopolist capitalism grew again, and in socialist economy it became prevailing. A share of petty private property reduced, but it still kept its positions in agriculture and the sphere of services.

6. Dynamics of the *value structure* is described by an increase in a share of depreciation and material inputs (as a result of increase of technological and organic structure of capital) and a product re-distributed through channels of social consumption (for needs of public health, education, payment of pensions). It occurs at the expense of a considerable drop in a share of payment of workers and government consumption (military expenses, maintenance of the state machinery), which became a possible as a consequence of many time increase in labor efficiency.

Triumph of market. In the *transitional period*, at the stage of the genesis of feudalism market was thrown back against the level attained in the period of the ancient civilization. Such regress was observed to a great extent in Western Europe and other territories formerly owned by the Western Roman empire where cities were ruined or were in decline, craftwork and trade, monetary systems were undermined, the trade routes established by centuries were broken. Such break of trade links with the ancient world damaged greatly Byzantium, India and China.

However, already in the period of the prosperity of *medieval civilization* market mainly restored its position. Its geographical boundaries expanded — it embraced nearly whole Europe, a larger part of Asia and North Africa. New trading centers emerged — free cities, the forms of trade developed further, previous trade links were restored and new established, routes for dialogue and commodity exchange among civilizations (the Great Volga Road, the Road from the Varangians to the Greeks etc.).

These achievements were much surpassed by *early industrial* civilization. Commodities exchange, a network of banks emerged. The international trade (especially with India, and then with America) brought a huge influx of riches, led to the «revolution of prices» in the 16th c. The original accumulation of capital that was mainly in trade opened the path for its penetration in production, for establishment of capitalist manufactories.

The revival of *fairs* became a large phenomenon of medieval Europe. Thousands of sellers and buyers gathered there, transactions made, credits extended. There were hundreds of fairs — in small and large cities. Many of them were specialized. However, from the 12th c. they gave place to the wholesale trade.

Stock exchanges became the highest form of the development of trade where large lots of homogeneous goods were traded without their physical delivery to the place of sale. The stocks began to set up from the 15th c.: 1409 — in Brugge, 1460 — in Antwerp, 1462 — in Lyons, 1530 — in Amsterdam, 1554 — in London, 1558 — in Hamburg, 1563 — in Paris. At the stock exchanges traders (but more often their agents — stock exchange brokers) executed commodity and bill dealings, insurance transactions.

A real *triumph of the market occurred in the industrial period* when capital covered the sphere of production to a full extent, especially industrial, transformed it on the base of scientific technologies and requirements of a vigorously growing market. Industrial capital took the leading place and ousted trade and bank capitals, and by the end of the 19th they merged forming financial capital. Market relations permeated into society, leaving only a narrow niche for family economy; manpower became the main good released from feudal cords and its own means of production. The market surmounted narrow local framework, became a great integrator first of national, and then world economy.

However, from the 20th c., in the period of decline of the industrial civilization, a free competition of independent commodity producers began to be replaced by monopolist, and then state-monopolist regulation, and at the end of the period — the dominance of transnational corporations.

«Market managed by nobody is a driving mechanism of all economy — noted **Fernand Braudel**. — The growth of Europe and even all the world was as if a growth of market economy, didn't stop expanding its sphere, embracing more and more people, more and more near and distant trade operations by its rational order, which all together led to reaching peace. In ten instances against ten exchange generated simultaneously supply and demand, orientating production, causing specialization of vast economic regions of that time for the sake of own survival associated with exchange that became necessary... In general, exchange connects economies with each other. Exchange is a connecting link, a hinge. And price conducts at dealings between buyers and sellers» [23, p. 214–215].

Along with commodity market, *money market* evolved from civilization to civilization assuming more and more sophisticated forms. In the period of the genesis of feudalism and at its earlier stages commodity exchange was served by various money systems based on precious metals. They performed the functions inherent to money — a measure of value, a medium of exchange, payment, saving (accumulation of wealth) and world money. Expansion of international trade demanded the increase in a number of exchange offices and delegating them the functions of banks.

A constant shortage of money for conduct of wars and meeting the needs of royal courts and fisc caused falsification of money by the state, introduction of paper money. The state began to issue paper money beyond the boundaries determined by laws of money circulation, thus creating an inflation mechanism. The functions of issue of money and supervision over money circulation were gradually transferred to the state banks that began to set up from the 15th c.

A bill was invented, then shares, bonds appeared, a special kind of market emerged — *securities market*; banks and exchanges dealt with them. The first stock exchanges were set up at the beginning of the 17th c. in Amsterdam. But the stock market assumed wide scope in the 19th c. after joint-stock companies issuing shares were established. At the end of the 20th with the development of globalization world financial centers were formed.

Socialist planned economy. The formation of socialist planned economy — first in Russia (USSR), Mongolia, and in the second half of the 20th c. — in the countries of Eastern Europe, China, North Korea, Viet Nam and Cuba became a considerable event in the dynamics of late industrial economy.

A socialist experiment was one of the variants of response to contradictions of capitalist economy. Its major features:

➡ liquidation or reduction to minimum of private property, concentration of fixed assets of production with the state: unconditional priority of state-socialist system;

➡ restriction of the market, transition to a planned economy in the attempt to avoid market spontaneity and economic crises, centralized price setting;

➡ priority development of the heavy industry and military-industrial complex: militarization of economy;

➡ centralization of resources of economic and social development, state financing of investments, innovations, science, culture, health care and education;

➡ ensuring a considerable part of expense for reproduction of manpower and development of the sphere of spiritual reproduction for account of social funds of consumption, minimization of unemployment and polarization of income;

➡ monopoly of foreign trade, separation of national economy from world.

In crisis situations the socialist model of economy proved to be correct. It permitted to implement industrialization in the USSR in a short space of time and stood up in World War II against industrial power of nearly all Europe, restored fast national economy, ensured the military-technological parity with the NATO. Many elements of planning and social orientation of economy were taken by developed and developing countries.

However, by the end of the century, under conditions of a peaceful competition with capitalist economy and a scientific-technological overturn, the failure of the socialist model declared itself. An extreme centralization and bureaucratization of economy hedged the initiative of entrepreneurs, impeded the assimilation of innovations; militarization of economy was done at the expense of lagging in consumer industries and a lower level of life of most population, a constant shortage of goods was observed; isolation from the world market restrained modernization of economy.

For overcoming this failure the reforms of two major types were undertaken. In the countries of the former USSR and many countries of Eastern Europe the reforms were directed at the refusal from socialist planned economy, at the return to spontaneous-market capitalist economy, its opening for the world market. As a result a shortage of goods was surmounted, but national production was curtailed to a great extent, prices went up many times, the structure of economy was deformed, the tendency to a technological degradation of economy was observed. As a result of fast privatization a considerable portion of national wealth was transferred to a narrow group of oligarchs, unemployment increased, a level of life of most population declined. A drop in production and investment was record for a peaceful time. It required the adjustment of the course of reforms that could allow transferring to the revival of economy. The data on the tendencies in economy of the USSR and Eastern European countries against the world tendencies are given in [table 12.1](#).

If in the first half of the 20th c., despite two heavy wars, the GDP rates in the USSR exceeded world average (2.9 and 2.2%), and in the 50s this gap increased considerably (7.8 and 5.0), then in the next

Table 12.1

**Average Annual GDP Increase Rates
in the 20th c. *, %**

Countries	1901-1950	1951-1960	1961-1970	1971-1980	1981-1990	1991-2000
World	2.2	5.0	4.6	3.5	2.9	2.6
Developed countries	2.2	4.1	5.0	3.1	2.7	2.2
including USA	3.1	3.3	3.8	2.9	2.6	2.8
Western Europe	1.4	4.5	4.9	2.7	2.4	1.9
Japan	2.2	8.1	10.7	4.6	4.0	0.7
Developing countries	1.9	5.2	4.5	5.3	4.5	5.1
USSR	2.9	7.8	3.6	2.3	0.5	-6.0
Eastern Europe	2.2	6.9	3.6	2.3	0.5	1.1
China	0.6	5.3	5.3	3.1	11.1	7.9

*[133, p. 507–508]

decades lagging grew. In the 90s as a result of neo-liberal reforms and disintegration of the USSR a leap backward was made: annual average GDP setback rates made 6% to the increase of 2.6% in the world in general. These data demonstrate the inefficiency of both state-bureaucratic, centralized planned economy and such variant as spontaneous-market capitalism that established itself in the post-Soviet space.

The model of planned-market economy (market socialism) prevailing in China and Viet Nam and following the ways of the Russian NEP has proved its efficiency.

In China and Vietnam they chose another type of reforms: they were targeted at the evolvement of market economy and entrepreneurial initiative, expansion of ties with world economy under the maintenance of state sector, strategic planning and state regulation. Such course of reforms allowed to ensure high stable economic growth rates and improvement of the level of life of population, to establish preconditions for the formation of mixed economy of market socialism.

12.2.4. Evolution of the Socio-Political System

Socialist-political cycles of feudal-capitalist period. Three super long-term (century) cycles may be distinguished in the dynamics of socio-political relations for the last century and a half — the period of the second historical super cycle.

The first cycle embraced approximately eight hundred years (middle of the 5th – middle of the 13th c.) – the period of the establishment and spread of the medieval socio-political system, formation of social forces and political institutions of feudalism based on a gradual transformation of the former society (Byzantium, China and India) or its destruction and a synthesis with barbarian tribes (as a result of the downfall of the Western Roman empire).

Another way was the formation of the feudal socio-political system based directly on the transformation of tribal and clan relations (that had already evolved to a certain extent at the stages of the Bronze and Iron Ages) without slave society. Such path is typical of most population of North Europe, Scandinavia, Baltic states and Slavic peoples. In both cases, the genesis of the feudal socio-political system completed with the formation of two poles – feudalists-landowners who were headed by the supreme feudal (king, tsar, emperor, caliph etc.) and land bonded peasants, and also craftsmen, merchants, warriors, ministers of religion and people of creative professions. The specific feature of the first cycle was a strong influence of church hierarchy on the socio-political and state-legal institutions. The last phase of this cycle was characterized by a growing feudal disunity, plenty of wars and the disintegration of large states formed before.

The second socio-political cycle embraces a five-hundred year period from the middle of the 13th c. to the middle of the 18th c. This is a period of spread, prosperity and crisis of the feudal social and political system, formation of absolutism in many states (in France, Spain, England and Russia), establishment of colonial empires (Spanish, French and British), formation of a strong class of bourgeoisie. Its claims for political leadership found their expression in the Netherlandish and especially in English bourgeois revolutions. Church was the largest socio-political force in this period that owned the richest lands, collected a «dime», strived for the leadership over civil rulers.

The third super long social-political cycle embraces the period from the last quarter of the 18th c. (from the War of Independence in North America and the Great French Revolution) up to the end of the 20th c. It was the period when the industrial world civilization prevailed. It is possible to distinguish several phases within this period (long-term socio-political cycles, similar to Kondratieff's in many ways):

➡ 1775–1830 – the beginning of the establishment of the bourgeois political dominance as a result of the War of Independence in

North America and emergence of the USA, Great French Revolution and Napoleon Wars, revolutionary upheavals of 1830;

➡ 1831–1870 – a fast spread of bourgeois socio-political system, formation of national states in Germany and Italy, liquidation of slavery and strengthening of the feudal state in the United States as a result of the Civil War of 1861–1865, beginning of the evolution of movement of workers (1st International, the commune of Paris), establishment of bourgeois democracy in most European countries;

➡ 1871–1913 – the phase of prosperity of the bourgeois socio-political system with confrontation of capitalists and hired workers inherent to it and represented by mass parties; transformation of capitalism into imperialism, completion of the division of the world and beginning of struggle for its remaking among colonial empires;

➡ 1914–1945 – the beginning of crisis of socio-political system of industrial society that found its expression in two world wars, waves of socialist and national-liberation revolutions, formation and defeat of totalitarian states in Germany, Italy and Japan, a sharp aggravation of social antagonisms;

➡ 1945–1973 – development and aggravation of crisis of industrial socio-political system, formation and confrontation of two world systems, two military blocks, a disintegration of the colonial system and the emergence of tens of independent states of the «third world», a series of local wars, «Cold War», arms race that brought on the brink of a nuclear catastrophe;

➡ 1974–2000 – struggle between two world systems (with local wars), crisis, and then the disintegration of the world system of socialism and its leader – USSR, beginning of local clashes among civilizations, spread of bourgeois democracy, development of crisis of a socio-political system of the industrial civilization.

Thus, in social-political sphere it is possible to distinguish long-term and super long-term cycles, interconnected with technological and economic cycles and inflowing together with them to the general flow of cyclical fluctuations of historical process.

Transformation of social structure. *Medieval society* inherited a quite complicate social structure from the ancient civilization. It preserved its main features and was modified only by social groups of the feudal system. In a transition from the tribal-clan system to feudalism without slavery the process moved on by the line of sophistication of the social structure.

The gamut of social relations was quite motley in the medieval period. The class of *feudalists* — landowners, upper crust of church, military commanders were on the top of the social scale of rank. Their main occupations were the administration of the state, war, collection of taxes, rent etc. necessary for it. The feudalists were surrounded by a numerous army of warriors, servants, tendance and officials. *Peasants* who owned plots of land for own subsistence and obliged to give a part of the yield to feudalists or money in the form of a feudal rent, to supply soldiers outfitted with weapons, to subordinate to the feudal court and to meet many others duties were on the opposite pole. The degree of personal bondage of peasants was different in various civilizations and countries and in various periods.

In the cities the propertied upper crust (higher administration, landowners, large merchants, heads of craft guilds, judges and bankers) was opposed to a numerous section of free citizens (craftsmen, petty merchants and householders) and dependent, deprived of the right to vote apprentices and trainees, servants and the beggars. By the end of the Middle Ages the classes of bourgeois society — hired workers and capitalists-entrepreneurs — were formed in large cities.

The belonging to this or that religion — Christian, Islamic, Buddhist, Judaic etc. — was of great significance in social stratification of the middle ages. A typical feature of the Middle Ages was a religious intolerance that was the reason for numerous conflicts and wars.

Social conflicts led to peasants and city rebellions and revolutions, numerous and protracted feudal wars. There was no social peace in the medieval period.

The formation and spread of *bourgeois socio-political system* in the 16th—19th cc. led to radical changes in the structure of society. The class of *capitalists*, quite inhomogeneous in its structure, occupied the top of the social hierarchy. Trade and finance capitalists, who had accumulated huge wealth and invested it, when it became profitable, in manufactories and factories, agricultural and construction companies, banks, made its core. A part of landowners were engaged in entrepreneurship, set up manufactories and large agricultural businesses based on hired labor.

The class of *landowners* (landed classes) kept its positions for a long time, but transformed gradually into the element of a social hierarchy of a bourgeois system, taking in their favor a part of

generated added value in the form of rent (land, mining, forest, water and city).

Working class that lived by selling their manpower was also inhomogeneous. A small section of working aristocracy — highly qualified workers, guild senior men, trade leaders — was not much different from the lower sections of bourgeois in terms of the property situation. The main bulk of workers who had necessary level of qualification and lived by selling their manpower, were exploited heavily. Semi-proletarians and seasonal workers maintained their plots of land, which reconciled with a low salary. Lumpen proletarians made their living by odd jobs.

The *peasantry* changed. It included a section of agricultural bourgeoisie, which unlike city continued to directly participate in production; the major bulk of peasants, petty independent commodity producers who satisfied their needs on the account of their own economy (they included agricultural craftsmen); rural poor, proletarians and semi-proletarians, field-hands who made their living by selling their manpower, but often had a small plot of land for a partial satisfaction of their family needs in food.

A quite considerable stratum of the *city petty bourgeoisie* was formed featuring craftsmen, petty merchants, owners of small restaurants, hotels, hairdresser's parlors and other tertiary businesses. They were engaged in small business, owned means of production, lived mainly on sales proceeds from goods and services, paid various taxes; sometimes they hired several workers — full time or partial.

In the industrial society a fast growing section of *intellectuals* — scientific and engineering (scientists, designers, engineers, agronomists and technicians), art (architects, painters, artists, musicians etc.), economic (managers and employees of enterprises) was formed.

A special emphasis should be laid on the section of *officials* who served the bureaucratic state machine, got paid for that and after retirement got pensions.

Military men made a considerable social section, and first of all numerous officers and generals. They occupied a special position in society, were mainly recruited from aristocracy and bourgeoisie and were the support for the ruling upper crust, changing it from time to time, and sometimes establishing open military dictatorship.

In the *socialist* variant of the late industrial society a social stratification changed radically. Landed classes, capitalists, kulaks, clergy were liquidated not only economically and legally, but

physically to a great extent. The working class was proclaimed a hegemon, but in actual fact it turned into the class exploited by the state-bureaucratic machinery. As a result of forced collectivization the peasantry was deprived of the major part of land and means of production and worked on the collective farm fields for a nominal remuneration making the means of subsistence through subsidiary husbandry. The intellectuals grew in number due to a large number of engineers, designers, workers of science, education and culture, but it was practically a rightless social section. A new ruling class comprised the party-state functionaries, top of the army, state security bodies and directors of large enterprises formed on the top of the social pyramid. It was this class resting on the party-state machinery and punitive agencies that actually disposed of «property of whole people» and cooperative property, appropriated a surplus produce, governed society and suppressed mercilessly the opposition and dissent. All the rest of sections of society were equal in lawlessness.

The evolution of the state and law. *The state* is the center of political power resting on the system of legal norms, bodies of power and administration, army, machinery of ideological influence, and its economic power. Civilizations of the second historical super cycle were characterized by an increasing role and power of the state, although this process proceeded unevenly.

In the countries of the East the state traditionally had unlimited dominance over personality, only ruling dynasties changed each other – masters of human fates. Such system was also typical of Byzantium, although the state power was considerably undermined in the genesis period of feudalism, mainly due to ongoing incursions of barbarian and early feudal states, and later – crusaders.

Being formed on the basis of barbarian tribes the kingdoms were originally based on the principle of military democracy under a strong centralized power of a military leader with a small regular armed force that rested on the levy en masse from free community members. The elements of military democracy gradually became the past; the functions of the supreme ruler (king, duke, emperor) enlarged. He rested more and more on the regular army, state machinery, rules of law, proclaimed himself the supreme landowner.

These tendencies had to meet a growing counteraction of both the masses and the merchantry gaining strength. In the 14th–16th c. strong *national states* were formed again. The prevailing form of state

power of that period was monarchy of representatives of nobility, a peculiar feudal democracy. Each estate sent its delegates to a representative authority (parliament, general states and the Zemsky Cathedral), which discussed political issues of great significance, and sometimes elected or removed the monarch.

As a counter to feudal sovereignty strong bureaucratic machinery was formed, centralized army established. Law was developed that was based on a special role of the royal power as a carrier of sovereignty of a nation. It was a step from chaos of feudal disunity to the orderliness of mature feudal society that ensured conditions for the development of market, formation of preconditions and elements of bourgeois society.

The next stage of the development of statehood is the establishment of *absolute monarchies* in many European countries (from the end of the 15th c.). The formation of large national states (France, Great Britain, Rech Pospolita, Muscovy and Ottoman Empire) promoted it, strengthening of monarchy power and weakening of the role of representative-estate bodies).

However, the period of balance of political powers was not lasting. Already from the 17th c. (and in the Netherlands — from the second half of the 16th c.) the *crisis of absolutism* began under pressure of strengthened bourgeoisie, which got economic power and demanded a relevant place in the political arena. The English bourgeois revolution of the middle of the 17th c. made a strong strike at the feudal political system when the king was executed under the sentence of the parliament as a symbol of the absolute power. The monarchy restored after the Cromwellian wars had a purely representative nature. The Great French Revolution inflicted a decisive defeat of absolutism, when the king was also executed and as a result of wars and repressions a considerable part of feudal aristocracy was destroyed. The proclamation of **Napoleon** the Emperor who restored a number of signs of absolute power had another social content: it was a form of dictatorship of victorious bourgeoisie.

The restoration of the Burbons, union of reactionary monarchy forces in Europe, convulsive attempts to preserve autocracy in Russia, easing it with liberal reforms, and protracted absolutism of the Ottoman Empire could not already stop the victorious establishment of a new political system: *bourgeois democracy*. The president republic in the USA, parliamentary republic in France and constitutional monarchy in the UK became its typical examples.

The recognition of equality and freedoms of all nationals underlies the bourgeois democracy, surmounting of feudal-estate and caste limitations for separate groups of population, legal advocacy of personal and property rights, elimination of discrimination by race, nationality, religion and other distinctions, granting the right to each national who reaches a certain age to elect and be elected to central, local and municipal bodies. The separation of powers is a key principle of bourgeois democracy — legislative (representative), executive (reported to the parliament) and judicial (judges are independent and obeyed only to law).

A transition to monopolistic, and then to the state-monopolistic stages of development of capitalism increased the concentration of power in the hands of the upper bourgeoisie, limitation or transformation into the formality the fundamentals of bourgeois democracy that under conditions of nationwide crises led to a series of revolutions and establishment of unvarnished dictatorship. It was best-manifested in the establishment of *totalitarian states* — fascism in Germany and Italy, authoritarian-repressive regime in the USSR, and then in many other socialist countries, and also in a number of liberated countries of Latin America, Africa and Asia. With all difference of ideological directives and social base of these states, they had a lot in common in the state-legal system, making them fundamentally different from bourgeois democracy. All plenitude of the power was concentrated in the hands of the ruling upper crust, centralization of state administration and militarization of the country came to extreme degree. Arbitrariness in law reigns, repression is widely applied. Totalitarian states based on violence, rightlessness of population were short-lived. But in the countries of western democracy the tendencies towards monopolization of power by the ruling elite, intensification of militarism, limitation of rights and freedoms of nationals are observed in the period of the sunset of the industrial civilization.

The remaking of state-legal systems performed at the end of the 20th c. led to the downfall of the socialist system in the USSR and Eastern European countries, spread of bourgeois state-legal institutions with their pluses and minuses.

The waves of wars and revolution. The second historical super cycle was extremely rich in social upheavals. Wars and revolutions swept over like waves involving individual civilizations, and by the end of the industrial period — nearly all the world.

Wars changed their nature from period to period. In the period of the *Middle Ages* these were mainly feudal and religious wars.

Numerous feudal wars devastated countries, ruined productive forces. Wars assumed a protracted nature: the Hundred Years' War between England and France (1337–1453), the Thirty Years' War (1618–1648), in which nearly all European powers were involved. The discovery of America, conquering of India caused a series of colonial wars, and then a fight for the re-division of colonies.

The crusades were the most vivid manifestation of religious and cross-civilizational wars, Reconquista — a struggle of Christians with Moslems for liberation of Spain, and also a series of military campaigns of the Mongolian civilization in Europe and Asia.

In the *early industrial society* colonial wars between forming empires came to the forefront, and in the period of industrial world civilization. In the 19th c. in Europe the Napoleon Wars of the beginning of the century were large clashes of *the industrial period*, the Crimean War of the middle century and the Franco-Prussian War of the beginning of the 70s. The sunset of the industrial civilization of the 20th c. was crowned by two bloodiest world wars in the history — First in 1914–1918 and Second in 1939–1945. The second half of the 20th c. was characterized by the «Cold War» between two world systems and a series of local wars. The creation of weapons of mass annihilation made world wars senseless as there can be no winners.

Wars became more and more destructive from century to century and were accompanied by a loss of tens and hundreds of thousands, and then millions of soldiers and peaceful citizens, and destruction of economy and culture.

The end of the 20th c. was characterized by a tendency towards the weakening of military confrontation, reduction of military expenses, and attempt to destroy most murderous types of weapons of mass annihilation.

Waves of revolutions — social, targeted at the change of political system, coming to power of a new class, and national-liberation targeted at liberation from colonial dependence occurred from time to time. The largest revolutions of the feudal-capitalist period included the Netherlandish revolution of the 16th c., English revolution of the 17th, French revolution of the end of the 18th c., revolutions of 1848, in a number of European countries, the Commune of Paris of 1871, revolution in China in 1911, Russian revolutions of 1905 and 1917, a series of national-liberation revolutions after World War II. At the end of the 20th c. wars were connected with the replacement of the socialists system by capitalist in the USSR and Eastern

European countries, a disintegration of federative states (USSR, Yugoslavia), and local clashes among civilizations (Lebanon, Afghanistan).

12.2.5. Dynamics of the Spiritual Sphere

Accumulated knowledge, achievements of culture, religious beliefs and standards of morality are modified and are transmitted from generation to generation. A millennium and a half ago after the downfall of the Roman empire has become the period of the enrichment of spiritual world, revolutions in science, culture, education, achievement of power – sometimes even dangerous – of human thought.

Scientific revolutions and scientific cycles. The achievements of scientific thought of the ancient civilization laid the foundation of a further evolution of cognition. The decline in intellectual activity in the transitional period, the dominance of scholastics in the middle ages was replaced by accumulation of preconditions for a great scientific revolution of the middle of the 15th – end of the 17th c.

The *Byzantine science* was a direct heir to the science of the Greek-Roman world. Traditions of Plato and Aristotle were continued in Constantinople, the school of philosophers-neo-Platonists emerged. Special attention was paid to applied branches of knowledge directly connected with medicine, agriculture, crafts, construction and warcraft.

The typical tendency of the medieval science of the 11th – 12th c. was an attempt to make a synthesis of Aristotle's doctrine that rapidly gained the authority among the scientists of that time with catholic theology and development of scholastics.

The *great scientific revolution* of the middle of the 15th– the end of the 17th c. became a turning point in the dynamics of scientific cognition. The time came for the formation of a new scientific paradigm of the world which would be free of non-scientific dogmas and based on the generalization of accumulated facts. It laid the foundation for the industrial transformation of the world in the next decades. A number of scientific discoveries and major engineering inventions increased sharply.

The apex of this scientific revolution was discoveries in the fields of hydraulics and mechanics made by **Leonardo da Vinci**, heliocentric system of **N. Copernicus**, achievements in astronomy by **Tycho Brahe**, **Johann Kepler** and **Galileo Galilei**. **Isaac Newton** (1643–1727)

became the founder of classical physics, opened the principle of universal gravitation and completed a breakthrough in astronomy initiated by Copernicus, developed differential and integral calculus, made discoveries of prime significance in optics. Each of these discoveries became the foundation for the development of independent scientific disciplines.

An advance also occurred in social sciences. **Francis Bacon**, a leading philosopher of that time, proclaimed an experiment and the experimentals as a basis of the scientific generalizations. **René Descartes** became another founder of a new philosophy who upheld the standpoints of rationalism, made a weighty contribution to the development of mathematics by applying analytical geometry and a concept of a variable.

There were established such scientific societies as the London Royal Society (1662), French Academy of Sciences (1666). The academies enabled scientific communication, cross-disciplinary researches.

Thus, in the 15th–17th cc. modern science was born as a result of a great scientific revolution.

Long-term scientific cycles of the *industrial* society — 18th–20th c. — are given in [Table 12.2](#).

Culture of medieval and industrial period: rises and crises.

A modern world culture was formed from five powerful influxes: Byzantine culture that assimilated and developed the Greek-Roman heritage; western-European culture that was a synthesis of creative thinking of barbarian tribes and heritage of the Western Roman Empire; many-layer and various culture of the East, first of all China, India and Arabic countries; diversified and rich culture of the Eastern-Slavic civilization, and finally original cultures of peoples of the New World discovered at the end of the 15th c.

«The 10th–11th cc. gave the bright efflorescence of culture of ancient Russia, and the 12th–13th centuries — continental Western Europe with the leading role of France. Since the second half of the 16th c. the cultural leadership was taken by Italy for two and a half centuries where the Renaissance gathered momentum, which gave the world fabulous achievements of human genius» [72, p. 593].

In the 16th–17th c. the achievements of the humanistic Renaissance extended nearly all around Europe, generated remarkable pieces of the art in Spain, the Netherlands, and France. In the 18th–19th c. a secular culture prevailed gradually unfettering from

Table 12.2

Long-term Scientific Cycles of the Industrial Period

Cycles	1st	2nd	3rd	4th	5th
Chronological period	1691–1760	1761–1830	1831–1894	1895–1944	1945–2000
Duration, years	70	70	64	50	50
Leading countries	England, France, Russia, Sweden	England, France, Germany, Russia	Germany, England, France, USA, Russia	Russia, USA, France, England	USA, USSR, Japan, EU
Key directions in science	Electricity, chemistry, botany, philosophy, law	Engineering sciences, chemistry, political - economy	Biology, chemistry, electricity, economy	Physics, genetics, chemistry, sociology	Atomic physics, cybernetics, biology, sociology
Major scientific discoveries	Theory of electricity (Gray, Franklin), French encyclopedia	Kant-Laplace's cosmogonic theories, Lavoisier's theory of combustion, theory of value	Theories of evolution, cells, electro-magnetic theory, Marxism	Theories of relativity, quantum theory, atomic structure, genetics, cyclical dynamics	New elementary particles, lasers, socio-cultural dynamics
Organizational forms of science	Academies, universities	«Lunar Society» of English scientists, Royal Institute	British Association, research societies, scientific research laboratories	Research institutes and laboratories, research centers of monopolies	State research science centers, research and production unions, TNC research centers

church canons, Western Europe, North America, and the culture of Russia reached the apex in the 19th c., became its epicenter.

From the end of the 19th c. the overturn began in tendencies of dynamics and culture. The expressionist art reflecting a personality of an artist, their subjective vision of the world was arising. In painting and sculpture, this style was spreading rapidly in the first years of the 30s of the 20th c. narrowing considerably a visual-realistic sensible art. A strong movement of abstract painting emerged.

The 20th c. was characterized by an increasing industrialization and unification of admass culture, the leadership of the USA in it,

and in the second half of the century – the signs of revival of the oriental culture (Japan, China and India) that was in decline before.

From the beginning of the 30s of the 20th a universal crisis of culture began to aggravate and develop. It manifested itself in two directions though seemingly reverse in form, but with the general base – modernism and socialist realism. Modernist painters departed more and more from real life and distorted it to please the sinister tastes. Socialist realism orientated at ideologically given reflection of reality, often not impregnated with a deep thought.

Informatization, use of new technological means – television, tape recorders, video tape recorders, walkmen and the Internet contributed to mass character of art. Computer graphics emerged, cinema and video industry formed into powerful, highly profitable industries.

As **Pitirim Sorokin** showed, the crisis of culture is the manifestation of the decline of sensual socio-cultural system that prevailed in the West during five millennia. The integral, socio-cultural system, in its western and eastern modifications, is coming to replace it [181].

Cycles and revolutions in education. In the dynamics of education as well as of other spheres of society's life super long-term cycles revealed themselves in the last millennium and a half and they were accompanied by revolutionary changes in the ways of storage and transfer of accumulated knowledge, skills and cultural heritage.

In the period of the *genesis of feudalism* in Europe the decline in education was observed in Europe against the ancient level. A specialized system of education survived only in Byzantium, China and India, but regressive tendencies were also observed there. The main was the system of transfer of knowledge skills and culture in an empiric way in the process of labor (in farming labor, craft, trade and construction).

However, later the upsurge of economy, development of crafts and trade, construction of cloisters and castles, revival of cities, formation of medieval states demanded restoration of a specialized system of education. It was done under the guidance of the institution of the church.

The universities crowned the development of the system of education in the *early Middle Ages*: from the 12th c. – Paris, Bologna and Oxford; from the 13th c. – Cambridge, Padua, Naples and Salamanca; from the 14th c. – in Prague, Krakow and Vienna. A wide systematic education was given there through lectures and disputes; the textbooks were rare.

The next revolution in education occurred in the early industrial world civilization in the *Renaissance*. It was closely connected with a great scientific revolution, which changed radically the system of views and helped basically to overcome the medieval scholastics. This revolution met the demands of a rapidly developing market – trade, banking business and money economy.

By the end of the 15th c. there were 79 universities in Europe. Specialized educational establishments also emerged. In Portugal, Spain, England and Holland naval schools were established. The Oxford and Cambridge Universities became the centers of humanism in England; **Thomas More**, **Erasmus of Rotterdam** read lectures at Oxford. There were taught theology, civil and church law, philosophy of Aristotle and Plato, medicine of Gallienus and Hippocrates, mathematics, geometry, astronomy, dialectics, rhetoric, ancient Greek and Hebrew languages at these universities. The primary and secondary education spread wide and assumed more secular nature. Pedagogic was formed as a specialized branch of science; **John Amos Comenius**, a Czech scientist-humanist made a weighty contribution to its establishment, he published a series of works on the theory of didactics, textbooks for education at school and at home.

However, the medieval system of education, training of qualified specialists did not meet the requirements of the *industrial society*. With a transition to machine productions the need was felt in designers, engineers, technicians, economists and managers who would be able to develop sophisticated systems of machines, to use them efficiently, to organize work of many-thousand teams and to convert production in accordance with the requirements of fast changing market conditions. The priority was given to a specialized engineering education – vocational schools, polytechnic and agricultural institutes etc. A factory worker has to deal constantly with complicated machines and technologies, which are updated from time to time. The industrial system required workers with professional skills. A general primary education in combination with a narrow specialized training, often on-the-job training, short training courses or vocational schools became spread.

Education became increasingly standardized; methods and practices of teaching improved more and more. Mass uniform pedagogic for various links and levels of education was formed. Textbooks for schools, higher education were published in bulk issues. The sphere of education became mass, democratic, but at the same time its indi-

viduality was lost, stereotypes of thinking were trained and reproduced.

The scale and depth of a breakthrough in education as a result of the industrial revolution are so great that it makes it possible to speak about the *revolution in education* in the first half of the 19th c.

In the second half of the 20th c. in the last phase of the industrial society, economic, socio-political and spiritual conditions of life changed radically, the next crisis in the system of education was taking shape. A functional illiteracy and professional incompetence became a wide spread phenomenon. Since the end of the 20th c. the signs of a new revolution in education orientated at the post-industrial scientific paradigm, creative pedagogic, modern information technologies and continuous education have been observed.

Ethics and religion in the period of the second historical super cycle. Three super long-term cycles could be distinguished in the development of ethical standards and ideological guidelines of man for the last millennium and a half. These cycles are connected with landmarks in the development, with a wave dynamics of change of civilizations.

The first super long-term cycle in the dynamics of ethics and ideology embraces the period of the genesis of feudalism and medieval civilization. In this period the establishment of world religions, aspiration of church for dominating over all spiritual world and all sides of human activity became main. In Europe it was a period of a rapid spread of Christianity; in the East — Islam; Buddhism and Hinduism also spread.

What determined the establishment of the dominance of religion and religious moral in the medieval society and what were its results?

First, the synthesis of religion and moral was brought about by the need to establish a greater orderliness in human relations. Religious moral assimilated major common human rules of behavior elaborated during previous historical cycles and complemented them by dogmas that met the requirements of the hierarchical system of feudal society. The establishment of religions played a progressive role to a certain extent having created the mechanism to support a single spiritual space, despite national and ethnical differences and state borders within the dominance of this religion.

Second, the establishment of the dominance of religious world outlook and morals contributed to strengthening of feudal rela-

tions and at the same time removal or restriction of its certain extremes. Originally Buddhism, Christianity and Islam emerged as religions of the oppressed; they condemned acquisitiveness and usury. However, with time as the wealth was accumulated with feudalists and church, religion became more tolerant to the wealth, consoling the least privileged and the most exploited by the idea that they would be repaid for their suffering a thousand-fold after death.

Third, world religious played a significant role in the formation of statehood, overcoming of feudal disunity and formation of strong feudal states — Byzantine empire, Empire of Karl the Great, Holy Roman empire, ancient Russian state, Arabic caliphate. Religion was an ideological base of a centralized state blessing lords and calling for submission to a secular power.

Fourth, religion dominated in the spiritual sphere having subordinated science, culture and education to its influence. This influence was contradictory. On the one hand, clerical institutions, scholars, artists, architects and musicians supported by church left many works that made a cultural heritage of humankind. Having accumulated huge wealth, church spent its considerable part for construction and decoration of churches, monasteries, mosques, synagogues, Shinto and Buddhism temples. In cloisters and church schools they made re-writing of books, translations of clerical literature, taught literacy, basics of science and arts. Under support of church and guided by it the universities were established. On the other hand, a tough dictate enfeathered free thought. Scientists, artists, educators who stepped over the framework of religious canons were persecuted and punished; any free thought or a scientific idea that could shake the monopoly of church fell under suspicion.

Negative features of monopoly of religions came into collision with the humanistic beginning of the Renaissance when the *second super long cycle* began in the dynamics of ethics and religion of now completing historical super cycle. The incompatibility of the Renaissance's humanism and absolute power of religious dogmas declared itself in the Reformation. Its beginning was laid by the Doctor of Divinity **Martin Luther** who in 1517 delivered 95 theses against a sale of indulgences. Having got lost first before new ideas and movement the Catholic Church soon woke up and attempted to restore its past authority. The Counter-Reformation began that found its expression in the set up of inquisition, establishment of the

Society of Jesus (1540) and other militant orders, introduction of strict censorship, and also reorganization of the church itself, improvement of its flexibility, intensification of struggle against oppositional movements. The Renaissance gave impetus to the formation of secular, humanistic ethics that includes the basic values of morals common to all mankind.

In the dynamics of religion and ethics *the third super-long cycles* embraces a period from the middle of the 17th – to the end of the 20th c. It began from the age of Enlightenment, the main result of which was fixing of that shift in spiritual sphere, which had been initiated by the Reformation.

It was the period of a gradual loss of the dominance by world religions in the spiritual life, policy and economy. Church adopted to changes, responded flexibly to new interests of man, social contradictions.

The place of religion as a core of society's ideological life was taken by the idea of a scientific progress, building of society on a rational base in accordance with the requirements of reason, this or that scientific doctrine. **Voltaire** gave a death-blow to a religious world outlook; his ideas were taken up by encyclopedists who opened the path for atheism, belief in the all-might of science. A wide scientific breakthrough of the 19th c. fixed the dominance of a scientific world outlook, ideas of progress.

The moral of bourgeois society of the West is geared to the demands of the market. Acquisition of wealth, profit growth became the supreme moral value. At the same time civilizations of the East, especially Moslem, preserved a strong influence of religion on ethics and development of spiritual sphere.

The most radical changes in religion and ethics occurred in socialist countries. Attempts to oust religion, replace bourgeois morality with the «Moral Code of the Builder of Communism», practice the rule – «the end justifies the means» – gave bad results. A double standard was formed; moral principles of family were undermined. However, socialist ideology and moral had no firm roots and changed with the Renaissance of religion and morals supported by it at the end of the 20th c.

The decay of a sensual socio-cultural system in the West led to negative tendencies in ethics and ideology – a growth of immorality and crime, religious fanaticism and sectarianism. As a counter to these tendencies the basics of positive moral and religious polarization appeared.

12.3. Evolution and Interaction among Civilizations of the Third and Fourth Generations

A transition from the ancient world to medieval was characterized by radical shifts on the geopolitical map of the world, formation of the third generation of local civilizations (*fig.12.5*). The leadership passed to India and China, and then formed the fourth generation with the western European civilization (*fig.12.6*) in the vanguard. It gradually extended its influence on a larger part of the populated world by conquering or moving civilizations of the East and Africa and destroying civilizations of the New World. Only from the second half of the 20th century this leadership began to wash out. The intensity of cross-civilizational ties came. Huge colonial empires that had emerged in the periods of early industrial and industrial civilizations, disintegrated at the sunset of the latter giving way to economic empires, integration tendencies and globalization. By the end of the third historical super cycle the signs of formation of the fifth generation of local civilization manifested themselves, the problem of interaction among them came to the forefront. Let's consider in brief the major features of dynamics of local civilizations of the third and fourth generations (except Eurasian civilization, to the stages of formation and development of which *chapter 14* is devoted).

12.3.1. Dynamics of Civilizations of the East

After the downfall of the Western Roman Empire an active process of replacement of the leading local civilizations was observed. The epicenter of civilizational progress moved from the Mediterranean to Byzantium and the East and then in the periods of the early industrial and industrial world civilizations it returned again to Europe, with the rising of the North American civilization by the end of the period.

The emergence and spread of the Moslem civilization. The last centuries of the 1st millennium A.D. and the beginning of the 2nd millennium were characterized by a vigorous rise and a rapid spread of the Moslem civilization (*fig. 12.7*). It emerged simultaneously with Islam in the 7th c. on the Arabian peninsula under conditions of an acute socio-economic crisis and spread rapidly to the East subor-

Figure 12.5

Local Civilizations of the Third Generation





- 1 – Western;
- 2 – East European;
- 3 – East Slavic;
- 4 – Japanese;
- 5 – Chinese;
- 6 – Indian;
- 7 – Buddhist;
- 8 – Moslem;
- 9 – Byzantium;
- 10 – Mesoamerican;
- 11 – Civilizations of Andes

Figure 12.6

Local Civilizations of the Fourth Generation





- 1 — Western;
- 2 — East European;
- 3 — Eurasian;
- 4 — Japanese;
- 5 — Chinese;
- 6 — Indian;
- 7 — Buddhist;
- 8 — Moslem;
- 9 — Mongolian (13th-16th c.)

minating to its influence the Near East, Persia, Central Asia and a part of India, Indonesia, Volga regions, and in the West – North Africa, the Iberian peninsula and a part of Southeastern Europe.

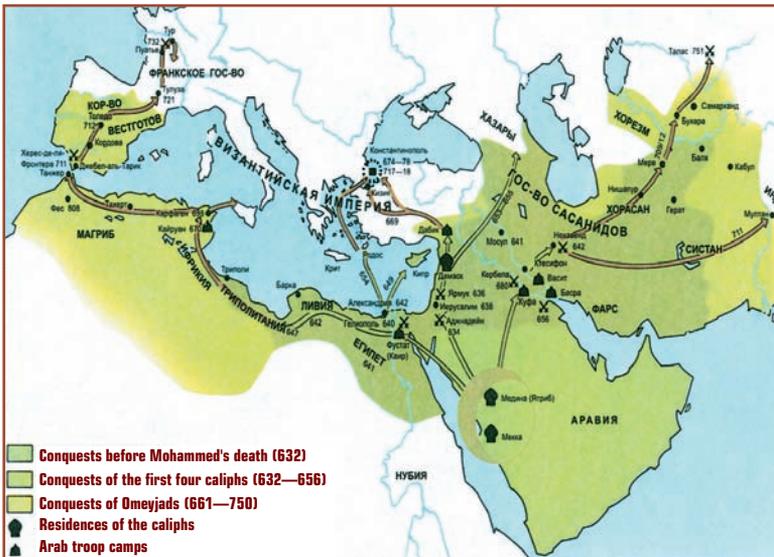
The period of the rise of the Moslem civilization fell to the last centuries of the 1st millennium with the dominance of the Arabic caliphate with the capital in Baghdad. It was one of the largest cities of the world of that time with population exceeding a million people.

It should be observed that the Moslem civilization united by a common religion – Islam – and the system of values and the way of life inherent to it is quite diversified in its structure. Moreover, Islam is divided into movements warring with each other – Sunni, Shahids, Vahabids etc. **Yu.V. Pavlenko** distinguishes several sub-civilizations in the structure of the Moslem civilization. «The civilizational structure of the Moslem world is extremely complicated, and the process of its establishment continues to these days... It constitutes the unity of Arabic-speaking, Iran-speaking and Turkic-speaking sub-civilizational systems forming its base, and two syncretic arms: Pakistani-eastern Bengali-Malay-Indonesian and tropical African, Sudanese and Eritrean-Somali-Zanzibari» [151, p. 424]. Well-consolidated enclaves of the Moslem civilization may be found in Western Europe, Russia, the USA and other countries.

The Moslem civilization is also not homogeneous economically. It incorporates rich Arabic oil countries, the countries of medium income and the poorest countries of Africa. Their level of technological development and education is considerably different. Nevertheless, all Moslem countries differ from western civilizations and Russia by their high birthrates, ban on alcohol, ideational sensual system, growing passionarity and geopolitical activity. Therefore the role of the Moslem civilization grew considerably in a geocivilizational space in the second half of the 20th c. and continues growing.

The scientists of the Arabic world inherited the achievements of the Greek and Middle Eastern science. Such synthesis made the foundation for the rise of the Arabic science in the 8th–11th c. The outstanding scientists of that period included **al-Khwarizmi** (end of the 8th – beginning of the 9th c.), **al-Biruni** and **Ibn Sina (Avicenna)**. A real encyclopedism was inherent to them. Al-Khwarizmi was a mathematician, astronomer, geographer and the founder of algebra. Al-Biruni created outstanding works on astronomy, geodesy, physics, mathematics, botany, geography, philosophy, history and ethnography. He was the first to make a globe, assumed

Figure 12.7
Spread of the Islam until 750



Source: [82, p. 134]

that the Earth moves round the Sun, made trigonometric tables. Ibn Sina made a weighty contribution to the development of philosophy and medicine. Science of the Arabic East gave an impulse to the rise of scientific knowledge in Europe. The Arabic culture, architecture, literature and poetry reached a high level.

«A large role in the history of the medieval culture, mainly in the period of the early and mature feudalism belongs to the peoples of the Middle East. The Arabic countries, Iran and Central Asia together with Byzantium were the direct successors and keepers of the achievements of the ancient culture... During a number of centuries science, literature and art created by the Arabs determined to a great extent a progressive advance of the world culture and rendered a strong influence on many countries, including Western Europe» [18, p. 21].

Caliphate was a feudal Moslem state with a considerable slave system, which included the Arabian peninsula, Iraq, Iran, Transcaucasia, Central Asia, Syria, Palestine, North Africa, Iberian peninsula, Sardinia, Cyprus and a part of eastern India. The Caliphate disintegrated into a number of states and was vanquished during the Mongol invasion.

Another great Eastern state was the Ottoman Empire. At the beginning of the 16th c. **Selim I the Terrible** vanquished the Mamelukes and conquered Syria and Egypt. His son **Suleiman I the Magnificent** conquered Hungary in 1526, and then the Crimea, Moldova and Walachia. At the end of the 16th c. the Ottomans subdued Greece and Shirvan (present Iranian Azerbaijan). The military-feudal administration was arranged in the Ottoman Empire, strong army of janissaries, a powerful navy. Islam was the prevailing religion. The Ottoman Empire existed until 1922; not once it acted as an adversary of the Russian Federation, western European civilization.

In the periods of the early industrial and especially industrial civilization the Moslem civilization lost one position after another. Many Moslem countries became the colonies of the British and French Empires. The Moslem civilization began to revive only since the second half of the 20th c.

Development of the Chinese Civilization. The ancient Chinese civilization got the second breath in the first millennium of our era. A transition to the feudal system occurred here several centuries earlier than in Europe. After a protracted internecine fight (three kings ruling), which embraces the 3rd–4th c., the prosperity period of the Chinese local civilization begins. Population grows fast, rice growing moves to the north and together with the bed farming provides food for rural and city population. Trade and money circulation develop fast. In the 8th c. negotiable cheques of the bankers are introduced. In the 9th c. printing is invented, which contributes to the diffusion of literacy.

In China in the 3rd–5th c. A.D. porcelain that becomes an item for trading with other civilizations is invented; they begin to use paper approximately at the same time. Invention of compass and powder expand the boundaries of sea voyages and enhance the fighting efficiency of the army.

Since the 7th c. China enters the stage of the developed feudalism. Areas under crops expand, the culture of tea evolves, cotton growing emerges, crafts develop and cities grow. An active trade is carried on with India, Persia, Arabic caliphate, Korea and Japan. Culture and science flourish. In the same century the «Chamber of Scientists» is established.

The ruling of the Sung dynasty is often called the «golden age» of science. The holders of the highest academic degree enjoyed unprecedented authority in society and at court. In ideology a comprehensive system of the world outlook called neo-Confucianism in

the West is formed, the genre of a monumental landscape blooms, crafts develop vigorously.

At the beginning of the second millennium the Chinese civilization suffers hard times. The period of the feudal disunity, internecine wars and insurrections comes. Dynasties change each other, first the Juchens, and then Mongols subdue the country. Yuan dynasty is forming, headed by a Genghis Khan's descendant, **Khubilai** (fig. 12.8).

In the 17th c. the dominance of the Manchurian dynasty Qing (1644–1911) is established. The European merchants and missionaries penetrate actively into China.

Since the end of the 17th c. the signs of a transition to the early industrial civilization are observed in China. Various manufactories develop vigorously, as well as trade with Europe. According to **A. Maddison's** estimates, a share of China rose from 25% in world's GDP in 1500 to 33% in 1820. However, in the period of the industrial civilization its share began to drop rapidly – from 8.8% in 1913 and 4.5% in 1950. It rose to 12.3% only by the end of the 20th c. [264, p. 260].

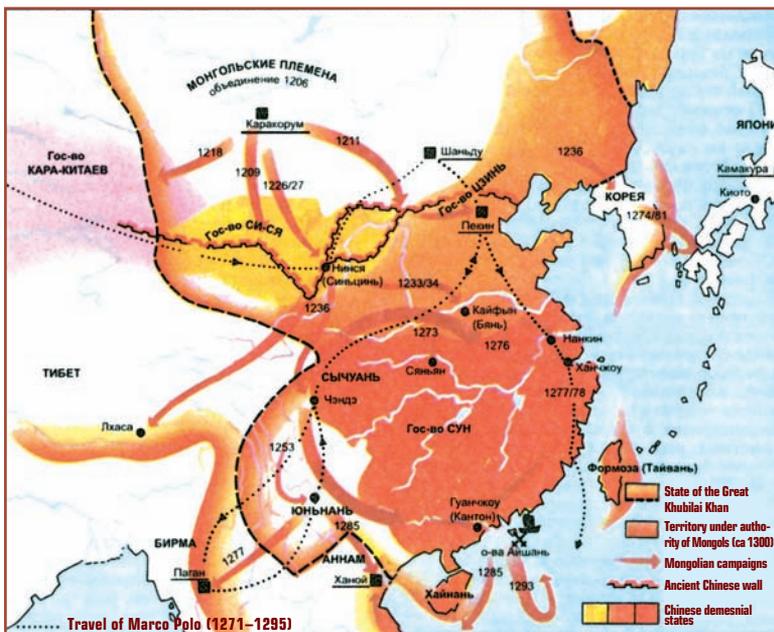
China lags in mastering of the achievements of the industrial revolution and in transition to the industrial world civilization. Products were losing its competitiveness on the world markets, ousted by factory products of Great Britain and other European countries. The technological base of production for the army became obsolete. The country sustained defeat after defeat in wars and by the end of the 19th c. it had found itself in the state of a semi-colony.

The Chinese revolution that began in 1911 and lasted nearly four decades ended with the proclamation of the People's Republic of China. With the assistance of the USSR industrialization of the country was carried on, land reform was implemented, education developed. A wrong policy of the «Big Leap» terminated advance for a while, but since 1978 it renewed with a new force. During two decades China develops economy at the record rates, improves the level of life and carries on modernization of the country. The Chinese civilization is going through a new period of its rise, its weight is constantly increasing in the world.

The fate of Indian civilization. India turned to feudalism a little later than China, but earlier than Western Europe. Already in the 6th c. the feudal forms of exploitation prevailed, the rulers of numerous small states proclaimed themselves the landowners and collected rent. Cities and trade developed rapidly. The caste system supported

Figure 12.8

China in the Mongolian period (Yuan dynasty), 1205–1368



Source: [82, p. 210]

by the prevailing religion – Hinduism – was formed. There were often wars between the states.

Since the 8th c. Islam began to penetrate into India, thus narrowing Hinduism. At the end of the 12th c. the Delhi Sultanate emerged in the north of India – the feudal monarchy with its capital in Delhi and existed until 1526 (fig. 12.9). Large irrigation structures were built, crafts, national and foreign trade developed. Under the blows from outside and inside the sultanate disintegrated into many small principalities at the beginning of the 16th c.

The summit of the Indian civilization was reached during the dynasty of the Great Moguls (1526–1858). It was founded by the native from the Central Asia **Babur Timurid**. In the 17th c. this centralized feudal monarchy embraced all India (except the South) and a part of Afghanistan. **Fernand Braudel** noted: «One and the same civilization borrowed from neighboring Persia, its art, its literature, its sensitivity were successfully transmitted into a new soil and spread almost round

all India. There is no doubts that the Indian cotton industry was the first in the world in quality and quantity of its articles and import volumes up to the English machine revolution» [23, p. 525, 527].

India occupied a leading place in the world trade, reached a high level of economic development. According to estimates of **A. Maddison**, 28.9% of the world GDP fell to India in 1000, and it exceeded Western Europe by an average GDP per capita by 12%. In 1700 India made 24.5% of the world GDP, but then its share began to drop rapidly — 7.5% of Western Europe [264, p. 252, 262].

Already since the end of the 15th c. the Western colonists began to penetrate into India — first Portuguese, and in the 17th c. — British, Dutch and French. There was established the English East India Company (1602), and then the Dutch and French companies, which pumped huge funds over to their parent states and subdued local rulers to their influence. In the 18th c. the Empire of the Great Mogul weakened and in the first half of the 19th c. it disintegrated. The colonial dominance of Britain established itself. That's why India could not use the fruits of the industrial revolution, its economy was undermined.

Only in 1947 India recovered its independence; at the same time a Moslem state — Pakistan — emerged on its territory, and Bangladesh separated from it later. Cross-civilizational clashes intensified, their danger increased after India and Pakistan created nuclear weapon.

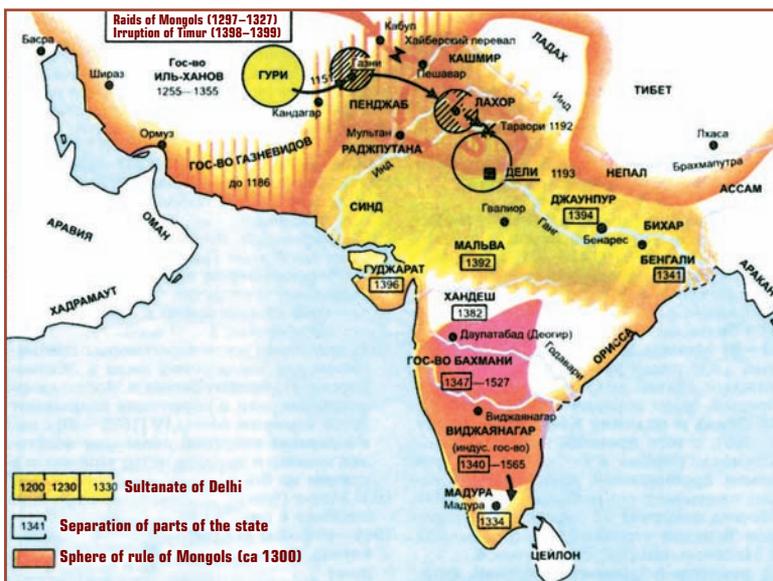
Under conditions of independence science, culture, education, national industry developed, the agrarian reform and «green revolution» was implemented.

Only since the last quarter of the 20th c. Indian economy began to develop at the priority rates — average annual GDP increase rates made 5.22% for 1973–2001 to 2.21% in Western Europe and 3.05% in average in the world [ibid, p. 260]. It indicates the beginning of a new cycle of revival of Indian civilization.

Mongolian Civilization. The historically short period of the outburst and completion of a life cycle of the Mongolian civilization (end of the 12th — middle of the 14th c.) is found somewhat off the thoroughfare of local civilizations. Its fate doesn't fit the usual stereotypes.

First, usually civilizations emerged on the bases of agricultural peoples, large cities, merchant-craft centers. The Mongolian civilization was *nomadic by its origin*, emerged through the union of

Figure 12.9

Delhi Sultanate, 1206–1526

Source: [82, p. 210]

groups of nomadic people not yet formed into a civilization, where tribal and clan relations prevailed and together with shamanism served as a base of religious attitude to the world. Only with time they repeated a usual way of civilization, established large cities, expanded crafts and trade, established the system which Academician **B. Ya. Vladimirov** called the *nomadic feudalism* [36, p. 135].

Second, it was a *record by territory* civilization, which embraced a greater part of the Eurasian continent; it is called the super empire spreading from the Pacific to the Atlantic Oceans. But it was one of the major reasons for its brevity. It disintegrated into four empires — uluses, where the Golden Horde was the largest, and then into smaller state formations. The Golden Horde itself was divided into the Kazan, Astrakhan and Crimean Khanates, and the Nogayan Horde.

Third, it was a *mixed* civilization *by its structure*. It included many peoples at a various level of technological and economic development, different cultures and religious beliefs. In China the Mongolian conquerors actually assimilated with the Chinese civilization, giving rise to the Yuan Chinese dynasty. Their unity, being in one civilizational union was ensured by a well-defined organiza-

tion of the «people-army», common legislations (Yasa of Genghis Khan), by conditions for the development of cattle husbandry, farming, crafts, trade and by tolerance towards beliefs. This civilization played a significant role in the dialogue and interaction among civilizations on spaces of Eurasia.

Fourth, it is exactly this heterogeneity in the structure of civilization under a strong centralizational core (the Mongolian people – army) was *a source of power of civilization*, the reason of its mysterious and inconceivable for other civilizations speed of spread. It quickly subjugated other peoples and civilizations with older history, and with higher technology and culture. Genghis Khan and his successors used their achievements, contracted local military leaders, engineers and masters. In the Mongolian civilization there were establishing conditions for support and development of the dialogue among civilizations, intensive commodity exchange through the Great Silk Road, Great Volga Road.

Fifth, the Mongolian civilization was formed from the very beginning as *military-oriented union of tribes and clans*, both by contents and organization made suitable for conduct of wars, inroads and moving for long distances. Hence, there was the iron discipline and numerous manifestations of cruelty and violence. But with time the elements of peaceful organization, non-interference in spiritual life, religious tolerance became prevailing in the administration of vanquished countries and peoples, if these conquered peoples duly paid tributes, and merchants and craftsmen – taxes and customs duties.

The reasons of such unexpected rise of the Mongolian civilization may be found not in personal identity of Genghis Khan and his descendants; such advance forward was made by people in a passionary outburst. One could agree with the conclusion of **B. Ya. Vladimirov**: «The Mongolian super imperia was created not simply by an individual personality, not by one generation of conquerors, but was eventually the product of that special system which was created by all nomadic world at the peak of its development» [36, p. 139].

After completion of its formation (by the beginning of the 12th c.) a life cycle of the Mongolian civilization included a number of the rise and crises phases changing each other. In 1209–1215 Genghis Khan conquered a larger part of China. Further he had the Chinese not only in his army, but among the nearest advisors, thus assimilating rich experience of the ancient Chinese civilization. Then Genghis Khan defeated Khwarezm-Shah and vanquished Turkmenistan,

Afghanistan and Persia. His successors continued moving to the West, conquered the Arabic caliphate and Baghdad, subdued the Volga regions, Russian principalities, advanced up Europe – to modern Hungary.

In the 13th c. the Mongolian civilization reached its summit (fig. 12.10). However, already in the 14th c. a deep and protracted crisis evolved, and then the stage of decay of the local civilization. There were several reasons for that:

➔ the disintegration of once single super empire into a number of smaller states that sometimes fought each other (that was called the feudal disunity in Europe). Adoption of Islam by most of Genghisids did not ease discords and contradictions;

➔ the epidemic of the «Black Death» – plague contributed to the downfall of the Golden Horde as a result of which many cities and villages of the South of the country were desolated;

➔ one of the factors of such disintegration was a protracted ecological crisis that was connected with the fact that the increased number of the herds of cattle could not feed the developed territories, and the influx of new territories wasn't easy.

If the fate of the Mongolian civilization is viewed from the position of transmission of heritage, the following may be observed. The Mongolian civilization assimilated a considerable part of the achievements of other civilizations enriching its genotype – Chinese, Persian, Moslem and the peoples of the Volga regions.

After leaving the historical arena many elements of the heritage of the Mongolian civilization were mastered by the Slavic Russian civilization, Muscovite Russia.

However, the findings made by one of the founders of the Eurasianism – **N. Trubetskoy** – are hardly relevant and well-founded: «From the historical aspect the modern state that could be called Russia and the USSR (the matter is not in the name) is a part of the great Mongolian monarchy founded by Genghis Khan... Eurasia constitutes a certain geographical, ethnocultural and economic whole and single system, whose state unification is historically necessary. Genghis Khan was the first to unite it. And after him the awareness of the necessity of such unity penetrated into all parts of Eurasia, although was not always univocally clear. With time this unity began to be violated. The Russian state sought instinctively and is seeking to choose this broken unity and therefore it is an heir, successor and continuer of the historical deed of Genghis Khan» [197, p. 147, 152]. The following arguments may be countered to it. The

vast continent of Eurasia is a geographical, and not ethnocultural and economy unity. On the contrary, a great variety of civilizations and cultures, political confrontations often developing into wars is observed exactly on this continent; two world wars germinated here – the bloodiest in the history of humankind. Civilizations of the continent never felt a need for the state union. The attempts made to carry out such union from time to time inevitably failed. The Russian Empire and then the USSR did not purport to be the all-Eurasian union and can't be viewed as successors of the Mongolian civilization, the Empire of Genghis Khan; the European elements prevail in it, it is a mixed civilization that has united the elements of various civilizations.

12.3.2. The Dominance of the Western Civilization

Byzantine civilization. The downfall of the Western Roman Empire – the leader of the civilizational progress at the beginning of our era – did not mean that the Greek-Roman civilization left the historical arena. Its heritage passed to the Byzantine Empire for almost a millennium (*fig. 12.11*).

The establishment of the Byzantine civilization inaugurated the formation of the Eastern Roman Empire, but also the disruption of Christianity, the emergence of Orthodoxy and strengthening of influence of the Greek language and culture, development of statehood and codification of the Roman law.

The Byzantine civilization passed through several stages in its development. The bases of slave system persisted for a long time in it until they gave way to the eastern modification of feudalism under a strong state power. Byzantium maintained active trade ties with the East and the West, extended its political and religious influence over the Balkans and Slavic states. The heights in the development of culture, science and education were reached.

The Byzantine science was a direct heir to science of the Greek-Roman world. Traditions of Plato and Aristotle continued; special focus was laid on the applied branches of knowledge directly connected with medicine, agriculture, craft, construction and warcraft. The encyclopedic tendency gained development. Thus **Psel** (1018–1096/97) was engaged in philosophy and created the foundations of logic. **Nicephorus Gregoras** (1290–1360) developed Aristotle's ideas,

Figure 12.10. Mongolian Conquests



proposed a reform of the calendar and wrote a large work «Ramian History». **Georgius Plethon** (1355–1452) was a votary of Plato; he succeeded in the reviving of the Plato Academy in Florence. The Byzantine science preserved and transmitted to the heirs the achievements of ancient science, then assimilated in many countries of South Europe, ancient Russia and Transcaucasia.

The Byzantine culture was formed under the determinative influence of Christian religion, it sought to influence the feelings of the believers through artistic images and architectural style. It most brightly declared itself in the Great Church of Hagia Sophia in

Constantinople which was built in 523–537 by architects Isidoros and Anthemois. This temple became a kind of standard for construction of Orthodox churches in Byzantium and Russia, including the Sophia Cathedrals in Kiev and Novgorod.

In the next years icon painting that met the canons established by church developed in Byzantium. One of the notable monuments of that period is the icon of Our Lady Affection that was brought to Russia already in the 12th c. (it remains in the Tretyakov Gallery and is known as the icon of Our Lady of Vladimir). In Byzantium fine arts reached its peak in the 11th–12th c. In the late Byzantine culture (the 13th – 15th c.), imaginative literature, secular architecture, fresco paintings developed. A heavy loss to the Byzantine culture was caused by struggle against iconoclasm, plunders of crusaders and finally the Turkish conquest of Byzantium.

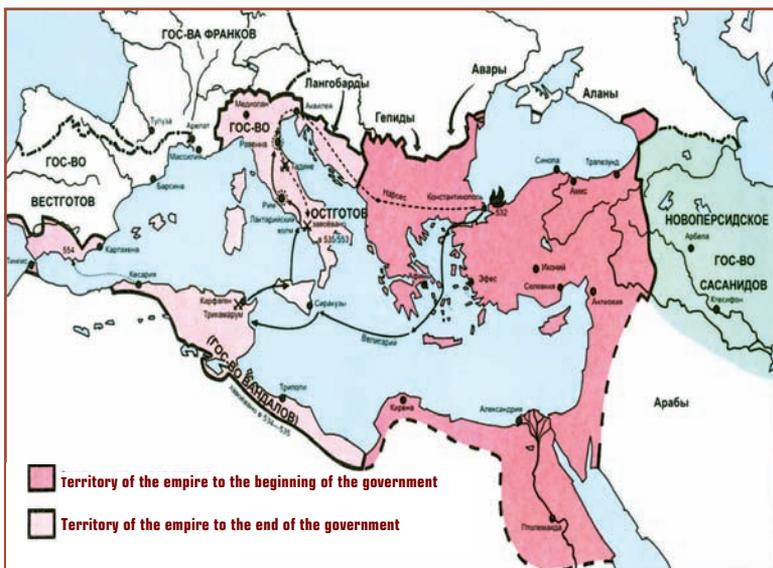
In Byzantium a tradition of *education* formed in Greece and Rome survived. A higher secular education developed. The Constantinople higher school got support from the state and was considered one of the largest centers of higher education in the Middle Ages along with Paris and Baghdad.

The 13th–15th centuries were the period of the loss of the leadership and the downfall of the Byzantine civilization. In the first half of the 15th c. the weakened Byzantine Empire suffered defeat after defeat from aggressive inroads of Turks-Seljuks and in 1453 it vanished being replaced by the Ottoman Empire.



Source: [242, p. 156–157].

Figure 12.11

Byzantium until 867

Source: [82, p. 138]

Formation and triumph of the western European civilization.

With the downfall of the Western Roman empire Western Europe became the seat of the formation of a new civilization that was destined to occupy the dominating position in the world in a thousand years. It is a direct heir of the Greek-Roman civilization of the second generation.

The southern part of Western Europe was under the reign of the Visigoths and Ostrogoths. Later the Iberian peninsula was included in the Arab caliphate, southwestern part — in the Eastern Roman, and then Byzantine Empire, which later extended over the south of Italy. The kingdoms of Franks and Burgundians formed on the territory of modern France, the north belonged to Anglo-Saxon kingdoms.

The barbarians, who settled round the Roman Empire in the 5th c., were not wild people just having come out of the woods and steppes: «They went a long way of evolution during their wanderings often age-long, when they contacted various cultures and civilizations and assimilated their morals, arts and crafts. Most of these peo-

ples suffered the influence of Asian cultures, Iranian world, and also Greek-Roman directly or indirectly... They brought fine practices of metalworking, jewelry and leather craft, and also admirable art of steppes with its stylized animalistic motives» [111, p. 18–19].

In medieval Europe feudalism established itself later than in China and India. The Frankish kingdom, empire of Karl the Great, became the epicenter of its formation. Later feudalism established itself in the Central, Northern (Scandinavia) and Eastern Europe. In the first decades of the second millennium many feudal states formed, they interacted and often waged wars against each other in the struggle for the heritage of the Roman Empire.

The western European civilization passed several stages in its development. The first three hundred years were a transitional period when after the downfall of the Western Roman empire on the territory of Western Europe a choice of a new civilizational path was made. The papacy played a growing political role, spreading Catholicism among the pagan German-Romanic and other tribes. A transitional period could be viewed mainly completed by 800, when the king of France **Karl the Great** was proclaimed the Emperor. «By the beginning of the 9th c., — **Yu. V. Pavlenko** makes a conclusion, — the western Christian civilization was formed in its historical base... however, the Great Empire founded by Karl the Great was a quite heterogeneous formation in its ethnocultural-historical nature. Two major blocks could be clearly distinguished within it: German-speaking, and more precisely German proper — to the east of the Rhine, and Romanic-speaking — within the former Western Roman empire» [151, p. 499].

At the next stage this civilizational nucleus expanded actively — to the south (re-conquering of the Iberian peninsula from the Arabs — reconquista), to the north (inclusion of the warlike Vikings in its orbit that formed Denmark, Norway and Sweden) and to the East (subjugation of the western Slavic lands and states). In the 14th c. this civilization passed through an acute crisis (the epidemic of the plague, the Hundred Years' War) and then it entered the prosperity phase — from the Renaissance to the Reformation. In the second half of the 16th c. the western European civilization became leading in a geocivilizational space — first politically (having conquered America, nearly all Africa, Australia and a considerable part of Asia), and after the industrial revolution also economically, moving aside the Indian and Chinese civilization, which dominated before the 19th c. in the world GDP.

The distinctive features of the western European civilization included the dominance of Christian religion (Catholicism). It purported to be the first in struggle with a secular power, had a great political and economic power and cemented scattered disunited feudal states, united them in the clash with the Moslem civilization during the Crusades and Reconquista. The agriculture based on the bondage and feudal rent prevailed in economy. The number of «free» cities with developed crafts and trade grew, the republics and unions based on trade and craft rose — Venice, Genoa and the Hanseatic league.

In the period of the early industrial world civilization, in the period of the Great geographical discoveries (*fig. 12.3*), especially after the discovery of America, beginning of colonization of Africa, South and Southeastern Asia and Australia, the sphere of political and economic dominance of the western European civilization began to spread rapidly. Colonial empires emerged — first Portuguese and Spanish, and then British and French. The capitalist order was gaining strength in economy. The «third estate» — bourgeoisie made claims for power. Europe was shaken by bloody wars and revolutions.

The hour of triumph for the western European civilization came after the industrial revolution, which changed the world. The wave of the industrial revolution that had germinated in England transformed the world like a huge tsunami.

In economy of Western Europe, capitalism established itself after a series of revolutions bourgeoisie came to power. The industrial revolution gave a huge impetus to the development of machine industry, establishment of an unconditional economic leadership of the western European civilization. If in 1000, according to the estimates of **A. Maddison**, Europe produced 8.7% of the world GDP, then in 1820 its share rose up to 23%, and by 1870 and 1913 — up to 33%. However, by the end of the 20th c. it began to lose its positions and dropped up to 20,3% by 2001 of the world GDP [264, p. 260].

By 1900, according to the estimates of **S. Huntington**, 38.7% of the territory of the populated part of the earth and 44.3% of the population was under political control of the western civilization. [259, p. 85]. However, from the end of the 19th c. a daughter north American civilization, which was rapidly gaining strength, began to confront the western European civilization.

In the 20th c. the signs of weakening and decline of the leadership of the western European civilization were observed. First of all, the two bloodiest world wars in the history of humankind, which were unleashed on its initiative and undermined the strength of Europe,

contributed to it. **Oswald Spengler** [233] stated that Europe began to decline already in 1918. **A. Toynbee** corroborated such outlook. «The present western dominance — and this is quite obvious — will not last long... As the united world finds the path to the balance between various cultures making it through new centuries and generations, with time the western element will occupy a modest place, on which it may count on in compliance with these other cultures — alive and extinct — which the western expansion led to the contact with each other and itself» [192, p. 101].

However, after World War II at the completion stage of the industrial society the western European civilization found forces to emerge from desolation and transform into one of the centers of the formation of the post-industrial society. The surmounting of interstate rivalry and a series of wars, formation of the civilizational union — European Union, which may serve as a model for other civilizations and whole civilizational world, contributed to it.

A delay with the approval of the all-European constitution generated doubts in the maintenance of the unity of the western European civilization (which is absorbing eastern European step by step). However, these delays will hardly turn out to be fatal. There is a hope that integration tendencies will prevail.

A Bound Forward of the North American Civilization. A typical feature of the last century and a half was a vigorous rise of the north American civilization. It emerged as a daughter civilization with respect to western European on the basis of the merge of several waves of immigration — most active and flexible part of population of the European countries and forced import of Africans as slaves. Further the influx of incomers from Latin America, China, Japan and Russia intensified to North America. It is this specifics of the north American civilization, which had hived off as a result of the war for independence from England, that determined its expansive nature and a freedom loving, energetic character. Here the incomers from various civilizations were melted like in a melting pot forming a new civilizational community.

A zigzag of the history was the revival of the relics of the slave system in North America in the ocean of established capitalist relations. Surmounting of these relicts opened the path for a vigorous rise of the US economy. The USA reached the peak of the economic might in 1918. The crisis of 1929—1933 struck most painfully the US economy, however, World War II and the post-war reconstruction

restored the leadership of the north American civilization again. Only by the end of the 20th c. the north American civilization somewhat was moved aside under pressure of Japan, new industrial countries of South-Eastern Asia and China.

However, the USA remained an unconditional leader of the West and most important power of the world, the nucleus of the western civilization confronting the Eurasian civilization represented by the USSR, countries of the world system of socialism.

At the end of the 20th c. after disintegration of the USSR, Comecon, Warsaw treaty, the USA remained the only super power and began to lay claims to the place, which was occupied by the western European civilization in the 19th c. This position was clearly expressed by **Zbigniew Brzezinski**: «America occupies the dominating position in four fields of the world power that has a decisive significance: in the military field, it has global opportunities of the involvement without a rival; in the field of economy, it will remain the major driving force of the world development, even despite the competition in individual fields from Japan and Germany; in a technological respect, it maintains the absolute leadership in the advanced fields of science and technology; in the field of culture, despite its certain primitivity, America enjoys the attractiveness with no parallel, especially among the youth worldwide... It is exactly the combination of all these four factors that makes America the only world super power in a full sense of this word... The American might manifests itself through a global system of an obvious US-make reflecting internal US experience» [17, p. 36].

The north American civilization is the youngest of all civilizations acting in the geopolitical arena of civilizations and it is at the stage of the rise in its life cycle. Its force is in it, but the weakness is also in it and is in its unreasonable self-assurance and inability to take into account the fundamental interests of more long-lived sophisticated civilizations with many-century experience.

Latin American Civilization. The Latin American civilization is a daughter with respect to western European civilization. It formed relatively not long ago in terms of a historical time scale — in the 19th century — and was a result of the merger of three civilizational flows: unlike in North America, quite strong remains of ancient pre-Columbian civilizations; western European civilization in its Iberian (Spanish-Portuguese) modification that experienced a strong Moslem influence; inflows of slaves from Africa with their original culture.

The prehistory of the formation of the Latin American civilization (after Columbus discovered America) includes extermination of the indigenous civilizations, plundering and import to Europe of the riches accumulated by tens of generations, severe colonial regime, revival of the slave system on large plantations.

It is possible to speak about the beginning of the formation of the Latin American civilization after a successful end of the war of American colonies for in 1810–1828 and the proclamation of independence from Portugal by Brasilia in 1822. This gave impetus to the development of capitalism in South America, but at the rates much slower than in North America. The economic independence from Western Europe, and later from the USA remained, against an active cross-civilizational dialogue, trade and cultural exchange. A series of revolutions, especially the Mexican revolution of 1910–1917, intensified a thirst for a civilizational self-identification, which manifested itself pronouncedly especially after World War II. Military-totalitarian regimes, high rates of inflations restrained this process. The signs of the formation of a modern highly technological economy could be observed only in the last decades of the 20th c. in a number of countries. However, a share of Latin America remains insignificant in the world GDP.

Australian continent. Here the tendencies of the civilization development were different. Long isolation of the continent from the rest of the world resulted in a lagging in the historical development: in the 18th c. about 500 tribes of a total number of 250–300 thous. people doing hunting and gathering numbered here.

As a result of colonization of Australia and New Zealand the indigenous population was partially exterminated, partially ousted to the barren regions. Unlike Latin America, the population of Europe was relatively civilizationally homogeneous. Capitalism developed rapidly both in the agriculture and industry. In the beginning of the 20th c. the status of dominion was obtained and at the end of the 20th c. a mixed oceanic civilization, which includes many states of Polynesia, Micronesia and Melanesia was formed.

Civilizational Process in Africa. Africa, that is the largest continent after Eurasia, is the cradle of man, who settled from here to other continents in the Paleolithic. Africa was the field of interlacing, interaction and struggle of various civilizations – African and external origin – both in the first and second historical super cycles.

«From the 2nd–1st centuries B.C. and until now harsh contrasts are typical of certain countries of Northeastern Africa in the level of social development: pre-civilizations and proto-civilizations neighbor with highly developed civilizations... Geographical conditions contributed to the existence of several seats of civilizations in the regions during two and a half – three and a half millennia, and a fruitful exchange of cultural information occurred among them» [26, p. 71].

North Africa outstripped in its civilizational development other regions of the continent. The Egyptian civilization of great antiquity that served the seat of a civilizational advance in the early class society formed here. In the ancient society Carthage, which reigned over the southern coast of the Mediterranean Sea, a larger part of the Iberian Peninsula, Corsica, Sardinia and Sicily, was a rival of Rome; Carthage was ruined only in the middle of the 2nd c. B.C. From the 4th c. B.C. to the 5th c. A.D. in the headwaters of the Nile a strong Mercitian kingdom existed, in the first half of the 1st mil. the Kingdom of Axum – on the territory of modern Ethiopia. Central, Western and South Africa somewhat lagged in its civilizational development.

Beginning from the 4th c. A.D. North Africa became the field for penetration of Christianity, and then from the 7th c. – of Islam.

«In the 4th – first third of the 7th c. the Kingdom of Axum reached the top of its military-political and trade might... Axum assimilated rapidly the achievements of the southern Arabian, Meroitic, Roman-Byzantine and Indian civilizations... The Axum king and his subjects adopted Christianity in the middle of the 4th c. Having risen to the level of the millennium civilizations of the Nile basin and Arabia, the Axum civilization renders its influence now on them, which is associated with the military way of life, political structure and Christianity... In Sudan a new civilization was taking shape – Christian Nubian. Its rise took three centuries – the 7th–9th c., and the peak fell to the second half of the 13th c.» [ibid, p. 74–75].

The rise of the Moslem civilization, which emerged in the 7th c., led to its expansion to North Africa. In the 7th–8th c. Egypt and North Africa made a part of the Arabic caliphate. And North Africa is a part of the Moslem civilization to this day.

In the period of the Middle Ages and next periods Ethiopia remained an Orthodox (monophysitic) Christian country, which had assimilated the heritage of the Axum civilization.

The fate of the peoples of the Western and Central Africa formed tragically in the periods of the early industrial and industrial world civilizations. Already since the 14th c. Portugal began slave-trading.

Great Britain, France, Holland, Denmark, and then the USA went into this profitable business. Tens and hundreds thousands of Africans died en route and at the plantations, vast areas of the African continent were devastated, economy and culture declined. According to certain estimates the losses of Africa from slave-trading made about 100 mln. people. It was a commercial genocide, the recrudescence of slavery on the commercial-capitalist base. The western civilization gained strength on the blood and sweat of the African slaves.

In the 19th c. the western European civilization carried out colonization of almost the entire African continent. If one tenth of Africa was colonies by 1876, then already 9/10 — by 1900. The struggle for the redistribution of the African colonies developed between colonial empires.

Only after World War II in the 50s–60s of the 20th c. a vigorous process of de-colonization unfolded on the African continent, tens of independent states formed. However, economy remained to a great extent in the hands of former metropolitans and TNC, which impedes an economic and social advance.

By the end of the 20th c. on the territory of Africa an independent African civilization was formed to the south of the Sahara, which included heterogeneous civilizational elements but in many ways common prevailing elements of culture, ethics and mentality. The industrial civilization left a heavy heritage in this part of the African continent. According to the World Bank the GNP level per capita was 51.5 times lower here in 1999 than in the countries with a high level of income, the level of infant mortality — 25 times higher, the level of illiteracy of the adult population — 32% with men and 49% with women. This is the heritage of the dominance of the West in Africa.

12.3.3. Dialogue and Interaction among Civilizations of the 3rd and 4th Generations

The typical tendencies of the elapsed millennium and a half are, first, the expansion of the civilizational field, which is gradually extending over all populated part of the planet, and second, intensification of various forms of dialogue and interaction among civilizations, increasing of their mutual influence in economic, technological, political and socio-cultural development.

Great Trade Roads. The major channels of dialogue and interaction among civilizations were the great trade-transport roads — from the East to the West and from the North to the South. Some

of these roads had formed in the previous period, but they got a new development from the second half of the 1st millennium A.D.

The *Great Silk Road* became most known; the flow of silk fabrics, incenses and spices, decorations and jewelry went from China and India to Byzantium and Western Europe and back — items of European craftsmen and weapons.

The *Baltic-Dniepe Road* («the Road from the Varangians to the Greeks») and the *Great Volga Road* («from the Varangians to the Arabs») played a significant role in the formation of the Russian civilization as the channels of an intensive cross-civilizational exchange not only of commodities, but of cultural achievements.

After the discovery of the New World a *transatlantic sea passage* from Europe and Africa to America by which the caravans of vessels with gold and silver, goods and slaves sailed became of prime significance.

The invention of steam-engines and steamboats intensified extremely the cross-civilizational commodity exchange in all directions, increased the number of transportational routes that crossed the earth both by parallels and meridians. This process was intensified many times in the 20th c. with the formation of the world economy.

From the end of the 20th c. a tendency towards the formation of international transport corridors appeared as channels of globalization of economy, through which a stable cross-civilizational exchange is carried on.

Establishment and Disintegration of Colonial Empires. In the feudal-capitalist period the formation of the world colonial empires became a channel for a cross-civilizational interaction.

A number of the world empires of that period — Byzantine, Chinese, and then Ottoman, Russian, Austro-Hungarian — were built mainly within one civilization, although included the marginal fields overlapping with allied civilizations. However, in the period of the great geographical discoveries, conquering of America the empires of another, colonial type emerged. A small in size and number metropolitan established its military-political and economic dominance over other civilizations or their part.

In the 16th c. the colonial empires included Spanish and Portuguese, which divided the New World between each other. However, in the 17th c. the primacy passed to the British Empire, which conquered India, North America, a considerable part of Asia and Africa. According to the proverb, which existed in that period, the Sun never set on the British Empire. The French, Netherlandish, and then German Empires competed with it.

The dawn of colonial empires fell to the second half of the 19th – beginning of the 20th centuries. Then the period of their decline began and completed with the disintegration of the colonial system after World War II. However, a close economic and socio-cultural interaction among civilizations remained within former colonial empires (the British Commonwealth of Nations).

Formation and Development of the World Market. Trade relations between civilizations developed from the very beginning of their emergence. First, they were irregular, but international trade acquired a large-scale and regular nature already in the ancient period, regional world markets formed. But it is early to speak about the world market in this period as in the period of the Middle Ages.

Only on the basis of the early industrial civilization, after the great geographical discoveries, conquering of America and Australia the signs of formation of the world market as the major field of economic interaction between countries and civilizations appeared. This process intensified with the establishment of the world colonial empires, emergence of large trade companies, which specialized in such exchanges (for instance, the East India Company). The re-distribution of riches occurred through trade in favor of parent states.

The world market as a part of the world capitalist economy established in the industrial society to a full extent, especially in the second half of the 19th and beginning of the 20th cc. An international division of labor, proportions of reproduction in a world scale underlies it. International monopolies, and from the last third of the 20th c. – transnational corporations are the major subjects of this market and appropriate a major portion of profit and super profits generated as a result of its development.

Geopolitical Aspects of Interaction among Civilizations. The geopolitical map of the world changed many times in the feudal-capitalist period. Political relations between civilizations maintained in various forms – from the interstate unions to military conflicts.

A series of cross-civilization wars came in the 7th–13th cc. The largest of them is the Arab conquests; crusades, several waves of the incursions of the nomadic Mongolian civilization on Europe and Central Asia and Transcaucasia.

In the period of the early-industrial civilization the clash of the western European civilization with the indigenous civilizations of America, which ended with a loss of the latter, assumed the most tragic nature. The wars between the catholic West and the Moslem East,

wars for conquering India, Australia, Africa, numerous clashes between the Russian and Ottoman Empire were of a cross-civilizational nature.

But relations between civilizations were not reduced only to wars. Political alliances were concluded not once, an active exchange of commodities, scientific achievements and cultural values was maintained.

Political relations between the western European and Russian civilization were of a complicated, contradictory nature. Military conflicts (the Napoleon's inroad into Russia, the Crimean War where France and England united their forces with the Ottoman Empire). However, the relations of dialogue, trade and cultural exchange and political unions prevailed (for instance, after the Napoleon wars).

The world wars of the 20th c. — the bloodiest in the history — were of a mixed nature. In World War I one part of the western civilization (the Entente) united with the Russian Empire in struggle against the other part of the western civilization (German and Austro-Hungarian Empires). The alignment of political forces was similar in many ways during World War II. The period of the «Cold War» bore an imprint of not only ideological, but civilizational confrontation: the western civilization (first of all North American and Western European) stood in opposition to Eurasian (Russian) and Chinese.

With the end of the «Cold War» the alignment of forces in the geopolitical arena changed drastically. The Eurasian civilization disintegrated; the confrontation of the USSR and the USA as two super powers — centers of civilizations — ended. At the same time the activity of the Moslem civilization increased considerably.

Socio-cultural Dialogue among Civilizations. The feudal-capitalistic period was characterized by an increasing intensity of dialogue among civilizations in the socio-cultural sphere — in science, culture, education, and in the field of religious relations.

In the period of the early Middle Ages the achievements of the Chinese science and technology, and also the ancient heritage were assimilated by the Moslem civilization and transmitted to western European (along with the transmission of such heritage through Byzantium). An accelerated scientific advance, the fruits of the great scientific revolution of the 15th c.—17th cc. and further overturns in sciences were quickly assimilated by other civilizations. At the end of the 19th—beginning of the 20th c., the epicenter of the scientific advance shifted to the USA and Russia.

Culture of various civilizations has a more original and stable nature. The formation of the colonial empires led to the cultural

expansion of the West; but it mainly extended to the upper section of other civilizations. However, the original culture was mainly destroyed in the New World. At the beginning of the Middle Ages the bloom of the Chinese, Indian and Arabic civilizations was observed. In the Renaissance the epicenter of the cultural advance moved to Italy, then to France, England and Germany. In the second half of the 19th c. and the first third of the 20th c. one of the epicenters of the cultural rise was the Russian civilization; its achievements, especially in literature and music, acquired the world nature.

From the end of the 20th c. the tendencies in the cross-civilizational cultural exchange assumed a contradictory nature. On the one hand, using the global information space the values of the West are being imposed on other civilizations. On the other hand, as a response to the leveling tendency, increasing attention to national and civilizational cultural values, the signs of the new Renaissance are observed.

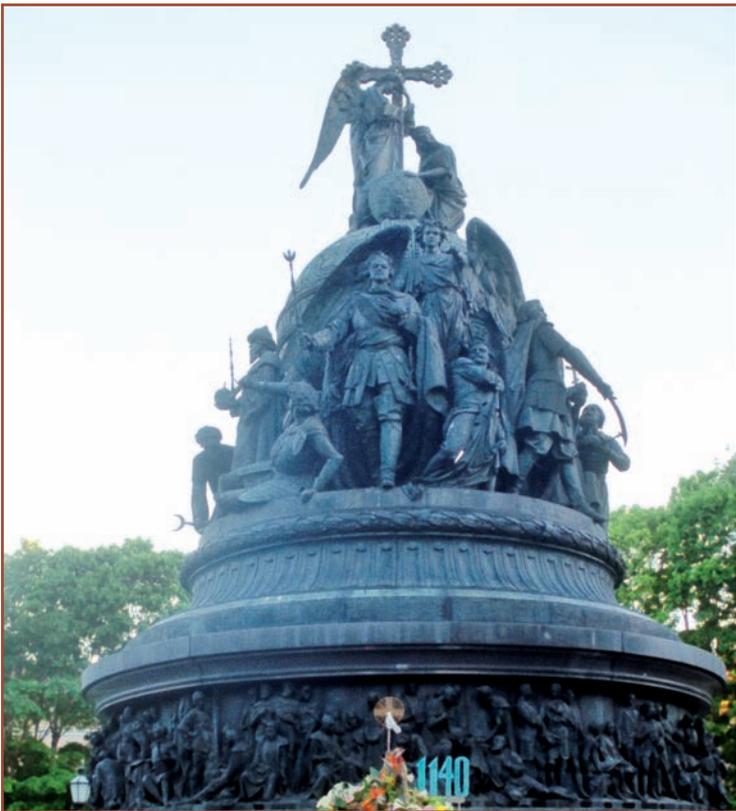
There was a lot in common in the development of the systems of *education* of the civilizations of the third and fourth generations. Experience of organization of education in China and Byzantium was used by other civilizations. The establishment of the universities in Western Europe promoted their spread worldwide. Organization of theological education in the Middle Ages in the countries of the West and East had similar features. The revolution in education of the industrial period, whose epicenter was in Western Europe, spread wave-like round the world. The unique system of education in Russia (the USSR) became the object of investigation by other countries.

Although its own *system of ethical and religious values* is inherent to each civilization, the dialogue also developed in this sphere, general development trends were observed, especially in the early-industrial and industrial societies. In the periods of the genesis of feudalism and Middle Ages there was an active spread and confrontation of world religions to the extent of religious wars, which often served as the reason for clash among civilizations. In the industrial society the influence of religions and the systems of moral values supported by them dropped. However, at the end of the 20th c. the Renaissance of religions was observed, which was determined by a crisis in the world outlook in many ways.

At the turn of the millennia the signs of a deep-seated crisis in science and culture, negative moral and religious polarization are observed in all civilizations. The dialogue among civilizations will help to surmount such crisis phenomena in the transitional period to the humanistically noospheric post-industrial society.

Chapter 13

CIVILIZATIONAL DYNAMICS IN THE NORTH OF EURASIA



Qu ample territories of the North of the Eurasian continent the formation of world and local civilizations began several millennia later than in the Mediterranean, Mesopotamia and the South Eastern part of the continent; but it proceeded at accelerated rates, so that at the beginning of the 2nd millennium A.D. civilizations of the third generation emerged here was among the leaders of civilizational dynamics. It is worthwhile considering the stages of the formation and development of civilizations and their interaction with other societies in this space of oecumene. Here we will dwell not only upon the literary sources, but also upon the materials of the scientific civilizational expedition in the Northern Black Sea region, which we organized in July 2005.

13.1. Rhythms of Civilizational Dynamics in the Region



The general schematic representation of the world civilizations of the northern part of the Eurasian continent is given in [table 13.1](#). The periodization of the history of civilizations in this region as we've got it is different in many ways from recognized (especially in part of dynamics of local civilization) and reflects the result of inquiries and expeditions undertaken by us.

Let's go into the major stages of the civilizational process in space of Northern Eurasia.

13.1.1. Neolith

The beginning of the history of the civilizational advance in the north of the huge Eurasian continent may be dated back to the 5th millennium B.C. — three millennia later than in the Near East and the north of Africa, where the foundations of the first historical super cycle were laid, the first Neolithic civilization emerged. Such lagging is first of all due to a natural-climate factor that was

Table 13.1

Rhythms of Civilizational Dynamics in the North Region of Eurasia

Civilizations, period	Civilizational Dynamics	Civilizational Contacts
Neolithic V–IV millennia B.C.	Tripole culture in the Ukraine, culture of tunnel beakers, cultures of the north Caucasus	Central Europe
Eneolithic and Bronze Age 2 nd – beginning of the 1 st millennium B.C.	Maikop, Trialet, Koban, Andronovo, Fatyanovo cultures, Arkaim in the Urals, Tripole culture in the Ukraine	Civilizations of Mesopotamia, China
Iron Age 7 th c. B.C. – 6 th c. AD.	Dniepr regions, Volga regions, North Caucasus, south of the Urals, Dyakovo, Gorodets, Anayin cultures. The outposts of the Greco-Roman civilization in the north of the Black Sea regions, Bosphorus Kingdom, Scythian proto-civilization	Greco-Roman, Persian and Chinese civilizations
Genesis of medieval civilization 6 th –middle of the 13 th c.	Eastern Slavic civilization, Russian Kaganate, Tmutarakan, Novgorodian Land, Kievan Russia	Byzantine, western European, Moslem, Chinese civilizations, Turkic and Khazar proto-civilizations
Mature medieval civilization middle of the 13 th –16 th c.	Russian civilization, Vladimir Suzdal Russia, Muscovy Czarism, Mastering of Siberia.	Mongolian, Byzantine, eastern European and Moslem civilizations
Early industrial civilization 17 th –18 th c.	Time of troubles – civilizational crisis. Eurasian civilization, Russian Empire	Western European, eastern European, Moslem and Chinese civilizations
Industrial civilization 19 th –20 th c.	Eurasian civilization, Russian Empire, USSR. Crisis of the Eurasian civilization	Western, eastern European, Chinese, Indian, Japanese, Moslem civilizations
Post-industrial civilization 21 st – 22 nd c. (forecast)	Russian (east Slavic) civilization. The opportunity of revival of the Eurasian civilization represented by fewer states	Western European, eastern European, north American, Moslem, Japanese, Chinese, Indian and Buddhist

noted by **G.V. Vernadsky**: «A huge glacier extended from Scandinavia to the south and south-east covering completely Northern and Central Russia. During the period when the glacier reached its utmost limits, its southern boundary reached the line which may be drawn from the Carpathians to Kiev on the Dniepr and then to Orel; from Orel it curved to Voronezh and upwards to the East to the Volga, then up the Volga and the estuary of the Kama and then through the northern part of the Urals to the riverheads of the Ob in Siberia... Even after the glacier began finally to retreat to the north, its traces could be seen long throughout the country. The climate of areas just opened from a sheet of ice was as cold as the climate of now sub-polar regions; such natural conditions were favorable for the spread of mammoths... During the Ice Age man could live only in the south» [31, p. 35, 36].

Only in the southern part of today's territory of Russia, Ukraine, Transcaucasus and Central Asia favorable conditions formed for the spread of the Neolithic civilization approximately from the 5th millennium B.C., the Bronze Age – from the end of the 3rd millennium B.C., the Iron Age – from the 7th c. B.C. «The diffusion of the Neolithic culture throughout Russia dates back chronologically to the end of the fourth or the beginning of the third millennium B.C. New forms of the tribal social structure appeared in the Neolithic period as well as new directions in human economic activity – husbandry and cattle breeding. Spiritual life also assumed new forms of expression... People should already have had a certain system of religious beliefs» [ibid, p. 39]. In the Northern Black Sea region and in the Northern Caucasus this process began earlier.

The retreat of the glaciers to the north and a fast extermination of the herds of large animals made the hunting communities start stock raising and husbandry. Mastering of pottery, spinning and weaving, manufacturing of implements followed next. The settlements of settled farmers (Maykop culture) sprang up; a transition to the territorial community began. This gave rise to a social division of labor, exchange between communities and social differentiation. The seats of Neolithic cultures were scattered throughout a huge territory. Hunting, fishing, wild hive beekeeping and gathering were still significant sources of the livelihood. Severe winters encouraged construction of warm houses from such material as wood and stone.

In the 4th–3rd millennium B.C. the *Tripole culture* of the Eneolithic diffused on the right shore of Ukraine (Carpathians region, middle Dniepr region) and Romania. Husbandry and cattle breeding developed, hillforts were constructed, copper working practices developed. The settlements of 20–50 houses situated in the concentric circles in the area of 2–3 ha were typical of the Tripole culture. The hillfort in Dobrovody (Ukraine) occupied the area of about 250 ha, houses were located in 9–10 circles with population which might make 10–20 thous. people.

13.1.2. Bronze Age

In the 3rd–2nd millennia B.C. gradual transition to the *Bronze Age* took place (first of all in the north Caucasus, Carpathian regions and Black Sea regions). Metal making practices and manufacturing of labor tools, weapons and ornaments were mastered, a network of settlements expanded and their sizes increased, exchange between arable and stock-raising tribes, which mastered metallurgy, assumed a regular nature (Koban, Andronov and Fatyanov cultures). The communal property was combined with private household of large patriarchal families. Communities united in tribes, the tribal nobles, who rested on the armed units, appropriated a considerable part of wealth. The unions of tribes were established – the germs of future states. The centers of civilization of the Bronze Age emerged in the Carpathians regions, north Caucasus and the Urals. However, at this stage unlike the centers of the early class civilization of Near East and Northern Africa there were no systems of irrigation farming and concentration of population in the valleys of large rivers, strong states did not develop, there was no slavery, which was characteristic of the cultures of the Mediterranean, Near and Middle East.

In the middle of the 50s of the 20th c. there were opened historical monuments of the culture of the Bronze Age (Arkaim) in the south of the Urals where the seat of developed material culture was situated. The studies into these monuments continue at present.

It should be mentioned that already in the Bronze Age the north regions of the Black Sea, North Caucasus, basins of the Dniepr, Volga and Kama became the thoroughfares of trade and cultural exchange between civilizations of the first and second

generations with peoples who were at the pre-civilizational stage of development. The river systems acted as the roads for such exchanges: «Rivers served as main trade roads, and the Volga played an especially significant role as an interlink between the cultural zone of the north Caucasus and the Upper Volga and the Kama river...The Dniepr region was connected with the Balkans territory on the one hand, and Caucasus – on the other hand. The region of the Oka-Volga was opened to the influence of Mesopotamian culture through Caucasus. The merchants had to penetrate to Western Siberia from the region of the Volga-Kama and vice versa. The peoples of Western Siberia traded with the peoples of Kazakhstan, and the latter found the road to Caucasus. The circle was completed this way» [ibid, p. 45–47]. The final points of such exchange between civilizations – ancient civilizations of China, India and Mediterranean should be added to this.

The culture of the Bronze Age took roots in the north Caucasus about 2000 B.C., although the Maykop Wall where a good deal of copper, golden and silver items were found dates back to the third millennium B.C. The beginning of the second world civilization in the south of today's Russia, in the regions of the north Caucasus and regions of the Black Sea and on the right shore of today's Ukraine (Tripole culture) may be dated back to the third millennium B.C., although independent local civilizations did not form there in that period.

It should be noted that geographical boundaries of the spread of the world civilizations are considerably wider than of local civilizations of the same period. The latter is a concentration, a bunch of cultures and other elements of the genotype of the given world civilization; however, there were vast regions where conditions for the formation of local civilizations had not formed yet, but the culture of the Bronze or Iron Ages for instance (early class and ancient world civilization) was already spread.

13.1.3. Iron Age

The beginning of the *Iron Age* – the third world civilization – on the territory of today's Russia and Ukraine dates back to the first centuries of the first millennium B.C. – approximately to the same period as in ancient Greece. In Volosovo near Murom the iron items

of the beginning of the 1st millennium A.D. were discovered together with bronze, which is dumb evidence of transition of culture from the Bronze to the Iron Age.

By the 8th–7th c. B.C. the cultures of the Iron Age were formed in the Dnieper regions, Volga regions and North Caucasus (Dyakovo, Gorodets cultures), from the middle of the 7th c. — on the south of the Urals, Altai and Western Siberia.

What are the distinguishing features of the Iron Age in the North of Eurasia?

First, *the civilizational area considerably expanded to the North*, to steppe and forest areas as there were conditions here for making and use of more durable and efficient iron tools. This permitted to involve new vast regions into the civilizational process.

Second, *proto-civilizations* (the dawn of local civilizations) and proto-states were formed here (leader-based states or chiefdoms).

At the heyday of their might the *Cimmerians* controlled the north regions of the Black Sea from the Dnieper to the Kerch Strait, dominated in the Crimean, Azov and Kuban regions, penetrated to Caucasus and they attacked the Urartu Kingdom in the middle of the 8th c. However, there is no ground to state that there was an independent local civilization. Its formation was discontinued by a wave of the Scythian migration from the East. One part of the Cimmerians settled in the Crimea and mixed with the local population, and the other moved to the West and was beaten by the Scythians on the Dnieper.

There are more grounds to speak about the formation of a local *Scythian proto-civilization*. «During the first half of the seventh century B.C. the Scythians bore down the resistance of the Cimmerians and extended their dominance from the Volga to the Dnieper. At the end of the century the Scythian state took a certain shape. Their kingdom was one of a series of the nomadic empires, which changed each other in the Eurasian steppes. The Scythian Empire was not a centralized state. The authority of the czar of the major horde was recognized by the leaders of smaller hordes, but the czar was not an absolute ruler. The Scythian state was rather a confederation of strong nomadic tribes. The Scythian empire can be sociologically described as the power of the nomadic horde over neighboring farming tribes» [ibid, p. 72, 73]. V.I. Gulyaev writes about the Scythian civilization from Don to Danube [49, p. 380].

As regards the empires it is put rather too strongly, but the area of the spread of the Scythian proto-civilization was consid-

erably wider than it was noted by **G.V. Vernadsky**: the monuments of the Scythian culture were discovered not only in the Northern Black Sea region and Northern Caucasus, but also in the south of the Urals, in Altai, in Central Asia and even on the boarder with China. In the last third of the 7th c. B.C. the Scythians conquered Medes, Syria, Palestine and Asia Minor, but at the beginning of the 6th c. B.C. they were ousted from these territories. In the year 512 B.C. the campaign of Persian king **Darius I** against the Scythians failed. At the turn of the 5th–4th c. B.C. Scythian king **Atheus** established a strong Scythian state from the Danube to the Sea of Azov. At the end of the 3rd c. B.C. the capital of the Scythians was moved to the Crimea (the Scythian Naples, on the outskirts of modern Simferopol). In the 2nd half of the 3rd c. A.D. the Scythian state was defeated utterly by the Goths. The Scythians were mainly cattle breeders, but they also followed the plough. They established close contacts with the Greek colonies — Olvia, Pantikapaion and Chersoneses, formed a number of militant proto-states, which went into action not once with Assyria and Persia. The Scythian proto-civilization was heterogeneous by its social and ethnic structure. **Herodotus**, a Greek historian who visited these areas in the 5th c. B.C., made a distinction between the dominating stratum of the czar Scythians — nomads, Scythians-farmers and also warlike Tavr.

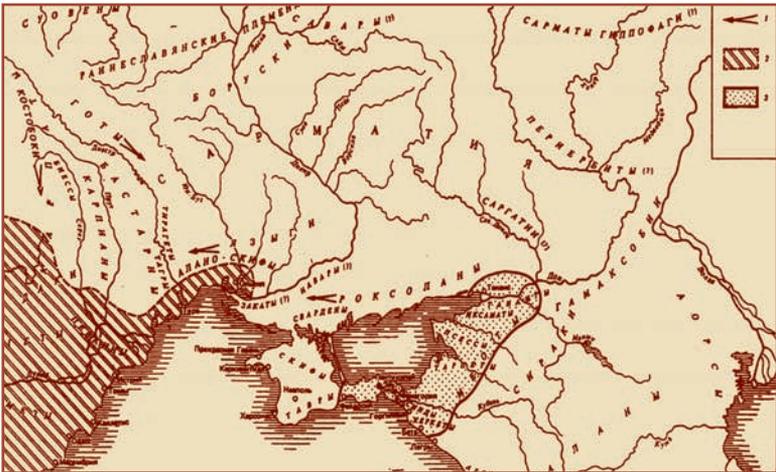
G.V. Vernadsky highly assesses the significance of the Scythian proto-civilization: «The Scythian rule ensured peace for Western Eurasia during three centuries. The Scythian world had a colossal significance in the support of trade and wellbeing not only of the Scythians, but also other tribes controlled by them» [ibid, p. 75].

Third, the specific feature of the Iron Age on the territory of the modern Russia and Ukraine is that it became the field for intensive interaction and symbiosis of local civilizations of the second generation (first of all, Greco-Roman) with proto-civilizations and pre-civilizational societies of the north regions of the Black Sea and the nomadic peoples from the east and north-west. Already from the 7th c. B.C. in the period of the Great Greek colonization, the colonies of Greek state-poleis (especially Ionic Miletus) extended to the northern coast of the Black Sea — Tigris in the mouth of the Dnieper, Olvia in the mouth of the South Bug, Tanais in the estuary of the Don; Kerkititida (today's Eupatoria),

Chersoneses, Pantikapaion (today's Kerch), Feodosia in the Crimea; Gorgippia (near Anapa), Phanagoria and Hermonassa on the Taman – and many other cities. «Some of the Greek cities of the Scythian period were fully developed communities where not only trade flourished, but art and crafts; while agriculture reached a high level in the neighboring districts. Thus, the Greek cities of that period became significant centers of culture. Furthermore, they were closely connected with the Greek cities proper as well the Malaysian while remaining a part of the integral Hellenistic world. Consequently, they served as a bridge between the Greek world and the Scythians... From the historical viewpoint the Bosphorus Kingdom in the Kerch Strait, which existed in the 6th c. B.C. – 6th c. A.D., was a predecessor of the Russian rule in Tmutarakan from the 9th to the 11th century A.D.» [ibid, p. 76–77] (fig. 13.1).

The formation of space of interaction between the antique world and the peoples of the regions of the Black Sea should not be viewed as a civilizational mission of Greeks among the barbarians. An opinion is widespread in the historical science that the local population was in the conditions of the primitive-communal, pre-civilizational system by the time of colonization. It is written in some of the treatises dedicated to the

Figure 13.1

Bosphorian Kingdom

Source: [242, p. 100]

history of the ancient world that the tribes of the north regions of the Black Sea could not establish state organizations similar to the Hellenistic states of the same period due to the level of their development. These statements are not in line with modern knowledge about the formation of civilizations in this region, which was corroborated by a research civilizational expedition organized by the authors in July 2005 to the north regions of the Black Sea (*see § 13.2*).

Interesting facts about the development of the Scythian proto-civilization and its contacts with the ancient world were discovered during excavations of the Matronin hillfort of the Scythian period in right shore Ukraine. A fortress of the 6th–4th c. B.C. was surrounded by three rows of defense walls of 15–20 m height, total length of about 8 km and a graff of 13 m wide, depth up to 6 m. The estimations showed that the number of people necessary to do such scope of works (with the equipment of that period) for sure exceeds many times the resources of local population of the nearby regions. Hence the conclusion may be made that the capital of a large state formation was situated here and people of other regions were involved in its construction. At the watershed of the Southern Bug and Dniepr (whose bed was different at that time) a whole network of hillforts – fortresses, a lot of Greek amphorae and other artifacts were found. It may be concluded that at that time the thoroughfare of these ancient lands was not the Dniepr, but the South Bug much more convenient for sailing, in Greek the Hypanis. Trade was maintained through Olvia, a large Greek colony founded at the mouth of the South Bug. Leather, fur, fish, honey, slaves etc. were the main exports of the Scythians.

13.1.4. Eastern Slavic Civilization

We call a civilization next the Scythian *eastern Slavic* as it did not include a number of western Slavic and was formed on the basis of union of a number of eastern Slavic tribes – Dulebs, Polaks, Drevlians, Severyane, Dregovichi, Vyatichi, Ulichy and Tiverts, and also separate Finno-Ugric tribes and a dissemination of assimilated Varangian detached units. The eastern Slavic civilization absorbed three world flows of outside civilizational impacts: from the South (Byzantine), from the West (western and eastern Europe) and from

the East (Khazars, Turkomans, Polovets and then the Mongols) transforming them in the context of conditions of their development and historical experience.

The spread of the *medieval world civilization and the third generation of local civilization, formation and development of a powerful eastern Slavic civilization* became the next stage of the civilizational development of Northern Eurasia in the period of the beginning of the second historical super cycle. Chronologically, this period lasted from the 8th till the middle of the 13th c. and ended with a civilizational catastrophe (the Mongolian invasion). Many historians associates the beginning of the history of the eastern Slavic civilizations with the Antes — according to **A.G. Morozov** and **S.V. Kornovsky**, «the greatest union of the eastern Slavic tribes of the 3rd—8th c. A.D.» [138]. After making inquiries into the history of eastern Slavic tribes **P. Tretyakov** noted that «the interpretation of the history of the Antes led inevitably to the conclusion that the ancient Russian state of the 9th c. was not that dawn... of the historical life of the Slavdom, but the result of a long path already walked by it» [19, p. 154]. Academician **A. Shakhmatov** deemed that the Antes were the ancestors of «all Russian tribe» and noted that «as a result of the disintegration of the Ant unity all Eastern Slavic tribes emerged, which then settled in the Eastern European plain» [230, p. 12]. **M. Grushevsky** viewed the Antes as ancestors of the Ukrainians.

Apparently, the Antes did not become an independent local civilization. The issue whether they may be viewed as a proto-civilization requires further inquiries. But in any case it is recognized that they were one of the sources of the *eastern Slavic civilization* that formed in steppes and forest regions of Eastern Europe in the 8th—9th c. It expanded its sphere of settlement step by step, mastering the results of interaction with the western European, Byzantine, eastern European and Mongolian civilizations and transformed into the northern Eurasian civilization from the 16th—17th c.

This Slavic civilization reached its peak in the 9th—11th cc. under **Vladimir I** and **Yaroslav the Wise**. Under their rule the Kievan Russia became the largest European state, extended from the Dniester and the Vistula to the Don and the Volga, from the Northern Dvina to the Taman peninsula and the Crimea. Embracing of Christianity as the state religion by Prince Vladimir Svyatoslavovich in 988 played a prime role in the formation of the

great state, development of political, economic and family ties with the countries of Western and Northern Europe, Byzantine Empire. Writing spread, magnificent churches were built, two of them — St. Sophia's Cathedrals in Kiev and Novgorod — have survived to this day striking with the architectural design and colorful fresco painting. The number of cities increased from 25 in the 9th c. to 90 in the 11th c., they were fenced with city walls, churches and prince (knyaz) palaces and houses of ordinary citizens were built there. A social stratification of society formed. Peasants held to the communal traditions, paid tribute to princes, but they were neither slaves, nor bondholders. The ruling upper crust rested on the support of professional military detachments — druzhinas. The clergy was separate. The craftsmen were organized in a kind of craft guilds, without a well-defined regulation like in the early feudal cities of Western Europe; merchants played a significant role. Kiev, a rich, well-fortified city with numerous churches became the capital of the ancient Russian state after Novgorod.

Historical evolution of another center of the early feudal civilization in the north of Eurasia — Great Novgorod — is of special interest. It was remarkable for its close trade ties with western and northern countries, developed crafts, art and literacy (famous Novgorodian birch bark letters indicate that writing was spread everywhere in the Novgorodian households), stable veche (people's assembly) feudal-democratic traditions.

In 1019, when **Yaroslav the Wise** came to the Kiev throne under support of the Novgorodians, independence was granted to Novgorod. Since then Novgorodians had their own special relations with the authority of the prince. People's assembly (veche) elected posadnik (head of executive power), tysyatsky (military commander), archbishop, invited a knyaz (prince) or his son as a military leader, but not as the omnipotent ruler. Novgorod protected by the impassible for cavalry swamps and forests succeeded in avoiding the sad fate of many Russian cities during the Tartar-Mongolian invasion and strengthened in the period when all other Russian lands were disunited. The Novgorodian merchants (united into trade corporations) having an outlet to the sea bought up and supplied fur, hemp, wax, sea tusk, some craftworks to Europe in exchange for metal items, weapons, cloths, jewelry, wines and ornaments. Novgorod had a lot of common with the Hanseatic cities, a permanent office of Hanse also being situated on the banks of the Volkhov.

During two decades Great Novgorod was the capital city of the Rurikovich Empire being formed; Kiev became the mainstay of the Byzantine influence, the centre of the state before the Mongolian invasion.

The role of *Ladoga* in the establishment of the Russian civilization is less known, but rather important. It is stressed in the research of **A.N. Kirpichnikov**, the head of the archeological expedition, which made a lot of discoveries in this ancient Russian city: «Ladoga came to the front as the most considerable international trade sea port in the north of Eastern Europe. The main flow of the Islamic coin silver flooded through Ladoga to the markets of the countries of the Baltic Sea region, beginning from the 8th century, and global economic ties of the West and the East were established. As a result almost for the first time in the history of early medieval Eastern Europe a large-scale and regular exchange of achievements and values of the West and the East was maintained. Under conditions of a rapid economic rise of whole regions and its area Ladoga became the centre of the federation of the Slavic and Finnish tribes, and then in 863 the first state capital of the Rurikovich Empire being formed» [cited by 9, p. 27]. Perhaps, it is a little early to speak about global ties between the East and the West, but the role of the historical river systems is undisputable in the formation of the eastern Slavic civilization period. It emerged on the thoroughfares of intensive dialogue and interaction among civilizations of the West, East and the South of the third generation.

Resting on the carried out research we believe it of fundamental importance to highlight the major ***specifics of this stage of civilizational development***:

First, *a transition to this historical super cycle was made at an accelerated rate on this territory* and a transition to the medieval world civilization and the third generation of local civilizations began practically at the same time with the western European civilization. In the 11th c., when the peak of the development of the eastern Slavic civilization was reached, it went level with the civilizations of Byzantium and Western Europe in terms of technological and socio-political development.

Second, *the eastern Slavic civilization European by its origin synthesized and creatively transformed the system of values of the West and the East*. At first the values of the West prevailed, the influence of the West was through two main channels – Byzantium and western European. However, the dominance of the Mongolian

invasion of Russia, dissemination of Islam in the Volga region intensified the influence of eastern values in the genetic nucleus of the Eurasian civilization. Consequently, it is possible to speak about **three source of the eastern Slavic civilization**, which interlaced fancifully in its social genotype and determined in many ways its viability, ability to resist the waves of foreign invasions, maintaining its identity.

The flow from *the South* acted as a heritage of the ancient world, maintained on the territories of the former Greco-Roman colonies in the north regions of the Black Sea. Later this source transformed into an increasing influence of the Byzantine civilization, especially after dissemination of the Orthodox-Christian religion. Relations with the Byzantine Empire were controversial, the inroads on Constantinople (Czargrad) beginning from 840 alternated with the union treaties, but anyway culture, system of spiritual values, and also the political system, organization of soldiering, economic relations with Kievan, and then with the Muscovy Czardom were quite considerable.

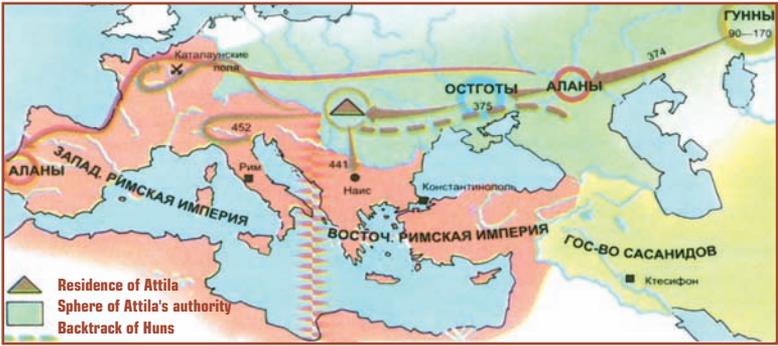
The flow from *the West* played a considerable role in the formation of the genotype of the eastern-Slavic civilization — mainly from states of Northwestern Europe, which became one of the centers where the western European civilization formed. The developed trade ties by river roads (the Neva-Volkhov, Volga-Kama, Volga-Don and Dnieper) were of utmost importance in their contacts with Russia. Western culture played a large role in the formation of the richest Russian culture experiencing its multifaceted reverse influence.

The significance of the third flow — *Eastern* source in the formation of the genotype of the eastern Slavic (and especially Eurasian) civilization should not be underestimated. The influence of the East began to intensify from the middle of the 1st millennium B.C. with a transition from the first to the second historical super cycle. The flows from the West — Huns, Avars, Magyars, Khazars, Polovts, Pechenegs and Mongols — came wave after wave (*fig. 13.2*). The Eastern source especially intensified after the Mongolian invasion and the establishment of the protectorship of the Golden Horde, and from the 16th c. — after Siberia, and then Central Asia was mastered, development of ties with China and India, diffusion of the seats of Buddhism.

Third, *a symbiosis of various, often converse sources in the formation and dynamics of the state-political component of the eastern-*

Figure 13.2

Irruptions of the Nomads in the Europe



Huns



Bulgarians and Avars



Khazars, Pechenegs, Polovts and Magyars

Source: [82, p. 112]

Slavic civilization, is also observed. This manifested itself already during existence of Greek colonies and Scythian kingdom. Thus Olvia and Chersonese were democratic republics (poleis), and in the Bosphorus Kingdom the monarchic base prevailed; the Scythian king was deemed concurrently the archon, elected head of Pantikapaion. This dualism also manifested itself in the Novgorodian-Kievan Russia: Novgorod and Pskov were democratic republics with the veche-based system; the Kievan Russia embraced the Byzantine model of authoritarian administration, although with the elements of veche-based democracy. Beginning from **Ivan III** and especially **Ivan IV** the authoritarian base prevailed and reached its peak in imperial Russia.

Fourth, the spiritual sphere of the Eastern Slavic civilization was formed on the multi-confessional base. In the period of its formation a choice was made between various world religions. Already in the 1st c. A.D. the foundations of Christianity were laid in the north regions of the Black Sea by **Andrew the First Called**. First Christian communities emerged. At the First Ecumenical Council at Nicaea (325) the Crimea was represented by two bishops: **Philip of Chersoneses** and **Cadmus of Bosphorus**. Both the Khazar Kaganate and the opposing it Russian Kaganate, which assimilated Christianity, were multi-confessional. First **Princess Olga**, and then **Prince Vladimir** headed the process of embracing Eastern Orthodoxy in the Kievan Russia in the 10th c.

From the end of the 7th – beginning of the 8th c. Islam began to penetrate intensively into the territory of today's Russia, which resulted in its embracing by the Golden Horde, Volga-Kama Bulgaria; Islam was an official religion of the Kazan, Astrakhan and the Crimean Khanates after disintegration of the Golden Horde. And three enclaves of the Buddhist religion: in Buryatia, Kalmykia and Tuva formed in today's territory of Russia. Furthermore, there were separate disseminations of Judaism and Catholicism. Such religious multiblossom cluster promoted tolerance to beliefs (which did not eliminate the outbursts of religious strife from time to time).

13.1.5. Vladimir-Suzdal Russia and the Muscovy Czardom (Russian Civilization)

Pre-Mongolian period and the Mongolian invasion, destruction of dozens of cities and death of dozens thousands of people

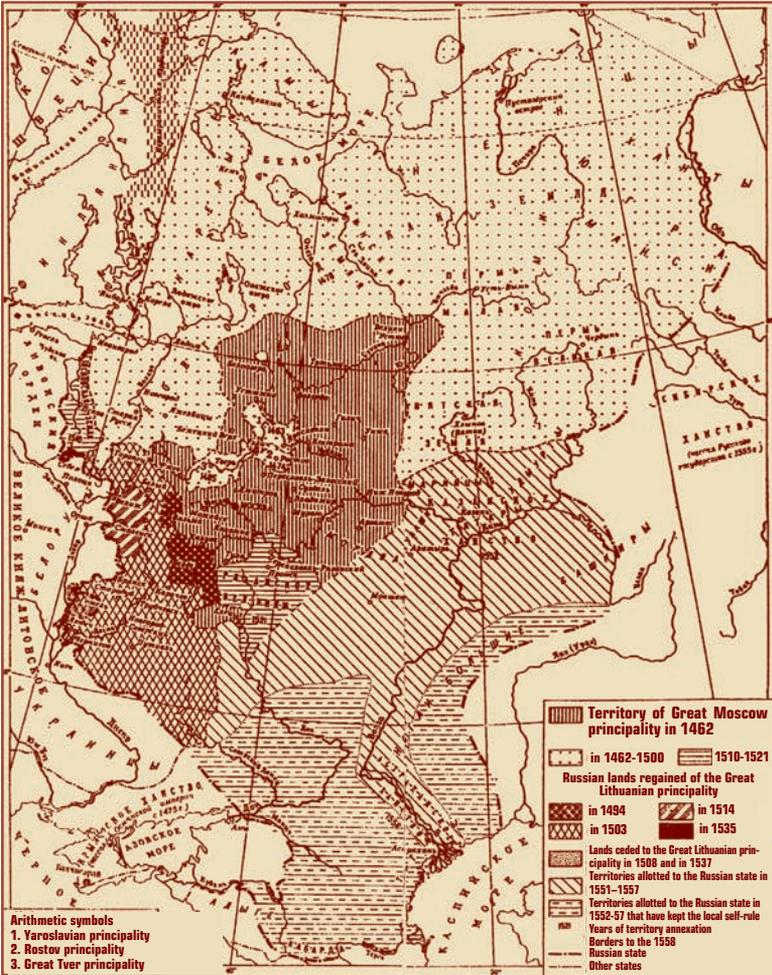
shifted the epicenter of the eastern Slavic civilization from the southern to north-eastern regions of Russia, first in Vladimir (Great Vladimir Principality, Vladimir-Suzdal Russia), and then to Moscow.

In 14th–16th c. eastern Slavic civilization included only Russian lands and this period may be viewed as the period of the *Russian civilization*. However, tough repressions and a failure in the Livonian war of Ivan IV, as the result of which Muscovy czardom lost a lot of territories, and then the Polish incursion ended this period by the second civilizational catastrophe – the Troublous Times.

From the 14th c. the *third cycle of the Russian history* began with Moscow as its epicenter. The peak of this cycle fell to the end of the 15th– first half of the 16th c. Prince **Ivan I Kalita**, who ruled in the city from 1325 till 1340, was the first who began to gather Russian lands around the new capital. **Ivan III** (1462–1505) joint Yaroslavl, Rostov, Tver and Vyatka to Moscow; spread his dominion on the western Russian lands – Chernigov, Gomel and Bryansk; dealt brutally with the first Russian republic – Novgorod, and finished forever with its freedoms and independence, fixed the liberation of Russia from the Tartar rule (1480) (*fig. 13.3*). This course was further pursued by **Ivan IV the Terrible** who proclaimed himself a czar of all Russia (1542). 6.5 mln. people lived in Russia by that time, there were 160 towns (in Moscow, capital city, there were up to 100 thous. people). The craftwork was developed featuring iron making, tannery and salt-work as well as architecture and construction. At the end of the 15th – beginning of the 16th c. the Moscow Kremlin, the Pokrov Cathedral, church of the Ascension in Kolomenskoe were built. The masterpieces of painting of that period include the icons by **Andrew Rublyov**, **Dionysius** and **Theophanus the Greek**. In the cloisters annals were written, in 1533 **Ivan Fedorov** printed the first book.

In agriculture a three-field fallow system prevailed that gave enough yields. Feudal relations consolidated. Peasants were personally bonded, but once in a year they had the right to change the owner (Yuriev Day). Feudalists and noblemen who were in the service got a chief-rent from peasants. Legal relations were regulated by the law book of 1447 and 1550, Zemsky (elective district) Councils (a kind of a parliaments of representatives of estates) were regularly convened, there were formed the bodies of territorial administration in 50s years of the 16th c.

Figure 13.3
The Formation of Russian Centralized State



Source: [242, p. 172–173]

A specific feature of Russia of that period as it was noted by **F. Braudel** was a strong role of the state: «In Russia the state stood like a cliff in the middle of the sea. All was reduced to its omnipotence, its absolute power both over the cities and with

respect to conservative Orthodox Church or over masses of peasants (who first of all belonged to the czar, and then to the master) or over the boyards coerced acquiescence... And moreover, the state took control over prime types of exchange: it monopolized trade in salt, trade in potash, vodka, beer, honeys, peltry and tobacco... A strong state corresponded to the society held in hands, doomed to make a surplus produce and the state and the ruling class lived on it, and without the latter the czar would have failed to hold an enormous mass of his peasants, the main source of his income» [21, vol. 3, p. 456, 458]. The state supported expansion of Siberia. For a century from 1550–1660 the boundaries of the Russian state were expanded to Chukotka and Far East; the length from the West to the East enlarged from 2.1 thous. to 6.2 thous. km. *Russian civilization began to transform into Eurasian.*

However, this powerful state suffered a wreck at the end of the 16th – beginning of the 17th c., in the transitional period to the next historical cycle. Chaos reached the top-level in the period of the Great Disturbances were caused not only by the disastrous consequences of the ruling of Ivan the Terrible and the Polish-Lithuanian invasion, but also by economic reasons. An awful period of bad harvest in 1609–1611 resulted in a loss of hundreds of thousands of people, mass seeking safety in the outskirts, a three-time decline in the population in Moscow. Many lands were abandoned. «The rule of Ivan IV left the country brought to ruin after it. The disintegration overstepped the threshold of irreversibility, the disintegration of statehood occurred. A few historians believe that one third of the Muscovy state population died from hunger in 1601–1603... The state declined as a result of the rebel of localism, as a result that the power transformed into an embodiment of evil in people's eyes. The country was thrown for the second time into turmoil of catastrophic chaos» [10, vol. 1, p. 97–99, 101]. Poland was a hostile neighbor and sought to extend its sphere of influence far to the East and to enthrone its placeman. But this attempt caused indignation on the part of the Russian people. The occupants were defeated by the people's volunteer corps headed by **Minin** and **Pozharsky**, the assembly of counties elected **Michael Romanov** as a czar. A long period of the revival of the country which occupied nearly a century began.

13.1.6. Formation of Eurasian Civilization

From the 17th c. a new stage of the civilizational process began in the north of the Eurasian continent — it lasted four centuries — the period of the formation, prosperity and decline of the *Eurasian civilization of the fourth generation* on this territory. This period included several periods of rises (under **Peter I**, **Catherine II**, at the end of the 19th — beginning of the 20th c., the NEP period, the 50s—60s of the 20th c.) and falls; a number of clashes among civilizations (Russian-Turkish wars, Napoleon War of 1812, the Crimean War, Russian-Japanese War, World War I and foreign military intervention, and World War II), two civilizational catastrophes of the 20th c. (the disintegration of the Russian Empire and Civil War, disintegration of the USSR and the Eurasian civilization in the 90s).

The local north-Eurasian civilization expanded its boundaries due to the establishment of the Russian empire in Siberia and Far East, Central Asia, Baltic, a part of Poland and Finland. After disintegration of the Russian empire more than one hundred sovereign formations sprang up on its territory. However, by 1923 the unity of the country was restored practically in the same boundaries (with the exception of Finland, Baltic, Poland, part of Byelorussia and Ukraine). By the middle of the 20th c. all the mentioned lands (with the exception of Finland and part of Poland) as well as Bessarabia, South Sakhalin and the Kuriles made a part of the USSR, the Eurasian civilization reached the most weight and geopolitical influence for all its history. As well as its predecessors, the civilization was of a mixed nature, included regions with the dominance of the Orthodox Christian, Western Christian, Moslem and Buddhist denominations. And this heterogeneity became one of the factors underlying the disintegration of the USSR when as a result of the end of the «Cold War» the threat from the Western civilization reduced, which used to unite all these peoples.

A life cycle of the Eurasian civilization included several stages coinciding in time with the periods of the early industrial and industrial world civilizations.

The recovery of society which began with the election of **Michael Romanov** as the Russian czar at the Zemsky Council in 1613, protracted long. The formation of the Russian historical cycle similar to the early industrial civilization embraced nearly all 17th c., and the

peak of bloom of this cycle fell to the 18th c. — from a vigorous leap of the «revolution from the top» of **Peter I** to the reign of **Catherine II** (1762–1796) inclusive.

What are the *distinguishing features and achievements of this period*? **Peter I** resolutely took the course for the rapprochement with western countries, «cut a window through» to Western Europe, moved the capital to Petersburg and built it as a western European city. Resting on the force of the state, surmounting the resistance of the boyards, army and peasant rebellion, Peter I by his iron hand drew Russia nearer to vigorously booming manufactory Western Europe. One should not think that it was violence over history breaking the natural course of events and that Peter's breakthrough was lost under his heirs. If Russia had developed at the former outdated speed it could have slid down to the periphery of the world progress, turning into the colony or a semi-colony of European powers similar to India and China. The changes of the Peter's time were necessary became irreversible; they relied on new leaders in policy, economy, science and culture.

This contributed to the bridging of the economical and technological gap between Russia and Western Europe. «When economic Europe set upon Russia, the latter was already on the path that protected its domestic market, own development of its crafts, its manufactories which it had in the 17th c. and its active trade. Russia even adjusted itself well to the industrial “pre-revolution”, to the general rise of production in the 18th c. Mining enterprises, melting houses, armories, new velvet and silk manufactories, glass factories from Moscow to the Urals were set up under decrees of the state and with its assistance. In the 18th c. the Russian industrial development was equal to other Europe, and even surpassed it at times» [23, p. 20, 478].

The rise in spiritual life of society was observed — science, education, architecture and art. It is enough to name the introduction of a secular print (1708) that permitted to expand the printing of books in the field of science and for education; opening of the Academy of Sciences (1724); publication of the first Vedomosti newspaper (1703); education of young noble estate abroad, invitation of hundreds of talented scientists, officers, navigators, shipbuilders, architects, artists to serve in Russia; the establishment of land gentry, naval gentry and naval cadet colleges; establishment of the Moscow University (1755); opening of the first Russian professional theater in St. Petersburg (1756),

Academy of Arts (1757). We should also mention a series of geographical expeditions.

The dynamics of economic relations was more complex and contradictory in Russia. On the one hand, there was a growth of number of manufactories (hired labor was used at many of them), a fast development of seafaring and trade. Active interference of foreign merchants in the Russian economy led to the germination and development of capitalist order, formation of a bourgeois social stratum, which was gaining economic and political strength. The advance of young, aggressive capital was obvious, although it encountered much greater difficulties than in the countries of the West.

On the other hand, the tendency towards consolidation of the feudal, serfdom oppression was observed, and first of all in the village, serfdom took tough and even cruel forms. The right to change the lord of manor was abolished (Yuriev Day), a sale of peasants without land flourished. The sizes of chief-rent, ransom for a «freedom instrument» increased; the lords of manor could send peasants to hard labor or to the army as soldiers. The number of peasants who escaped to the outskirts increased, large peasants rebellions occurred.

This contradiction became a brake on economic and technological progress of the state: a hired worker is more efficient than his bonded fellowman. Achieved at the cost of incredible efforts in the 18th c. incorporation in the pace of the world advance was gradually lost. Russia again faced the thread of moving to the periphery, its geopolitical force was supported by the power of the military-lords of manor-based state.

Its foundations were laid under **Peter I**, and the fruit ripened under **Catherine II** and at the beginning of the 19th c., in the clash with the army of Napoleon. Having defeated it Russian empire became one of the leaders of local civilizations. However, the phase of stagnation began thereafter, which ended with the defeat in the Crimean War of 1853–1856. Russia was lagging technologically and economically for more than half a century in profiting from achievements of the industrial revolution and abolishment of bondage-based relations in the village. The defeat became an impulse to economic and political revival. The abolishment of serfdom, administrative reforms, accelerated advance of capitalism, development of industry and transport with foreign capital interest, the rise of science, culture and education — all this indicated the beginning of a new stage of the Russian civilization.

Conservatism and inability to radical changes of the upper crust became the main obstacle on this path, which promoted the growth of extremism from below, a revolutionary movement. The defeat in the Russian-Japanese War, and then failures in World War I led to the February and October Revolutions of 1917, and then to the disintegration of the Russian empire and Civil War — *the third civilizational catastrophe*.

However, in the 20s of the 20th c. civilization in a somewhat reduced state revived again under the Soviet flag. Despite repressions and the establishment of the totalitarian system it was able to win in the clash with nearly all western European civilization, to restore its economy in unprecedented short period. In the 50s—60s it achieved the position of one of two super powers, the leader of the world socialist system, at the cost of all-out efforts to ensure the primacy in conquering space, military-technological parity with the West.

However, in the following decades these achievements were lost. It was caused by an increasing strategic weakness and decrepitude of political management, militarist one-sidedness in the development of science, technology and economy, and then termination of the «Cold War» and the course chosen incorrectly to the neo-liberal reforms and unleashing the welter in economy, withdrawal of the state from it, the disintegration of the USSR and Comecon. All this led to *the fourth civilizational catastrophe*, disintegration of the Eurasian civilization. It was thrown back for decades, if not a century, irreversible loss of positions in geoeconomic and geopolitical space. The issue of a possible disintegration of Russia arose on the agenda. Only from the beginning of the 21st c. the revival of civilization begins, a transition to the fourth super long cycle in its historical life cycle.

Let's formulate the ***characteristic features of the third super long civilizational cycle*** that embrace the time space of about four centuries.

First, Russia rushed again to meet Europe, imbibing achievements and values of western civilization. And this is a normal and reasonable process as it is the West that led in this period in the civilizational advance. These tendencies vividly declared themselves under **Peter I, Catherine II, Alexander I** and **V.I. Lenin**. The assimilation of the achievements of the West first of all manifested itself in technology and economy. However, such assimilation went slow in the state-political system; democratic mecha-

nisms engrafted with difficulty on the Russian soil, authoritarianism replaced short periods of democratization, including totalitarianism. A sensual socio-cultural system prevailing in the West during 6 centuries, to the end of the 20th c. did not become prevailing in the Eurasian civilization. In the 20th c. the Marxist variant of the ideational system dominated. Consequently, under the general orientation to the West the Eurasian civilization kept its originality, mixed, hybrid nature.

Second, *the unevenness in the dynamics of civilizations has sharply intensified*, the amplitude of fluctuations from heroic leaps to catastrophic failures in the socio-economic, political, and ideological development. Russia got the role of an experimentalist – innovator, bravely testing on its fate often reverse tendencies. In the 18th c. it made a spurt in technological, economic and geopolitical development, while keeping serfdom and absolute monarchy. The beginning of the 19th c. was marked by the victory in the wars of 1812–1815 and the golden century of culture as well as by lagging in technology and economic relations. In the 20th c. there were made unconceivable leaps in the socio-political system – from capitalism to socialism, and at the end of the century – back to capitalism, and capitalism not of the end of the 20th c., but spontaneous market capitalism of the 19th century. Consequently, the disastrous destruction of the country's and every man's way of life took place twice, the ideological system changed twice, and a part of the system of civilizational values were lost twice. All these vibrations from one extreme to another undermined the potential of civilization, brought it to the brink of death.

Third, under all fluctuations and zigzags of the Russian history *the priority remains with the spiritual system, spiritual values against material* (although the priority of spirituality was well undermined at the end of the 20th c.). The viability of civilization is explained by that, despite all drastic turns in its fate, a pledge of its revival after the fourth civilizational catastrophe. A sound market estimation dominating in the West did not prevail over spiritual aspirations (although a good deal of the path has already walked in this direction).

Fourth, *Russia remains a multi-culture and multi-confessional civilization, speaking figuratively – the country of one hundred peoples and one hundred cultures*. Its ability to understand and perceive the contents and values of other civilizations, the ability to act as a bridge, field of interaction among civilizations of the East,

South and West, to be an active participant in the dialogue, cooperation and partnership among civilizations in settlement of global problems of large dimension persists.

13.1.7. The Fate of the Eurasian Civilization in the 21st Century

The end of the 20th c. was characterized by an avalanche crisis of the Eurasian civilization of the fourth generation. Its space fell into pieces, a relative unity remained only in its nucleus — *Russian civilization*.

What is the fate of the Russian (Eurasian) civilization in the **fourth super long cycle of its development**, in the system of the fifth generation of local civilizations and the post-industrial world civilization — for an outlook of the 21st and 22nd centuries?

At the Xth Cross-disciplinary discussion in Kostroma in 1988 [116] and in the works published in 1999 in Russia [249, ch. 17] and in 2000 in the USA [276, ch. 4] three possible scenarios of the future of the Russian civilization in the 21st century were determined: disintegration, vegetation or revival. The factors determining the reality of each of scenarios and driving forces for their implementation were studied. Very similar scenarios up to are grounded in the treatise «Russia in Space and in Time. History of the Future» [101], «Russia and the World in the 21st century» [99].

In the first years of the 21st c. it became obvious that *the probability of disintegration of the Russian civilization reduced*, the country strengthened its positions in a geocivilizational space, although a threat of disintegration should not be completely excluded: everything depends on the fact whether some present negative tendencies persist and intensify in future. At the same time the tendency towards fixing of the disintegration of the Eurasian civilization is intensifying and isn't finished yet. It is proved by recent «color revolutions» in Georgia, Ukraine, Kirghizia, tense situation in Moldavia. Russia remains nearly alone in the post-Soviet space, and it weakens its positions.

The revival scenario of the Russian civilization rests on several factors. This is first of all historical experience: Russia has already gone through civilizational catastrophes during its more than millennium history and each time it found forces to revive; there is a hope that it will cope with it this time as well. Certainly,

if exhaustion of a life cycle does not oppose it, as it was the case with the Eurasian civilization.

The trajectory of economic dynamics in the CIS countries radically changed in the 21st c. — the economic growth rates exceed world average. The matter is how stable this tendency is and whether it can be supported by an innovative renewal, master the achievements of a scientific-technological overturn of the beginning of the 21st century, the sixth technological order. Otherwise, the reconstructive growth potential will be quickly depleted, and the obsolete production machine will turn out to be a stone on the neck of economy that will lead to the aggravation of socio-political contradictions.

The CIS countries will gradually wake from euphoria of the rapprochement with the western civilization (and it is already happening in some places) and will understand the communion of their vital interests in the face of the dictate of powerful TNC and aggravation of competition on the world markets on the down wave of the fifth Kondratieff cycle. They will realize the threat of loss of their civilizational identity, of division between flourishing civilizations, of turning into «ethnographical material» for them. **Pitirim Sorokin** warned about it many years ago.

The global civilization enters the humanistically noospheric post-industrial society; a sensual socio-cultural system is being replaced by integral. The system of values of the Eurasian civilization is more ready to imbibe the humanistically noospheric society and integral socio-cultural system due its nature, formed genotype than the western one. The priority of the spirituality in this civilization may become an impulse and a creative beginning of the revival, moreover, of the leadership in some directions, and first of all in the formation of a new paradigm in science and a new, humanistically noospheric way of life. But to achieve this it will be necessary to resist a wave of a decaying sensual socio-cultural system that embraced the Eurasian civilization at the end of the 20th c. being alien to its deep nature.

Finally, the hope for the revival rests on the operation of the *law of generation change*. The generation of the 90s of the 20th c. found itself at the historical rift, it could not realize the essence and direction of changes, choose an efficient path to the future, made many strategic mistakes and irreparably wasted much of heritage got from previous generations. But historical time of this generation, a 30-year period of its prevalence (1980–2010) is

coming to an end. From the 10s of the 21st c. the time for taking strategic decisions will come for the generation of the 20s (2010–2040). Each next generation critically revises the heritage inherited from the previous generation and determines its own road. Let's hope that the generation of the 20s not only in Russia, but in other CIS countries will be able to assess correctly the alternatives arising before them and to choose a strategic course leading to the revival of the Eurasian civilization. It is probable that the future generations will taste the fruit of this difficult course. It is not a near hour. But it should be taken into account that only catastrophes occur fast, and the revival path is long and thorny.

As for the third scenario of the future of the Eurasian civilization – *scenario of vegetation*, unstable balance in a rapidly changing world without a clearly realized and chosen strategic course – this scenario can only be intermediate and short. If this state protracts, then the time of the implementation of the catastrophic scenario will come. Although it is nice to exist in sweet dreams, it is impossible to shift off a load of a historical choice, avoid responsibility to the past and future generations. The trial of history is objective, incorrupt and unforgiving. There is not that much time left to make such choice. If we are late, Russia together with the CIS countries will irreversibly find itself on the periphery if not in the dump of the history comforting its self-consciousness by reminiscences about the great past. In any case the fate of the Eurasian civilization will be determined by the middle of the 21st century.

Some ***characteristic features of the fourth super long civilizational cycle*** are taking shape for the north of the Eurasian continent.

1. The Eurasian civilization even in case of the optimistic scenario *will occupy a more modern place among local civilizations of the fifth generation* than of the fourth and third. It is unlikely that it may claim one of the leading places. The forces are too undermined during a civilizational crisis. And the main reason for that is a tendency to depopulation unprecedented by its length, decline in the number and aging of population that hit Russia and also Ukraine and Byelorussia close to it by historical and national kinship. And the figures of the UN's demographic projection indicate it ([table 13.2](#)).

In the central Asian CIS republics the reverse tendency will prevail – an accelerated growth rate of population, and to ensure

Table 13.2

Tendencies of Demographic Dynamics of Russia, Ukraine and Byelorussia *

Years	Russia			Ukraine			Byelorussia			
	Popula- tion, min. people	Speed of in- crease, %	% Popula- tion aging 60 and more	Popula- tion, min. people	Speed of in- crease, %	% Popula- tion aging 60 and more	Popula- tion, min. people	Speed of in- crease, %	% Popula- tion aging 60 and more	
1950	102,7	1,631	9,2	37,3	1,45	10,9	7,7	0,15	12,6	
1960	119,9	1,47	9,3	42,8	1,30	11,1	8,2	0,97	11,7	
1970	130,4	0,57	11,9	47,3	0,85	14,0	9,0	0,98	13,2	
1980	138,7	0,65	13,5	50,0	0,42	15,5	9,7	0,61	13,7	
1990	148,3	0,68	16,0	51,9	0,37	18,5	10,3	0,53	16,9	
2000	145,6	-0,34	18,5	49,7	-0,73	20,6	10,0	-0,43	19,3	
2010	a*	138,1	-0,52	18,7	46,5	-0,63	20,7	9,7	-0,33	18,8
	b*	137,5	-0,58	18,7	46,0	-0,74	20,9	9,6	-0,41	18,9
	c*	136,8	-0,65	18,8	45,6	-0,86	21,2	9,5	-0,49	19,0
2020	a	130,9	-0,57	24,1	43,7	-0,66	24,0	9,4	-0,36	23,3
	b	129,0	-0,67	24,4	42,6	-0,81	24,6	9,2	-0,47	23,7
	c	127,1	-0,78	24,8	41,5	-0,97	25,2	9,0	-0,58	24,1
2030	a	123,3	-0,60	27,2	40,7	-0,69	26,8	9,0	-0,44	27,0
	b	119,7	-0,77	28,0	38,9	-0,93	28,0	8,4	-0,80	27,9
	c	117,2	-0,95	28,8	37,2	-1,17	29,3	8,4	-0,80	28,8
2040	a	117,0	-0,49	29,2	38,3	-0,57	29,8	8,7	-0,33	29,6
	b	110,4	-0,82	30,9	35,3	-0,97	32,3	8,1	-0,66	31,4
	c	104,2	-1,14	32,8	32,6	-1,36	35,0	7,6	-0,98	33,5
2050	a	111,9	-0,44	32,7	36,2	-0,59	33,1	8,4	-0,37	34,0
	b	101,5	-0,86	36,0	31,7	-1,11	37,7	7,5	-0,80	37,6
	c	91,9	-1,28	39,8	27,8	-1,65	43,0	6,8	-1,22	41,7

Source: [272, vol. 1]

* Forecast: *a* – upper, *b* – medium, *c* – low variants; increase rates for the preceding five years

employment and the rise in the life level is impossible without integration with Russia and other CIS countries.

The UN's demographic projection is orientated to the intensification of depopulation rates in three Slavic CIS states (Russia – 0.34% in 1995–2000 to 1.28% – according to the low variant of such fore-

cast; for Ukraine – 0.73% to 1.65% and for Byelorussia – 0.43% to 1.22%). The total population number in Russia will decline from 1990 to 2050 by 38%, Ukraine – by 46%, Byelorussia – by 34% according to the low variant. The total population number for three states will reduce by one third within 50 years (by 70 mln. people) according to the medium variant and by 40% (by 84 mln. people) under lower. A share of people aged 60 and above (according to the medium variant) will grow from 16% to 36% in Russia, from 18.5% to 37.7% in Ukraine and from 16.9% to 27.6% in Byelorussia. It will mean not only the growth of a demographic load on the employed, but also a fall in the share of an innovative active population, a growth of its conservatism.

However, hopefully the implementation of the revival scenario of the Eurasian civilization will change the tendencies of demographic dynamics and will lead to the birth growth and reduction in the decrease of the population growth rates. An active demographic policy of the states will be required for that, directed at the growth of birth rates, strengthening of health and decreasing of mortality, return to the ideal of a large family with many children, support of motherhood and childhood. And this is not only business of the state, but also of civil society, each family which takes a decision independently on the number of children they can bring up.

2. Throughout the previous stages of development the *Russian Eurasian civilization was mainly self-sufficient*. It was supported by a surplus labor and natural resources of high quality within its own boundaries, it rested on independent economy, high culture, a comparatively independent religion, and from the end of the 19th c. – on the developed science. In the coming super long cycle its position changes. Rich oil and gas fields, fields of some non-ferrous metals, which serve now as an infusive doping, will be mainly exhausted in several decades. A shortage of labor resources is increasing from decade to decade, a technological and economic dependence of the country intensifies. A quota of Russia's foreign trade (a relation of foreign trade turnover and GDP) increased from 23% in 1992 to 44.4% in 2002 [207, p. 35] and will be increasing after Russia accedes to WTO. It is impossible now to ensure either reproduction or supply without import, and its volumes are increasing. A growing share of economy may come under control of TNC. Russia and other CIS countries have become an integral part of globalized economy where they occupy the place of horse and not a horseman.

Under vegetation and disintegration scenarios these tendencies will be intensifying and finally the civilization (or what will remain of it) will find itself in the third echelon, in the role of a source of raw materials and market for sale of finished goods, in the field where omnipotent TNC rule the roast. *This sad fate may be prevented only by the revival scenario, a strategy of an innovative breakthrough.* It is of utmost importance to concentrate all the powers of scientific-technological and innovative potential on the narrow circle of projects capable of a technological breakthrough, on joint development of promising market niches.

3. It is obvious that the *structure of the Eurasian civilizations, its composition and relation of elements in its genotype have changed in the last years* and in future this process will accelerate. It has already been addressed above the *demographic* element will worsen even under a favorable scenario against the previous cycles.

It is anticipated that the same sad fate awaits the *natural-ecological* element of the genotype. It is related to the depletion of some prime natural resources and forestlands and increasing pollution of the environment.

Even under a favorable scenario the estimation of the *technological* element will worsen: the effect of technological degradation and disintegration of a scientific-technological potential will tell, a critical aging of the fixed capital stock that implies hundreds of billions of dollars for its innovative replacement.

From the negative tendencies given above of the three elements the worsening of the fourth — *economic* — arises. It means a low competitiveness of goods (due to a lagging in assimilation and diffusion of the fifth, sixth, and in the second half of the 21st c. seventh technological orders); decline in the growth rates of labor efficiency; a sharp decrease in the influx of world mining rent which supports until now a feverish color on the cheeks of a severely ill economy; a growing dependence on TNC.

A relatively more favorable situation forms in the spiritual sphere. Fairly strong elements — fundamental science, general and vocational education, culture, ethics, and religion — remains so far here. But disturbing tendencies are also traced here: a fast growth of the mean age of scientist; disintegration of applied science, engineering schools; a break-down of scientific-technological ties between the CIS countries, standardization of education according to western models far from the best; the influx of anti-culture through mass media; dilution of standards of morality. If these tendencies are failed

Table 13.3

Tendencies of Dynamics of Population and GDP of the Eurasian Civilization (former USSR) *

Data	1	1000	1500	1600	1700	1820	1870	1913	1950	1973	2001
Population											
Number, mln. people	3,9	7,1	16,95	20,7	26,55	54,8	88,7	156,2	179,6	249,7	290,3
Share in the world population, %	1,7	2,7	3,9	3,7	4,4	5,3	7,0	8,7	7,1	6,4	4,7
Average annual increase rate in the preceding period, % to the world average		0,06	0,17		0,37		0,97	1,33	0,38	1,44	0,54
		600	170		137		242	166	41	75	33
GDP, USD bln., 1990	1,65	2,84	8,46	11,4	16,2	37,7	83,6	232,4	510,2	1513	1343
Share in the world GDP, %	1,5	2,4	3,4	3,5	4,4	5,4	7,5	8,5	9,6	9,4	3,6
Increase rate in the preceding period, % to the world average		0,06	0,22		0,78		1,61	2,40	2,15	4,84	-0,42
		600	147		147		173	114	118	99	...

Source: [264, p. 256–261]

to surmount in a timely manner, the Eurasian civilization is doomed to disintegration.

Let's consider certain *statistical characteristics* of its dynamics (*table 13.3*).

The findings may be made based on the figures given in the table that during the first super long cycle the rate of population growth and GDP were not high in the USSR, but they were higher than the world average. The advantage remained in 1500–1820, although the advance rate reduced. In 1820–1913 the Eurasian civilization again leaped forward. This process stopped because of hard aftereffects of the First and Second World Wars, Stalin's repressions; the pre-revolution level of population number was achieved in the USSR only in the post war period. The second half of the 20th century is marked by high rates of population and GDP growth. However, at the end of the century a reverse process took place.

The picture of dynamics becomes clearer if we consider major macroeconomic indicators for the 20th c. (*table 13.4*). Several periods

Table 13.4

Dynamics of Macroeconomic Indicators in the USSR and Russia in the 20th c.*

Data		1900	1913	1929	1938	1950	1960	1970	1980	1990	2000
Population mln. people	a ¹	123,0	158,0	171,5	186,5	205,5	226,5	247,0	285,5	290,0	290,0
	b ¹	69,0	89,0	103,8	103,0	112,0	112,0	132,5	139,0	150,0	145,5
Share in the world population, %	a	8,2	9,3	8,7	8,5	8,2	7,4	6,7	6,5	5,5	4,8
	b	4,6	5,2	4,8	4,7	4,5	3,7	3,6	3,2	2,9	2,4
Average annual increase rate, %	a		1,9	0,5	0,9	0,8	1,0	0,9	0,5	1,2	0,0
	b		2,0	0,4	0,9	0,7	0,9	0,7	0,5	1,2	-0,3
GDP USD bln., according to prices and PPP in 2000	a	205	330	375	485	840	1780	2540	3175	3325	1750
	b	150	225	275	350	525	1100	1555	1920	2010	1000
Average annual increase rate, %	a		3,7	0,8	2,9	4,3	7,8	3,6	2,3	0,5	1750
	b		3,2	1,3	2,7	3,2	7,1	3,5	2,1	0,1	1000
Share in the world GDP, %	a	7,92	9,97	7,51	8,62	11,12	14,47	13,18	11,71	9,22	3,80
	b	5,79	6,18	5,51	6,22	6,95	8,94	8,07	7,08	5,57	2,10
Per capita, USD thous.	a	1,3	9,07	7,51	8,62	11,12	14,47	13,18	11,71	9,22	3,80
	b	1,2	6,18	5,51	6,22	6,95	8,94	8,07	7,08	5,57	2,10
Labor efficiency GDP for 1 engaged, USD thous.,	a	4,1	5,2	5,4	6,5	9,9	18,7	24,2	28,9	26,6	14,6
	b	5,2	5,9	7,1	8,0	10,7	20,8	26,8	29,5	27,9	15,4
% to the world efficiency	a	105	111	95	110	143	201	200	201	158	78
	b	133	126	125	136	155	224	221	205	166	82
Industry Value added in the industry, USD bln.,	a	50,0	85	80	130	205	480	725	935	1000	565
	b	350	55	70	90	145	365	545	705	800	450
Share in the world industrial production, %	a	13,0	13,8	9,0	14,1	15,1	19,6	17,9	16,2	12,9	5,5
	b	9,1	8,9	7,9	9,7	10,7	14,9	13,5	12,2	10,3	4,4
Agriculture Overall production, according to prices and PPP in 2000.	a	37,0	50,5	58,5	63,0	75,0	81,5	87,5	98,0	120,0	100,0
	b	20,5	28,5	32,5	3,0	40,0	41,5	44,0	50,0	60,0	50,0
Share in the world agricultural production, %	a	8,92	11,10	10,0	9,27	9,80	8,58	6,89	6,20	5,90	4,04
	b	4,94	6,26	5,60	5,58	5,23	4,37	3,43	3,16	2,95	2,02

* [133, p. 498, 502, 504, 508, 510]

¹a – former USSR; b – Russia; growth rates – in % of the previous period

of the last phase of the third super long civilizational cycle are clearly seen here.

At the beginning of the century (1900–1913) the population rates, volumes of GDP and labor efficiency exceeded the world indicators; a share of Czar Russia grew from 8.2 to 9.3% in the world population, in the world GDP – from 7.9 to 9.1%.

The ordeals of the 20th c. – two World Wars and Civil War, collectivization and mass repressions, «shock therapy» of the 90s cause great damage to the former USSR countries. Their share in world's population reduced from 9.3% in 1913 to 4.8%. A share in the world GDP increased to maximum 14.5% in 1960 and then abruptly fell to 3.8% in 2000. Labor efficiency decreased in the same years from 111 to 201% to the average world; a share in the world industrial production increased from 19.6% to 5.5%. The situation in the agriculture was even worse: the maximum was achieved in 1913 (11.1%), by 1960 this index went down (8.6%) and in 2000 it abruptly fell (4%).

An unprecedented civilizational catastrophe took place in the 90s. The disintegration of the USSR occurred, a replacement of planned socialist economy with spontaneous market, a large-scale primary accumulation of capital of a parasitic nature began as well as impoverishment of most of population. The world history has not known such catastrophic crisis.

However, since 2000 the turn in the tendencies of the northern Eurasian civilization began. The growth rates of economy have exceeded 2–3 times the average world indicators; the level of life of population has improved. The matter is whether it means a turn to the revival scenario of civilization after an extraordinary deep catastrophe or it is a short-term fluctuation associated with favorable external factors and the collapse is not far away. The answer to this question will be given in the nearest 5–7 years. The states of the Northern Europe and first of all Russia must show if they are able to take the path of the innovative renewal not only in economy, but in society at large, to meet the challenges of a new century, to make a transition to the post-industrial world civilization and the third historical super cycle in the dynamics of global civilization.

The scheme of civilizational dynamics on the territory of the north of Eurasia for all historical period and for an outlook of the 21st c. is shown in [table 13.1](#).

13.2. North Regions of the Black Sea as Space of Interaction among Local Civilizations

We believe that the history of local civilizations of the second generation on the present territory of Russia and Ukraine and equally the dawn of the eastern Slavic civilization of the third generation should begin from the 7th c. B.C. It was then that in the north regions of the Black Sea in the period of the Great Greek colonization a number of cities-poleis were established – Tyre at the mouth of the Dniester, Olvia at the mouth of the South Bug, Kerkititida, Chersoneses, Feodosia and Pantikapaion in the Crimea and Phanagoria and Gorgippia on the north eastern coast of the Black Sea. All of them entered into a close contact with the Scythian proto-civilization forming in this space. It is here where it emerged and exists to this day – more than two and a half millennia – the **space of interaction among local civilizations**.

13.2.1. Spaces of Interaction among Civilizations

This notion is worth being dwelt specially upon, as such spaces exist in other regions of oecumene, for instance in the Balkans, Near East, Pyrenees, in Indo-China, on the border of the USA and Mexico etc.

Why and how do such spaces emerge? The matter is that local civilizations unlike states have no well-outlined boundaries. Adjacent fields exist between civilizations, where constant interaction of cultures take place. For instance, the Chinese civilization has an adjacent field with Buddhist. In Russia there are fields of interaction with the Moslem civilization in North Caucasus, Volga regions, with the Buddhist civilization – in Buryatia, Kalmykia, and Tuva. On this basis – under a high degree of integration and mutual penetration – mixed civilizations are formed. A modern African civilization (south to the Sahara) and Latin American civilization may be adduced as an example.

When determining space of interaction of civilization it should be taken into account that communities which interact here may be at various stages of their life cycle. Thus, in the north region of

the Black Sea the Greco-Roman civilization which was at the peak of its life cycle entered into interaction with the Scythian proto-civilization, which didn't finish formation and also with the pre-civilizational or proto-civilizational societies of Sarmatians, Alans, Goths and Huns. At the next stages Byzantine, Slavic, western European, Mongolian and Moslem civilizations interacted and clashed here.

The *diversity of forms of interaction among civilizations* in this space should also be taken into account. Positive forms are a fruitful dialogue and cooperation, trade, cultural, technological exchange, mutual enrichment of the genotype of civilizations. The supreme form of such cooperation is their partnership. Negative forms are opposition and confrontation, including military conflicts, which sometimes end with the death, absorption of defeated civilizations.

Interaction of civilizations comprises various *spheres* — economic, socio-cultural, technological, state-political and military.

Spaces of interaction of civilization *change in time*. They expand or reduce and change the composition of participants and forms of interaction. Waves of people migration occur from time to time, aggravating contradictions between two or more sides. Then come military clashes, and afterwards periods of comparatively evolutionary development, the revival of the dialogue between civilizations.

After these preliminary theoretical considerations, let's proceed to the study of development of the ***north region of the Black Sea as space of interaction among civilizations*** of several generations, beginning with the second. The source data for such inquiry, along with numerous literary sources was provided by ***scientific-civilizational expedition*** organized in July 2005 by the Institute for Economic Strategies and the Pitirim Sorokin—Nikolai Kondratieff International Institute headed by the authors of this work. One of the objectives of this expedition was to check the hypothesis that a mixed Greco-Scythian civilization of the second generation was formed in this region in the ancient times as a forerunner of the Slavic civilization of the third generation. Scientific findings made based on the acquaintance with historical monuments and museums, numerous seminars, meetings, talks and discussions with the leading archeologists, historians, ethnographers, workers of museums, and also inquiries into the treatises related to this problem are presented below.

13.2.2. Waves of Interaction among Civilizations. The First Wave of Interaction (7th–4th c. B.C.)

It is possible to count *six waves of interaction among civilizations* in space of the north region of the Black Sea within 2700 years, during this long period different cultures entered into interaction on these territories (which is proved by written sources and archeological data).

The first wave dates back to the period of the 7th–4th cc. B.C. when the flow of emigrants from ancient Greece which was a civilizational leader in that period in the Mediterranean rushed to the coast of the Black Sea and the Sea of Azov. The colonists quickly settled on this land of plenty and established a dense network of cities-poleis in the mouths of the Dniester and South Bug, on the Crimean and Taman peninsulas, on the north-eastern coast of the Black Sea. They brought with them and kept a high level of technological achievements of that time, culture, democracy, political system (cities-poleis), enriched the local tribes with elements of their unique culture, transferred to them a part of system of civilizational values. The Greeks were in constant interaction with the peoples, inhabiting the north region of the Black Sea: «In the 9th century B.C. the Iron Age began in the Crimea, in the early period of which the Cimmerians lived on the peninsula ousted soon by the Scythians and the Tavr... The period from the 9th c. up to the first half of the 7th c. B.C. is often called «Cimmerian» [78, p. 34].

The **Cimmerians** were a union of tribes where the military aristocracy separated; it is possible to speak about a leader-based state (proto-state with a king, a chiefdom). **Herodotus** wrote in his «History» that the Cimmerians inhabited the north regions of the Black Sea in the 8th–7th c. B.C. and then were ousted by the Scythians. The toponymy data proves the Cimmerians were the owners of these places went to Asia Minor and left geographical names after it (Cimmerian Bosphorus is the ancient name of the Kerch Strait).

The **Tavrs**, who inhabited a considerable part of the Crimea (especially mountainous) and who gave the name Taurida to it, must have been at an earlier stage of development than the Cimmerians and the Scythians. The clashes with warlike tribes of the Tavrs caused a lot of troubles to Greeks and Romans.

However, closer and long-term relations were established by the Greek settlers with the **Scythians** who inhabited the steppes of the north region of the Black Sea in the 7th–2nd cc. B.C. According to

Herodotus, they moved here from Asia Minor. They passed through certain stages of civilizational and early state development, which entitles us to speak about the *Scythian proto-civilization* that entered into direct economic, political and cultural contacts with the Greek colonies on the Black Sea. As the result of cultural interaction they formed a special artistic style which got the name *the Greco-Scythian art*. A well-known researcher **V.D. Blavatsky** wrote about this in his book (that has the same name «Greco-Scythian Art») understanding under it «the artistic activity that was the result of contacts of Greeks and local tribes of the north region of the Black Sea. The results of these contacts were quite various throughout many centuries and essentially told on both sides» [18, p. 133]. Later with ousting of the Scythians by the Sarmatians and other nomadic tribes these ties were mainly broken, but traditions of interlacing of cultures continued: «In the history of the north region of the Black Sea the period of the 1st c. B.C. — 4th c. A.D. can't be called Greco-Scythian as the Scythians did not play an essential role anymore. However, in the artistic culture of Northern Pontus a further development and strengthening of those traditions that were formed there throughout a number of centuries of symbiosis of Greeks and local Iranian-speaking tribes is observed. First of all, this symbiosis resulted in the new contents of classical forms of art, dictated by local environment to some extent; these changes which became more varied in nature had an effect both on the contents and artistic forms» [ibid, p. 155].

Material evidence of interaction between peoples can be observed in museums of Russia and Ukraine, where numerous artefacts of that period are kept safe. The exposition present dozens and hundreds of different works of art and family life brought by the Greek colonists from their historical motherland as well as those created by local craftsmen: «A number of completely independent artistic values were created in the Bosphorus which made a part of the general treasury of world art. These artworks are remarkable for their originality determined by a close contact of the Bosphorus Greeks with the north-eastern branch of the Iranian world» [ibid, p. 163].

The Scythian proto-civilization reached the peak of its power in the 6th–4th c. B.C. when it united vast spaces of the great steppe from the Danube to the Don. It was able to resist in the fight against the Achaemenid empire in 512 B.C. — an unsuccessful campaign of **Darius** to the north region of the Black Sea. It is possible to speak about the formation of the world Scythian proto-empire in

the 4th c. B.C., that included population of various civilizations, although a real political and economic unity inherent to the world empires was not reached. One can agree with the assessment of **Yu.V. Pavlenko**: «The heyday of great Scythia in the 5th–4th c. B.C. was directly connected with the establishment of the macro political system within the steppe with the Crimea and forest and steppe Ukraine – from the Danube to the lower Don, headed by Iranian-speaking Scythians – nomads who exploited the pre-Slavic agricultural forest and steppe population through tribute and who sold goods gathered in this way in the nearest Greek colonies. Trade roads already functioned at that time and led from the ports of the Black Sea to the inland areas of Asia where also Iranian and Chinese trends reached» [151, p. 315). It should only be added that the Great Scythia included the Black Sea and Azov steppes not only of Ukraine, but of today's Russia.

Cattle husbandry, and first of all horse-breeding laid in the foundation of Scythian economy. The contacts with the Scythians in Taurida are considered the main cause of the appearance of the image of centaur – man-horse – in the Greek mythology. The Scythians got products of plant breeding and crafts (weapons, ornaments for a horse and a horse-man) which were necessary for life by military incursions and tribute and commodity exchange with farming tribes and Greek cities-colonies. However, with time a part of the Scythians settled down: «In the 4th c. B.C. life changed in the Crimean possessions of the Scythians. Population increased several times in this period. Because of insufficient space fit for nomadic the majority of the Scythians had to begin farming. Farming and cattle husbandry became the foundation of household» [75, p. 42]. Ordinary Scythians settled near Greek cities or served in the armed detachments, guarding these cities, and the Scythian nobles often settled in the cities, contracted mixed marriages with the Greek settlers. It mainly took place in the Crimea. Mutual penetration of cultures was less expressed in the mouth of the Don.

Politically Scythia was weakly concentrated. Although Atheus (4th B.C.) the czar of all Scythians of the Black Sea was recognized, in various regions of Scythia local rulers enjoyed high independence and often formed their own dynasties.

Interrelations of Scythia with the Greek cities-colonies, Bosphorus Kingdom, Chersoneses, Olvia, Tyre were ambiguous.

The relations of mutually beneficially trade and cultural exchange prevailed as well as military-political unions. **The Bosphorus Kingdom** (formed in 480 B.C.) may be adduced as a demonstrative example; on the one hand it united a number of Greek cities-poleis of the Eastern Crimea, Taman peninsula and the region of the Lower Don (Pantikapaion, Feodosia, Phanagoria, Hermaness, Gorgippia etc.), and on the other hand – the Scythian tribes, settlements and even cities. The features of democracy for citizens in poleis traditional for the Greek sub-civilization were combined with the monarchic rule of the Scythian enclaves: «Now the Bosphorus state became qualitatively different: not Greek, but Greco-barbarian where the rulers called themselves archons with respect to the Hellenes, and czars with respect to local tribes. The vanquished peoples paid tributes to the dynasties, supplied warriors. But local chiefs remained at the head of tribes. Formed Hellenic and Sindo-Meoto-Scythian aristocracy made the upper crust of society in a new ethnically various state; the rulers fostered such merger and eagerly contracted marriages with representatives of the local upper crust... The data from various sources indicate a poly-ethnic structure of the city population; however the Greeks still made its majority, especially among its well-to-do trade and craft sections. At the same time non-Greek population prevailed on the territory of the agricultural chora» [68, p. 51].

The base of economy of the Bosphorus Kingdom and the Greek cities was farming, craft, construction and foreign trade. Fertile lands gave high yields, which permitted to remove to Greece 32–48 thous. t of grain annually in the 4th c. B.C. Athenian orator Demosthenes noted that Athens got 15–17 thous. t of corn from the Bosphorus and supplied weapons, items of craft and objects of arts in exchange. It should also be noted that the slave labor was not the base of economy of either the Bosphorus Kingdom or Greek cities-poleis or the Scythian proto-civilization. Although slavery existed, it was of a subsidiary character. The main source of wealth was labor of free or bonded farmers, craftsmen and merchants. The wideness of outer connections of Bosphorus can be judged by the import of goods to Tanais from dozens of cities from the Black Sea region.

Consequently, there are grounds to speak about the beginning of the formation of an original Scythian proto-civilization

in the Crimean part of the Bosphorus Kingdom in the 5th–6th c. B.C. However, this process was discontinued roughly as a result of the incursion of the Sarmatians and other nomadic peoples from the East. «One could judge about catastrophe suffered by the Scythians and Greeks in the 70s–60s of the 3rd c. B.C. by the artifacts of the Scythian settlements of the north-western Crimea. Life stopped suddenly in hundreds of settlements, the traces of fires and the remains of the dead were discovered in some of them. The picture of the complete defeat is depressing, the Sarmatian tribes were likely to appear from the Don and to finish completely with the Scythians during one or several campaigns, including with the Greek possessions. Only those Greek cities survived which were protected by strong stone walls» [ibid, p. 43].

In the fundamental work of the Archeological Institute of the National Ukrainian Academy of Sciences «Ancient History of Ukraine» it was noted that the north region of the Black Sea turned into a kind of a contact zone between the worlds at various levels of socio-economic development: «Close contacts of the Greeks with local population, on the one hand, and many cities of Hellas, and later with the Roman Empire, on the other hand, told on many spheres of their life. The north region of the Black Sea turned into a kind of a contact zone where three worlds different in their political and cultural development interacted (nomads, Hellenes and farming tribes). All together they played an extremely important role in a continuous supply of Athens and many other poleis of Greece, especially in the 5th–4th c. B.C., with food, first of all grain that stimulated to a great extent their economic and cultural advance. The cities of the north Black Sea fostered the advance of social development of ethnical unions in Ukraine, formation of statehood in them» [56, vol. 2, p. 6]. Ancient poleis established in the northern regions of the Black Sea supported the advance of social development of ethnic unities on the territory of Ukraine, the formation of states... ***The first states typical of local civilizations of the second generation emerged exactly in this region, on the territory of today's Ukraine and Russia:*** «Four major ancient states (the Bosphorus Kingdom, Chersoneses of Taurida, Olvia and Tyre) emerged during colonization of this region in the 6th–5th cc. B.C., with specifics of political, socio-economic development typical of each of them» [ibid, p. 197].

13.2.3. The Second Wave of Interaction (3rd c. B.C. — 4th c. A.D.)

The second wave of interaction among civilizations in the north region of the Black Sea dates back to the period of the 3rd c. B.C. — 4th c. A.D. and is connected with migration flows of the Sarmatians, Goths and Huns, late Scythian culture of the Crimea, wars between the Bosphorus Kingdom and the Roman empire, union of Chersoneses and Rome.

The *Sarmatians* — nomadic cattle breeding tribes (Alans, Rocsolans, Savromats etc.) who inhabited the steppe regions from the Volga to the Tobol in the 5th–4th cc. B.C., moved to the north region of the Black Sea in the 3rd c. B.C. and ousted the Scythians; in the 4th c. A.D. they were defeated by the Huns. Economically and culturally the Sarmatians are kindred to the Scythians and adopted a lot of their cultural and everyday life traditions. However, the Sarmatians were at a very low stage of development, so there are hardly any grounds to speak about their proto-civilization. The Sarmatian tribes maintained various trade and cultural relations with the Bosphorus Kingdom and the Greek poleis of the region of the Black Sea, often made depredations on them. But no such close and stable interlacing of cultures as in the previous period was observed.

Formation of the *late Scythian state* in the Crimea with the capital in Scythian Naples (the ruins of this city remained in the outskirts of modern Simferopol) in the 2nd c. B.C. — 3rd c. A.D. was an interesting phenomenon of that period. The late Scythian state existed till the 3rd c. A.D. and included tavr tribes, so they often speak about the «Tavrosythians» with respect to this period [15, p. 47]. In Scythian Naples there were excavations of the northern and southern palaces, tombs of Scythian rulers Argot and Skilur. During the reign of Skilur (130–114 B.C.) Olvia was subdued to the Scythian Kingdom, the rural district of Chersoneses was captured, the dynasty ties with the kings of Bosphorus were strengthened. The 1st c. B.C. — 1st c. A.D. are viewed as the heyday of the Crimean Scythia. There were discovered dozens of Scythian hillforts and hundreds of settlements of that period. The Crimean Scythia in union with **Mithridates VI Eupator** participated in the war with Rome and Chersoneses. However, since the 1st c. B.C. the weakening of the Crimean Scythia was observed. Its defeat by the Alan nomadic unions is dated back to 218 A.D. according to modern assessments.

In the middle of the 3rd c. A.D. the north region of the Black Sea suffered from the incursion of *the Goths* and other tribes. The decline was supported by Bosphorus—Chersoneses wars at the end of the 4th c. — the beginning of the 5th c. Economy is being destroyed, external connections are broken, economy is naturalized and culture is being coarsened. At the end of the 4th century the Bosphorus Kingdom is subdued by the Huns and in the 6th c. it joins the Byzantine Empire.

It is also remarkable that at the closing stage of the life cycle of the Bosphorus Kingdom the dissemination of Christianity began: «A complex economic situation of the Bosphorus in the second half of the 2nd c. and a distressful situation of the most Bosphorians conduced to gradual Christianization... In the first quarter of the 4th c. eparchies already existed in the Bosphorus headed by bishops who put their signatures under the documents of the 1st Oecumenical (Nicene) Council in 325... In the 4th c. Christianity began to spread among the population of the Bosphorus, but it did not become a prevailing religion until the 6th c. ... It is in that time that the role of representatives of the Christian church that united wide sections of the public around them increased in the self-government of separate communities and territorial economic districts. It is possible that in the period of a considerable reducing if the central power it was the consolidation around of the Christian church of a certain part of population that promoted the maintenance of the Bosphorus as a single political whole and its orientation at Byzantium» [68, p. 230–231].

The fate of *Chersoneses of Taurida* developed differently. It was less subjected to barbarization and devastating inroads of the Scythians, Goths and Huns, and kept the features of an antique civilization. The military-political union and financial assistance of Rome to Chersoneses contributed to it, the deployment of the garrison of the Roman army in it. After making inquiries into the deployment of the Roman troops in Crimea **V.M. Zubar** had every reason to make the conclusion: «In the ancient period Taurica played a certain role in the strategic protection of the boundaries of the Roman empire. The deployment of the Roman garrisons in a number of points of that region should be viewed as one of the variants of the Roman penetration and establishment on the barbarian territories, which further could be included in the Empire... The major aims before the

Roman troops in Taurica were protection of the territory of Chersoneses — ally to the empire, guarding of the navigation along the Southern coast of the Crimea» [6, p. 209].

The Roman protection promoted a new rise of economy and culture of Chersoneses in the 2nd–3rd c. A.D. A wide city construction was carried out. The city occupied the area about 30 ha, its population reached 10–12 thous. persons. While the external forms of the democratic political system inherited from Greece persisted, the aristocratic-oligarchic system established itself in actual fact: «A further differentiation inside major social-legal group occurs. The democratic republic was gradually replaced by the aristocratic form of government... In general, the political order of the government of the first centuries A.D. was oligarchic» [75, p. 70].

From the end of the 3rd c. economy of Chersoneses began decaying again, and such decay intensified during the incursion of the Huns who broke the established economic ties with other cities of the Black Sea region. At the end of the 5th c. A.D. Chersoneses lost its autonomy, became a part of the Eastern Roman Empire, the outpost of the Byzantine Orthodox civilization. It should be noted that the beginning of the embracing Christianity dates back to the 1st c. A.D. and is associated with the visit of Apostle **Andrew the First Called** to the city.

Some historians believe that the wave of great migration of people flooded from the East raised to the ground the remains of ancient civilization, and new local civilizations emerged as it is called from tabula rasa.

We do not share such point of view. The waves of migrations can't destroy to the foundation ancient cultures and civilizations. Researches of **V.M. Zubar** and **A.S. Rusyaeva** [68] showed that a considerable part of the Bosphorus Kingdom became a part of the Byzantine Empire. «From the reign of Justinian and to the Turkic defeat in 576 the Bosphorus made a part of Byzantium... However, the Turkic incursion of 576 did not lead to a complete downfall of the Bosphorus Kingdom... Only after the formation of Great Bulgaria in the 7th c. and the emergence of the Khazars at the end of the 7th — beginning of the 8th cc, the medieval history of the Bosphorus ended and the period of classical Middle Ages began» [ibid, p. 231–232].

However, it is early to draw the line here. As a result of the downfall of Great Bulgaria a part of population moved by the

Don and the Volga to Middle Volga Region, where powerful Bulgarian State emerged on the Great Volga Road — «Road from the Varangians to the Persians». Kazan was established on its outskirts in 1005. Another part moved to the territory of today's Bulgaria, thus ousting the Thracians. But the major part of local population made a part of the Russian Kaganate, and then the Tmutarakan Principality.

13.2.4. The Third Wave of Interaction (6th — 9th c.)

The next, *third wave of interaction among civilizations* on the territory of the north region of the Black Sea falls on the 6th—9th c. — the period of the formation of the second historical super cycle, medieval world civilization, third generation of local civilizations in the period of great migration of people. A series of deep transformations on this territory turned it into a knot of contradictions and clashes among civilizations and proto-civilizations. Great historical events flitted at a kaleidoscopic speed, overlapped the depositions of the previous periods.

The *Turkic Kaganate* came in this region first in the middle of the 6th c. «Having achieved power over all area of the Eurasian steppes from the Volga to Hingan, in the 60s of the 6th c. the Turkuts conquered Central Asia to Amu Darya which was under the domination of the Eftalits, and clashed with Sasanad Iran there. In the next decade when the Avars defeated the Antes-Polyans and were already well-established in the region of the middle Danube, the power of Ashin's house reached the Azov Region and Caucasus in the west, and Huang He and Ussuri in the East. And as a result by the beginning of the 80s the Turkic Kaganate united under its power for the first time in the history all area of the Eurasian steppes by subduing also a whole series of areas of ancient civilizations adjacent to it, first of all Sogd with Maracanda (Samarkand) and Bukhara — the key cities on the central path of the Great Silk Road. Due to that they seemed interested in the maintenance of continuous trans-Eurasian trade from China to Byzantium... The Turkic Kaganate turned to be the first great Eurasian power which at the same time bordered and was in the immediate trade and military-political ties with all great civilizations of that time» [151, p. 317, 318]. This bril-

liant description given by **Yu.V. Pavlenko** to the Turkic Kaganate may be completed: the Turkic Kaganate did not become one of local civilizations of the third generation; it may rather be characterized as one of proto-civilizations which often emerge in the transitional historical periods.

The Turkic Kaganate, which included vast and various territories by its civilizational composition had to be heterogeneous, quite mixed by ethno-national and confessional structure. At the end of the 6th c. the upper crust of the Kaganate embraced Buddhism, thus promoting its expansion in the world. At the same time in Central Asia Christian communities appeared (Nestorianism and Manichaeism). «Contacts of nomadic ethnoses with great civilization of the early Middle Ages were not one-sided. There was a reverse influence which was expressed first of all in a widespread of certain items of ornaments of riding horses and weapons formed in the nomadic environment» [ibid, p. 318]. It may be assumed that the mutual influence among civilizations was not reduced only to this.

The Turkic Kaganate existed short in historical terms. By the beginning of the 7th c. it disintegrated into the Eastern Turkic and Western Turkic Kaganates. A considerable part of the north region of the Black Sea found itself under the rule of the **Khazar Kaganate**, which existed in the lower reaches of the Volga, Azov Region, a part of the Crimea from up to the end of the 10th c. (its capital was Itil on the lower Volga). Great Bulgaria, which later disintegrated under attacks of Khazars, existed in parallel for some period of time in the steppes of the Azov region.

G.V. Vernadsky noticed the role of the Khazar Kaganate in the interaction of civilizations: «The Khazar state founded on the north-Caucasus lands and in the region of the south Volga widely used its geographical position and became a bridge across which it was possible to maintain brisk commercial relations between the Arabs and the north... The hard core of the Khazar state included the north territory of Caucasus and a triangular prominence from the north between the lower Don and lower Volga...The coast of the Black Sea from the mouth of the Kuban to the Kerch Strait may be taken as a part of the western border of the Khazar state. The Bosphorus (Pantikapaion, Kerch) was occupied by the Khazar garrison» [31, p. 229, 227–228].

The Khazar Kaganate maintained close contacts with Byzantium acting together with it against the Arabic Caliphate moving rapidly

to the east. However, then the Khazars whose upper crust converted to Judaism (although in general the Khazar proto-civilization was multi-confessional) entered into the fight against Byzantium both in the Azov region, and the Crimea where Christianity had already been spread by that time. The population of Taurida opposed the Khazars; there was a revolt against them headed by **Bishop John of Gothia**, the head of the Gothic Christian eparchy. Byzantium and its allies gradually ousted the Khazars from the Crimea. In 964–965 the weakened Khazar Kaganate was crushed by Kievan Prince **Svyatoslav Igorevich**, thus it didn't manage to become a full-fledged local civilization.

There is conflicting information in the written sources about the **Russian Kaganate**. According to **G.V. Vernadsky**, this state was founded in the Azov region in the middle of the 8th c. by Scandinavians. They mixed with local Aes and Rusi and founded a state by the end of the century which was first feudatory to the Khazar Kaganate, but in 825 the ruler proclaimed himself a kagan (emperor), thus claiming to be independent. «The Russian Kaganate of that period was a strong power of the same type as the states of the Khazars and Volga Bulgars, i.e. the major aim of which was control over significant paths of international trade» [ibid, p. 239]. The short history of Russian Kaganate was studied by **V.V. Sedov** [175, p. 693–703].

G.V. Vernadsky emphasizes the role of the Russian Kaganate and Tmutarakan: «The agriculture reached considerable progress on the territory of all Russia throughout the eighth and ninth centuries. As for trade Tmutarakan remained a more significant center in the ninth century than Kiev, and it maintained its positions even at the beginning of the Kievan period... Politically and strategically Tmutarakan was as important in the tenth century as Kiev... The campaign of Vladimir against the Crimea in 989 was in some way motivated by his desire to conquer Tmutarakan. It is typical that after the Crimean campaign Vladimir proclaimed himself a Kagan which was retained by his son Yaroslav. Thus, the rulers of Kiev became political successors to the Russian Kagans of Tmutarakan. The use of the Kagan title vividly demonstrates a wideness of political interests, and also their dreams about the establishment of the empire» [31, p. 371].

It is typical that Soviet and modern Russian historians underestimate or ignore the historical importance of the Russian Kaganate, Tmutarakan, Ladoga and Novgorod for the Kievan Russia. Thus,

B.A. Rybakov, a leading researcher of the Kievan Russia, wrote that in the period when Greek cities-poleis Olvia, Chersoneses, Bosphorus, Thanais and Phanagoria emerged, the class society was geographically limited by a narrow in the region of the Black Sea; the time of the Kievan Russia «turned out the time when barbarian Eastern Europe shed old garments and clothed itself in new where “figured border” of civilization became considerably wider» [173, p. 9]. In the book nothing is said about either the Russian Kaganate, or the Tmutarakan Principality; it is noticed that in the 6th c. a powerful union of the Slavic tribes was formed in the region of the middle Dniepr headed by Kiev [ibid, p. 40]. B.A. Rybakov calls the road from the Varangians to the Greeks a «speculation of the Normanists» [ibid, p. 46]. He views Novgorod as the domain of the Kievan prince where he usually put his senior son, as the city always catching up with and lagging behind Kiev in its development [ibid, p. 48].

Modern views on the period and territory where the eastern Slavic civilization was spread, its origins, the role of dialogue of cultures in the process of its formation as has been shown above, differ essentially from those views, which prevailed in the Soviet period.

Byzantium, an Orthodox civilization of the third generation, a direct heir to the Greco-Roman civilization of the second generation (the western European Christian-Catholic civilization became its another heir) began to play the main role in the fate of the Northern regions of the Black Sea in the 7th – 9th cc.

The Greek colonies of the region of the Black Sea fell under the sphere of influence of the Eastern Roman and then Byzantine Empire. Byzantium strengthened its positions in the Azov Region and Taman peninsula, in the Crimea ousting the Khazar Kaganate. Chersoneses became the strong point of the Byzantine influence (further named Cherson). It «became craft, trade and cultural center of the southwestern Crimea populated with mainly farming population... the only one mass producer of wine in the north region of the Black Sea, and it must have brought a considerable and firm income» [ibid, p. 84, 85]. It was also the center of the Christian influence in the north region of the Black Sea, Cherson played a significant role in political life of Byzantium. In 695 blotted out Emperor **Justinian II** was exiled there. When in 705 after conquering Constantinople he became the Emperor again and sent his formidable army (up to 100 thous. soldiers) to besiege Cherson, the city stood the siege, and proclaimed

Justinian II blotted out and announced **Philippe** a new emperor. «In these events Cherson entered the struggle against the central government, pursued independent foreign policy, entering into international treaties (with the Khazars), actually deposed one and crowned another emperor» [76, p. 88].

The Byzantine phema — a military district covering the Crimean zone — was established on the basis of Cherson in the 30s of the 9th c. [18, p. 73], new fortresses were built and old fortified. The cave cities and cloisters were built, *Mangupa* became the most well-known of them. It was a strongly fortified settlement in the mountains on the south-west of the Crimea. In the period of the next wave of interactions in the 13th c. it became the capital city of the Orthodox-Christian Mangup Principality Feodoro.

In the north region of the Black Sea there appeared factors, influencing foundation of the *eastern Slavic civilization*. In 988 in *Cherson (Korsun)* the Novgorodian prince embraced Christianity (from 969), and then Kievan Vladimir (from 980) and added the Orthodox-Christian nature to the forming Slavic civilization, making it an heir to Byzantium.

Consequently, the third wave of interaction among cultures in the north region of the Black Sea was characterized by contacts of mature Byzantine and forming eastern Slavic local civilizations, Turkic and Khazar proto-civilizations. The north region of the Black Sea became one of the centers of the formation of local civilizations of the third generation.

13.2.5. The Fourth Wave of Interaction (10th—14th c.)

The fourth wave of interaction among civilizations in the north region of the Black Sea dates back to the 10th—14th cc. — the maturity period of the Middle Ages of the world civilization and the third generation of local civilizations. This period is described by interaction and confrontation of the Byzantine, Slavic, Moslem, Mongolian and western European local civilizations on this territory.

Originally, in the 10th — 12th c. the major characters on the arena of the cross-civilizational performance were *Byzantium*, *Kievan Russia* and *Khazar Kaganate*; tribes were the objects of interest of these large states. Byzantine with the base outpost in Cherson had the strongest positions. However, the influence of the

Kievan Russia intensified gradually, especially after Kievan Prince **Vladimir** had entered into the treaty with Constantinople in 988 and sent a sixty-thousand Russian unit to help the Byzantine emperor. In exchange for it he requested the sister of the Emperor — Princess Anna — to be his wife. Having wait in vain for the bride, he besieged and conquered Cherson (Korsun). Then the Emperor agreed to link with the Kievan Prince and Vladimir promised to embrace Christianity, which happened in Korsun. Vladimir removed about thousand icons from there, which became the sacraments of the first Russian Orthodox cathedrals, together with several priests. One of them, **Anastas of Korsun**, became the first bishop of the Church of the Tithes in Kiev and the actual head of the Russian Orthodox church [76, p. 96]. The Khazars still prevailed in the Crimea were defeated by the united efforts of the Byzantine fleet and the army of the Kievan Prince.

In the 11th — the beginning of 13th cc. the Road from the Varangians to the Greeks (along the Dnieper, the Volkhov and the Neva to the Baltic), the Road from the Varangians to the Persians (along the Volga), the Don Road and also the Great Silk Road which ran from Cina and Midle Asia through the region of the Caspian Sea, region of the Sea of Azov, the Crimea to Byzantium and the Mediterranean countries assumed a growing significance. Actually, these were the thoroughfares of dialogue among civilizations, which contributed to a rapid economic and cultural rise of peoples and civilizations involved in it.

However, from the beginning of the 13th c. the alignment of forces changed radically in the region of the Black Sea. New strong characters appeared in the arena — Mongolian civilization represented by *the Golden Horde* and then *the Crimean Khanate* and western European civilization represented by a network of the *Genoese colonies*, and then by the end of the period — Moslem civilization represented by *the Ottoman Empire*, which vanquished Byzantium, and then also the Crimea. The Byzantine civilization left the scene, and the eastern Slavic civilization lost its positions, Christianity gave place to Islam in a considerable part of the region.

Using the weakening of Byzantium under thrusts of the crusaders (who vanquished Constantinople during the fourth crusade in 1202–1204) the Genoese republic, which had become rather strong by that time, obtained the right of a tax free trade in the Northern region of the Black sea. It founded a number of the

Genoese colonies-fortresses instead of former Greek colonies — Caffa (in the place of Feodosia), Soldey (in the place of the former Sugdey, the city which was known in Ruissia as Surozh, and now it is Sudak), Bosporo (where Pantikapaion was and now Kerch), Tanu (not far from former Thanais in the mouth of the Don) etc. The trade ties of Russia with these cities were so active, that they continued also in the period when the Golden Horde existed. By the middle of the 13th c. a huge empire of the Mongols from the Pacific Ocean to the Black Sea was formed as a result of conquering campaigns of Genghis Khan and his descendants. «The situation formed when the trade caravans from China and Central Asia reached the ports of the Black Sea not leaving the boundaries of one state» [ibid, p. 99–100]. The Golden Horde became one of the most important elements of the Mongolian Empire.

Caffa became the center of the Genoese trade, and it reached its bloom in the 14th c. like other Italian cities-republics. They maintained close contacts with the first capital of the Crimean ulus of the Golden Horde — Solhat-Crimea (the name Crimea sprang up from it), which was one of the largest centers of dialogue and interaction among civilizations. «The cultural trends originated from Egypt, Khoesm, Iran and Mesopotamia... manifested themselves vividly in the monuments of Solhat-Crimea... Solhat got a rapid development and wide fame first of all due to influx of commodities from the Volga Region and Russian Lands, Caucasus and Central Asia, India and China in the second half of the 13th c. At the beginning of the 14th c. it became the center of the Golden Horde filigree, developed trade ties, which permitted to produce a noticeable impact on business and cultural development of the north regions of the Black Sea, Caucasus and Volga Region. The city found itself included in the system of trade thoroughfares running from the depth of the Eurasian continent. It was one of the points in the huge trade-transport system established on the ample space conquered by the Mongols» [ibid, p. 108]. However, in 1395 Solhat-Crimea was defeated by Timur's army. The capital of the Crimean Khanate was transferred to the mountain cave city Chufut-Kale (near today's Bakhchisarai), and then to Bakhchisarai.

The strongholds of the Byzantine Empire and Orthodox Christianity in the Crimea still were **Cherson** (which gave its trade grounds in many ways to the Genoese colonies and was ruined in

1396 by Timur) and the *Mangup Principality Feodoro* with the capital in the mountain cave city-fortress Mangup where construction of fortification had already been launched in the 50s–60s years in the 6th c. under emperor **Justinian I**. The fortress occupied 90 ha. In the 15th c. the principality included a considerable part of the southern coast of the Crimea and numbered up to 150 thous. people. The principality maintained close contacts with the Muscovy Russia. **Ivan III** wanted to marry his son Ivan to the daughter of the Mangup prince and the agreement was reached thereabout in 1474. However, in 1495 Mangup was besieged by formidable army of Ottoman Turkey and after a siege of a year and a half it was taken by it and the defenders of the fortress were killed. Thus, in 42 year after the fall of Constantinople the last outpost of the Byzantine civilization was destroyed. The Genoese fortresses Caffa and Sugdey were taken by the Turks and destroyed in the same year, and the Crimean Khanate became vassal to the Ottoman Empire. Then the Turkish fortresses were built in Kerch and Azov. The north region of the Black Sea became a part of the Moslem civilization for several centuries, the interaction among civilizations decreased considerably in this region.

13.2.6. The Fifth Wave of Interaction (15th–18th c.)

The fifth period of interaction among civilizations in space of the north region of the Black Sea embraces the 15th–18th cc. – coinciding by its major life cycle with the early industrial civilization and formation of the fourth generation of local civilizations.

In this period the number of participants in the interaction of civilizations narrowed to two in this region featuring Slavic and Moslem, under an interested participation of western European and eastern European civilizations now on this, and now on that side. The endless series of wars between the Ottoman Empire and the Crimean Khanate (that included not only the Crimea, but the region of the Sea of Azov and Taman peninsula) vassal to it, on the one hand, and the Muscovy Czarism (with the Don and Zaporozhie Cossacks) on the other hand, was going on. The Great Principality of Lithuania and the Polish Kingdom participated in these wars. They ran with varying success: sometimes the Russian army and Cossacks defeated the Tartar and Turkish army, some-

times the victory was on the other side. Thus, in 1571 **Devlet-Giray** Khan burnt Moscow, and **Ivan the Terrible** had to agree to pay annual tribute to the Crimean Khanate; it was regularly paid almost during 130 years until **Peter I** sought its abolishment under the Constantinople peace of 1700. A few most famous war conflicts of that time may be adduced: campaigns of the koshevoy (regional) ataman of the Zaporozhian Sech **Ivan Sirko** of 1660, 1663 and 1667; campaign of Sultan **Mohammed IV** and Crimean Khan **Selim-Giray** on Poland and Muscovy Czarism of 1672; attack of the Crimean Khan on the Zaporozhian Cossacks in winter of 1674–1675; the siege of Chigirin in 1677 and 1678 by the troops of the Ottoman Empire and the Crimean Khanate; the Crimean campaigns of the Russian army of 1687 and 1689; Azov campaigns of **Peter I** in 1695–1696; the unsuccessful Prussian campaign in 1713, the result of which was the return of Azov to Turkey; the Russian-Turkish war of 1735–1739 and 1768–1774. The latter ended with occupation of the whole Crimea and joining of the Northern region of the Black Sea to the Russian Empire in 1783. As the result the ethnical structure of the region changed: about 100 thousand Crimean Tartars emigrated from the Crimea (to Turkey) and their place was taken by tens of thousands of the Ukrainians and Russians from other provinces and soldiers after service under the manifest of the empress **Catherine II**. In February 1784 the Taurida region (including the Crimea and the Taman peninsula), and in 1802 the Taurida province, which included 7 districts of the Crimea and 3 districts outside it (Dniepropetrovsky, Melitopolsky and Fanagorsky) were established.

14.2.7. The Sixth Wave of Interaction (19th – 20th c.)

The sixth wave of interaction among civilizations in the space of the north region of the Black Sea embraces the 19th and the 20th centuries – the period of the industrial world civilization and final phases of the life cycle of the fourth generation of local civilizations. This transition is characterized by a single prevalence of the Eurasian civilization in the region (represented by the Russian Empire and then the USSR). It was discontinued by relatively short periods of the *clashes among civilizations* during the Crimean War of 1853–1856, World War I and Civil War of 1914–1922 and World

War II of 1941–1945. The national-ethnic and civilizational structure of population of that region changed in each of these periods, especially in the Crimea.

After the annexation of the Crimea by the Russian Empire about 100 thous. out of 500 thous. Crimean Tartars-Moslems emigrated (that is about one fifth of all inhabitants). Tens of thousands of the Russians, Ukrainians, Greeks, Germans, Poles, Bulgarians and Jews moved to the Crimea and to the region of the Azov Sea; there was even the Swiss colony – Zurichtal [75, p. 144–145, 152–153]. According to the census of 1897 among 547 thous. population of the Crimea the Crimean Tartars made a little more than one third, Russians – one third, Ukrainians – 12%, Germans – 5.8%, Jews – 4.7%, Greeks – 3.1%, Armenians – 1.5% [75, p. 189]. The new settlers who were mainly engaged in growing corn, gardening, wine-growing made an enormous effort to turn arid Crimean lands, which had been trampled down by thousands of herds, which had been driven by nomads from place to place during centuries, into a flourishing plain. Slavs and Greeks who settled down here brought back Orthodox Christianity to the region of the Black Sea. It was gaining popularity among local people. The cross-civilizational, cross-confessional, cross-cultural dialogue was maintained continuously at the communal and personal level, the number of mixed families grew. One should not say that the Crimea was like the USA a «melting pot» where various nations acquired common features; but also it is impossible to exclude mutual influence of cultures of peoples closely connected with each other politically and economically. Science, education and culture also developed.

However, this process was discontinued in the periods of the clashes among civilizations on the territory of the north region of the Black Sea.

The Crimean War of 1853–1856 became the first clash of the sixth wave. A dispute between Russia and Turkey about «Holy Places» in Jerusalem and Bethlehem served as the ground for such war – who had the preemptive right to dispose of them: the Orthodox or Catholic Church? At first Russia was a success: its ground troops captured the Moldavia Principality and Walachia, and then the Black Sea fleet caused heavy losses to the Turkish fleet. In order to oppose the extreme strengthening of Russia Great Britain and France declared war on it, brought their fleets to the Black Sea in 1854, fired Odessa, made a large lodgment in the

Crimea, and besieged Sevastopol. Thus the clash of the Eurasian civilization with the leading powers of the western European and Moslem civilizations began. The Russian Army was worse armed in terms of equipment than Anglo-French which applied the fruit of industrial revolution. As the result Russia was defeated in the war, lost a lot of its positions in this region.

World War I and the Civil War (1914–1922) became the second clash among civilizations. Kaiser Germany, Austro-Hungarian Empire, Osman Empire and then Entente opposed Russia this time. The major clashes occurred on the sea. The German cruisers exposed to fire Sevastopol, Kerch and Eupatoria. However, no landing parties were this time in the Crimea or Taman.

The Black Sea Fleet and the government of the Taurida Province welcomed the February revolution of 1917. However, after the October revolution during the the Civil War cross-national and cross-confessional contradictions developed further on in the Crimea, Taman and Kuban Region. In March 1918 the Soviet Socialist Republic of Taurida was declared in the Taurida province. After the Brest Peace the Crimea found itself under protectorate of Germany. In autumn 1918 after the defeat of Germany the German troops were pulled out of the Crimea and the southern areas of Ukraine and replaced with the Entente troops – English, French, Greek and Italian. In April 1919 the Soviet power was restored again in the Crimea and the Crimean Soviet Socialist Republic was proclaimed as autonomy in the RSFSR. However, it didn't last long, and in July 1919 the Crimea was captured by the voluntary army, the Taurida province was restored with the incorporation of the Dniepropetrovsky, Melitopolsky and Berdyansky districts in it. In April 1920 Baron **P.N. Vranghel** was appointed the army commander of the south of Russia, and in November 1920 the squadron with the remains of the white army (126 ships, 145.7 thous. people) headed from Sevastopol for Constantinople [75, p. 245].

The second clash among civilizations in the north region of the Black Sea as the first entailed the death of hundreds of thousands people, destruction of economy, hunger of local population, heavy losses in culture. Not one decade was required to cure wounds caused by the war, to revive economy and culture, to restore peaceful cooperation between people of various nationalities and denominations.

In the 20s the policy of tatarization of the Crimea was pursued; considerable privileges were granted to the Crimean Tartars against other nationalities that caused the discontent of the latter who made

the majority of the population on the peninsula. These privileges were abolished soon, but the national relations weren't restored for a long time.

The third clash among civilizations on the territory of the north region of the Black Sea occurred **in 1941–1945 during World War II (the Great Patriotic War)**. This time the USSR fought against the invasion of fascist Germany, Italy, Romania and Hungary, which had sent their troops to capture southern Ukraine, Crimea and Caucasus. A heroic defense of Odessa and Sevastopol were significant episodes in this war. Due to the unsuccessful Kerch-Feodosia operation of the Soviet troops in 1941–1942 the Hitler troops captured the region of the Black Sea and the Crimea, and in the Crimea they got support from a part of the Crimean-Tartarian population [ibid, p. 264]. Only by 1944 the Crimea and South Ukraine had been liberated from fascists.

One of hard events of that period was deportation of a part of local population – first the Germans – colonists in 1941 (52 thous. people), and in 1944 under Stalin's secret decree – the Crimean Tartars (190 thous. people), and also the Armenians (9.6 thous.), Bulgarians (12.4 thous) and Greeks (15 thous.) [ibid, p. 266–267]. It was out-of-court punishment of whole nationalities – a measure to which the totalitarian regimes often resort to (for instance, Ivan the Terrible acted like that with respect to freedom-loving Great Novgorod). More than 100 thous. residents from the regions of Russia and Ukraine were resettled to the Crimean area instead [ibid, p. 269].

A positive example of dialogue and cooperation among civilizations of that period in the north region of the Black Sea was the *Yalta Conference of the heads of the states of the anti-Hitler coalition* (Stalin, Roosevelt and Churchill) on 1–11 February, 1945. The fundamentals of the post-war structure of the world were determined at the conference, which, despite all sinuities of the «Cold War» and local military conflicts, gave no opportunity for the clash of civilizations to blaze up in the second half of the 20th c.

13.2.8. The Beginning of the Seventh Wave of Interactions (21st c.)

From the 90s of the 20th c. modern *seventh wave of interaction among civilizations* began in space of the north region of the

Black Sea. It started from the disintegration of the USSR, Eurasian civilization so that the north region of the Black Sea found itself divided between two post-Soviet states — Russia and Ukraine.

Yu. V. Pavlenko does not view both the USSR and the Russian Empire as an independent civilization: «The Soviet Union as well as the Russian Empire or the power of Genghisids preceding it on the spaces of Eurasia did not make an individual civilization due to a lack of its own ideologic-value-motivational-religious-spiritual foundation. The USSR included parts of various civilizational systems aiming to level them by extermination of such kind of foundations they have and implanting its own quasi-civilizational values» [151, p. 646]. And further: «The quasi-civilizational phenomenon disclosed itself most fully exactly in the USSR as a supranational, cross-civilizational community connected by real political, economic and other relations, and also fictitious ideological unity, which is fundamentally unable to replace a religious-spiritual commonness of people which also didn't exist in the Genghis Khan Power» [ibid, p. 650]. Proceeding from such approach a forecast for the future is made: «In the coming century the principal axis of the planetary confrontation can run between the USA and China under a quite probable resumption of competition between China and Russia on the Eurasian space ... In this regard it appears constructive to view Eurasia or somewhat already post-Soviet space (CIS) as a quasi-civilizational whole in the sense of this notion defined above» [ibid, p. 651].

Denying the right to the status of a local civilization (with respect to the northern Eurasian space of the Russian Empire, the USSR, Empire of Genghisids) **Yu.V. Pavlenko** actually rests on the single argument: the main distinguishing feature of civilization is the existence of its own ideological-value, motivational, religious-spiritual foundation. Therefore socio-political communities embracing parts of various civilizational systems are deemed by him as quasi-civilizational at best. However, a lot of historical facts and tendencies contradict such an approach.

First, it is difficult to find a local civilization which would be completely homogeneous, not including parts of various civilizational systems. The Greco-Roman and modern western European civilizations that are deemed classic include parts of various civilizations, don't they? Millions of Moslems and Jews live in Western Europe; the enclaves of all modern civilizations and denominations are represent-

ed in the USA. The same may be said about western European, Chinese, Latin America and all the more so about the Eurasian civilization (Russian Empire, USSR). In the latter the elements of Moslem, Buddhist and eastern European civilizations were represented along with prevailing Orthodox-Slavic. If such representation of other civilizations and denominations reaches considerable sizes, then it is possible to speak about a local civilization of a mixed type (Eurasian, African, Oceanic, Latin America, Greco-Roman, Mongolian and other civilizations).

The system of civilizational spiritual values may be viewed as the constituting features of local civilizations, but it should not be reduced only to the unity and prevalence of one religion (both today's Japan or China couldn't be viewed as civilizations based on such feature). This system apparently includes not only a religious element, but also scientific-educational, ethical, ideological elements of the genotype of civilization, prevailing mentality, accumulated historical experience, understanding of the communion of vital interests in the interaction with other civilizations.

Second, a *cyclical-dynamic approach to understanding of civilizations*, which pass various phases of their life cycle, emerge in the historical arena and disappear, *is necessary*. With the development of civilization the system of spiritual values including religion changes. It is enough to recall the history of the Greco-Roman, Indian, Persian and Egyptian civilization, a rapid in terms of history spread of the Moslem civilization. And in the north of Eurasia, including in the north region of the Black Sea we observe changes in the religious affiliation, spiritual-moral foundations, system of values at various stages of development and interaction among civilizations, especially in the period of the Great Migration.

Third, *one should not give such a negative assessment of ideological unity of the peoples in the USSR*, even if they lacked religious-spiritual community. In the period of the Russian revolution (as well as the Great French Revolution) any religion was denied by the new ideals. But it did not mean at all a loss of ideals, a lack of spirituality. On the contrary, great revolutions give rise to a passionary push of mass of people inspired by common ideals, and first of all younger generation that permits to neutralize active opposition of the followers of previous ideals and carry a considerable part of hesitating population, which is usually passive. It's quite another matter that newly-born ideals, spiritual values turn to be illusions in many ways, they are adjusted and «made more down to earth» at the second,

conservative stage of revolution. But nevertheless, this spiritual communion turns out to be enough for necessary transformation of the country, as it happened with France in the 19th c. and the Soviet Union in the 20th c. In both cases these transformations caused sufferings of millions of people. But this is a lesson of the history: a big, and sometimes exorbitant price has to be paid for advance.

Fourth, *a forecast of development of civilizational relations for the 21st century suggested by Yu.V. Pavlenko requires adjustments.* One can agree that the major watershed of the planetary confrontation will be between the USA and China gaining rapidly economic and political weight and having its own strong-knit enclaves in many countries of the world, including the USA, Australia and Russia (in the Far East). However, the vital interests of Chinese and Russian civilization more agree than disagree in such confrontation (although the contradictions cannot be excluded). A growing activity of other civilizations, and first of all of integrating western European, of reviving Indian and of passionary Moslem should not be written off. A disintegrating Eurasian civilization and African in the state of decay become the objects of their competition. So the history of the 21st c. will spring a lot more surprises. The issue of the prevalence of one of the two extreme scenarios of cross-civilizational interaction the present century – confrontation and clash among civilizations or their dialogue and partnership in the solution of global problems and contradictions of this century is still pending.

Now let's consider possible ***scenarios of interaction among civilizations in the north region of the Black Sea*** on the seventh wave, in the first half of the 21st c. Let's take as a basis two extreme scenarios: a new aggravation of cross-civilizational contradictions and contradictions inside civilizations or finding a consensus and transition to the partnership of the Black Sea countries, intensification of a centripetal movement within the Eurasian civilization.

The foundations of the first scenario were laid by disintegration of the USSR and Eurasian civilization in the 90s. Let's not examine the reasons of such tragic historical zigzag, but dwell upon its consequences for the north region of the Black Sea. Three seats of cross-civilizational contradictions and conflicts have arisen in this region: the Crimea, Dniester Region and North Caucasus. The interests of several civilizations overlap here: Eurasian (and its nucleus – Russian); Moslem, Eastern European and Western European.

Civilizational problems of the Crimea originate both in its more-than-two-millennia history and a relatively recent past: deportation of the Crimean Tartars, their desire to return to the historical motherland and to get the previous leadership on the peninsula; a disputable question of legality of transfer of the Russian-speaking Crimea to the Ukrainian SSR by **N.S. Khrushchev**. It seemed a formal act that time, and after disintegration of the USSR became the knot of contradictions between Ukraine and Russia.

The number of the Crimean Tartars on the peninsula is growing fast, however, they still make the minority of the Crimean population. Thus, in 1991 the population of the Crimea was composed of 1,600 thous. Russians, 600 thous. Ukrainians, 200 thous. representatives of other nationalities including the tartars [75, p. 276]. However, national movements and organizations established at the beginning of the 90s put forward demands on the recognition of the Tartar language one of official in the autonomous republic, representation in the parliament and government of Ukraine. Their final aim is to proclaim the Crimea an autonomous Tartar republic. The Tartar national movements are actively supported by Turkey and other Moslem countries.

It's clear that these demands cause resistance of the Russian–Ukrainian part of population. However, Russian-Ukrainian contradictions also exist warmed up by aspiration of the central authorities of Ukraine to implement «Ukrainization» of the Crimea, spread official Ukrainian language (although in 1991 90% of the Crimeans called Russian their native language). The interests of the Russian-speaking population are supported by Russia, although it does not have a well-defined policy in this issue. The problems of Sevastopol are added to this, delineation of the boundary line in the Kerch Strait. Russian-Ukrainian contradictions aggravate from time to time in this region as it was the case in 2004 due to the Tuzla Spit in the Kerch Strait. Very often the Black Sea region is used as a trump-card in solving of other interstate problems, for example, fuel-energy. Although the matter in question appears to concern the contradictions inside the Eurasian civilization, but in actual fact the interests of the Moslem, western European and Eastern European civilization are behind it. The interference of the USA into these processes is intensifying. These problems are especially gaining momentum in connection with the course of the renovated ruling circles of Ukraine towards integration into the European Union and NATO.

Consequently, a new knot of cross-civilizational contradictions is made in the Crimea. Under the negative scenario it may boil over into the conflicts, under positive – they will be overcome on the basis of taking into account of mutual interests and partnership. The development of civilizational tourism and establishment of the tourist center in the Crimean region, the east of the north region of the Black Sea and the Azov region may become one of the directions of such partnership, as well as the development of power cooperation of Russia, Ukraine and Turkey.

Another knot of contradictions in civilizations and cross-civilizational contradictions – **Dniester region**. The establishment of the Dniester Republic, where the Russian-speaking population prevails, aggravated the contradiction between Moldova, Ukraine and Russia. It causes a growing interest on the part of the western European and eastern European (especially Romanian) civilizations, and also the USA. Under the negative scenario the armed conflict may resume here, under positive – a stable compromise will be found.

The third knot of contradictions is **North Caucasus and east of the Black Sea region** where a war conflict is going on during two decades at the interface of Orthodox and Moslem parts of the Eurasian civilization. The matter in question are not only Chechnya, Ingushetia and Dagestan, but also Abkhazia and Karabakh – the seat of the clash between Moslem Azerbaijan and Christian Armenia. The interests of both Moslem countries and Russia, and also the USA are involved in these conflicts. Under the unfavorable scenario these conflicts may last forever at one moment aggravating, at another dying out; under favorable – a new formula of interaction that takes into account the interests and civilizational specifics of conflicting parties may be found as well as conditions for their partnership.

Thus, we have two major scenarios, two ways of development of civilizational interaction in the Black Sea region; either this region will turn into the bleeding knot of cross-civilizational confrontations and conflicts or it will turn into a space of cross-civilizational dialogue, cooperation and partnership of cultures. The choice should be made not only by peoples who live in this region, but by local civilizations of Europe and North America involved in the interaction.

The summary scheme of historical stages (waves) of interaction among civilizations in the north region of the Black Sea is given in *table 13.5*.

13.3. Dynamics of the Eurasian Civilization in the Industrial Period

In closing let's dwell upon the ups and downs of the Eurasian civilization in the industrial period.

The finishing stage of the imperial period in the history of the Eurasian civilization and the Soviet period may be characterized as a lagging (against the epicenter of the dynamics of world civilizations) period of the formation and development of the industrial world civilization.

Chronologically the industrial civilization in Russia embraces the period from the 60s of the 19th c. to the end of the 20th c., i.e. about a century and a half. Several major stages may be distinguished within this historical cycle:

1861–1914 – a period of the industrial overturn, establishment of capitalism and rise in science, culture and education, first signs of a nationwide crisis (the defeat in the Russian-Japanese war, revolution of 1905);

1915–1964 – a period of the civilizational crisis and its handling within a socialist variant of development, regardless of victims, at the cost of all-out effort. But the country won the Great Patriotic War in that period, a powerful military-industrial power was created, the Eurasian civilization became one of the leading in the world;

1965–2005 – the closing stage of the industrial civilization, unsuccessful attempts through reforms to transform the socialist society ended with the next civilizational crisis, dissolution of the USSR, disintegration of the Eurasian civilization, a painful search for new paths, radical transformation of society.

As all humankind Russia found itself at the turn of the third millennium in the transitional period of the second historical super cycle featuring a triad of the medieval, early industrial and industrial world civilizations, to the third super cycle where the outlines of the first link of the next triad – post-industrial civilization is taking shape so far.

Let's dwell in detail upon the nodal tendencies of each stage of the recent history of the northern Eurasian civilization and its historical nucleus – Russia.

The period of the industrial overturn and establishment of capitalism is broken down into five medium-term cycles which mainly coincided with the rhythm of world economic cycles.

Table 13.5

Scheme of Historical Stages of Interaction among Civilizations and Peoples of the North Region of the Black Sea

Periods, Waves	Interacting Civilizations and Peoples	
	of the North Region of the Black Sea	Other regions
7 th –3 rd c. B.C. 1 st wave	Scythian proto-civilization, Cimmerians, Tavrns, Meoths, Greek colonies, Bosphorus Kingdom	Greco-Roman, Persian civilization
3 rd c. B.C. – 5 th c. AD 2 nd wave	Bosphorus Kingdom, Chersoneses, Olvia, Sarmatians, Late Scythians (Scythian Kingdom)	Greco-Roman, Chinese, Indian civilizations (trade roads); Goths, Huns
6 th –9 th c. 3 rd wave	Turkic Kaganate, Khazar Kaganate, Russian Kaganate, Tmutarakan Principality	Byzantine, Eastern Slavic, Moslem civilization
10 th –14 th c. 4 th wave	Kievan Russia (Tmutarakan Principality), Golden Horde, Crimean Khanate, Genoese cities	Byzantine, Moslem, Mongolian, Western European civilizations
15 th –18 th c. 5 th wave	Crimean Khanate, Russian civilization, (Muscovy Czardom, Russian Empire).	Moslem (Ottoman Empire), Western European, Eastern European civilizations
19 th –20 th c. 6 th wave	Eurasian civilization, Taurida province, Crimean Autonomous Republic	Moslem (Ottoman Empire), Western European civilization (Crimean war); Western civilization (World War II)
21 st c. 7 th wave	Northern Eurasian (represented by fewer states) civilization (Russia, Ukraine)	Moslem (Turkey), Western European Eastern European civilizations

1861–1871 – the recovery from a nationwide crisis, conducting of a series of reforms (land, county, judicial, educational, city and military reforms). They involved all sides of society's life and permitted to transform it, thus eliminating major revolutionary upheavals. While these reforms, especially peas-

ants, were of a half, compromise nature, they succeeded in avoiding a destructive social explosion and implementing radical transformations.

1872–1882 – the beginning of accelerated industrialization, improvement in the level of life, rise in science and education. The coal-mining increased 3.5 times for decade, oil – 32.8 times, steel-making – 27 times, the output of machinery construction – 62%, railroad length – by 62%. Capitalism was establishing itself confidently as a dominating economic order, the rise in culture, science, and education was observed.

1883–1892 – the industrial production and transport continued developing, although at slower rates than in the previous decade (coal-mining increased by 84% for a decade, oil – 5.9 times, steel-making – 2.1 times; however, the output of machinery construction – by 6% only). At the end of the 80s – beginning of the 90s a wave of counter-reforms followed and intensified a split between society and the state.

1893–1903 – a period of an accelerated industrial rise, especially associated with a mass influx of foreign capital to the country. Russia outstripped the developed countries by the rates of economic growth: in the 90s the average annual growth rates of industrial production (by 50 provinces of European Russia) made 6.2% while in Germany – 5.1%, England – 1.7%. However, the agriculture where an average plot decreased from 4.8 dessiatines in 1861 to 2.6 dessiatines in 1900, developed extremely slow. The agricultural crisis broke.

The period of *1904–1916* is characterized by a new industrial rise (average annual growth rates of industrial production made 8.9% in 1909–1913), the increase of the system of railroads, a fast growth of joint stock companies and banks, creation of a network of monopolies. In 1908–1913 the industrial production increased by 54%, total number of workers grew by 31%. All branches of the industry were on the rise, especially metallurgy, oil production, production of power and agricultural machinery. In the leading branches an unprecedented concentration process of production was taking shape. National income increased with each year. The period from 1908 to 1914 was called the «golden age of capitalism in Russia» by **N. Vert**. But nevertheless, in 1913 the general level of industrial production in Russia remained still two and a half times lower than the industrial production in France; six times lower than in Germany, and fourteen times – than in America.

Attempts to reform agriculture according to the western model (Stolypin's reforms) permitted to increase sown areas in 63 provinces from 81.2 mln. dessiatines in 1904 to 138 mln. dessiatines in 1913, to improve technological instrumentation of peasant and landlord economies — the cost of the fleet of agricultural machinery increased from 163 mln. rbls in 1906 to 408 mln. rbls in 1913. In 1910 849 mln. poods of grain was exported. These were the signs of apparent economic rise reducing the lagging of Russia from the centers of the world economic progress. However, the lagging was still considerable by the end of the period.

In this period the socio-political contradictions aggravated sharply as a result of the defeat in the war on Japan (Bloody Sunday of January 9, 1905, the armed insurrection in Moscow, a wave of terrorism in 1906—1908). Russia was drawn into the First World War, which exposed all contradictions of civilization.

What are the *main results of the first semi-century industrial cycle* in the history of Russia (1861—1916)?

1. *Russia managed to advance comparatively fast on the path of the industrial progress* and reduced the lagging from the leading countries that entered the third Kondratieff cycle by the end of this period (the USA, Germany and Great Britain). But the lagging was too large and reforms were of a half nature, determination, time and social forces were not enough to implement a radical change of semi-bondage relations in the village. And as a result Russia was in the group of the countries with the medium level of development by the end of the period (with Austro-Hungary, Spain and Japan). Regular economic crises in Russia coincided with world ones became a fact.

2. *The country got the leading position in the world intellectual advance.* The intellectual elite formed in Russia embraced nearly all spheres of spiritual life: in science — **D.I. Mendeleev, I.M. Sechenov, L.I. Mechnikov, I.P. Pavlov, A.S. Popov, V.I. Vernadsky, G.V. Plekhanov, N.A. Berdyaev etc.**; in literature — **I.S. Turgenev, L. N. Tolstoy, F.M. Dostoevsky, A.P. Chekhov, M. Gorky**; in music — composers of the Five, **P.I. Chaikovsky**; in pictorial art — **I.E. Repin, M.A. Vrubel, N.K. Serov** and this list is far from being exhausted. Another country is unlikely to be found, where such bright intellectual stars of high class were concentrated in such a short period of time; probably, only the Renaissance in Italy is comparable. The paradox of history is in it: the acuteness of economic and social contradictions encour-

ages the thought for a search of new, unconventional decisions and stirs up the intellectual potential of the country.

3. *The socio-political contradictions intensified in this period.* A compromise, half nature of the reforms of the 60s of the 19th advanced the country on the capitalist path, but none of major social forces was satisfied with such compromise. While keeping a considerable part of land and property and decisive political influence landlord-feudal sections tried to set back the clock or at least to hold it up, loosing more and more the ability to influence the development of society, making one error after another. The upper bourgeoisie (in alliance with foreign capital) seized decisive positions in economy, but it had a weak political weight. A specific weight of well-off peasant households, petty bourgeoisie somewhat increased, but this section did not represent any political force. The poorest petty households (21.5%), semi-proletarians (33.6%) and proletarians (19.6%) who were nearly deprived of property made an overwhelming part of population in 1913. The revolts followed one after another, a wave of terrorism swept across. The attempts to ruin the community, to plant the section of petty private owners in the village during the course of Stolypin reforms gave weak results. In a socio-political field Russia was lagging for a century behind the leading in the world historical advance countries. The system of bourgeois democracy was never formed.

4. *The openness of Russia to the outside world increased,* various connections with it expanded rapidly. In 40 years (from 1860 to 1901) the volume of foreign trade of Russia increased 7.5 times, in 1910 export outpaced import by third. Admittedly, the raw material structure of import had already formed at that time: grain made 51.6% in it, other food products — 14.5%, oil, ores and forest products — 12.3%. Metals, metalware and chemicals (21.2%), manufactured goods and raw material for their manufacturing (33.8%) prevailed products in import.

Foreign capital flooded actively to Russia: its share made 47% in the total investment of capital in 1860–1880, and in industrial investments — 72%. At the same time the latest foreign technologies were imported. Naturally, a considerable part of profit was removed abroad; however, in general such active attraction of capital and internationalization of the Russian capital gave an impetus to the speeding up of industrialization of the country.

The second long-term industrial cycle began from a deep-seated national crisis and embraced nearly half a century (1917–1964). Several major stages (medium-term cycles) may be distinguished within this cycle.

1917–1923 – a period of national crisis of great acuteness which began from the defeat in the First World War, revolution of 1917, downfall of the Russian Empire, Civil War and completed with the establishment of a socialist scenario of development of Russia;

1924–1934 – a period of struggle between various variants within the socialist scenario – from liberal-NEP to totalitarian-bureaucratic. This stage ended with the defeat of a liberal-market variant, destruction of peasant economy and a considerable part of intellectual potential of the country, a deep crisis of 1929–1933;

1935–1952 – a medium-term cycle, which included the accelerated industrialization, the Great Patriotic War which resulted in destruction of a considerable part of the country's population and its national wealth. After the victory they succeeded in restoring a pre-war level fast, but with the deformed structure of economy (the military sector prevailed, agriculture and consumer sector were undermined). The world socialist camp was formed at the cost of isolation from the rest of the world;

1953–1964 – an attempt to renovate and improve economy based on a socialist model using the Khrushchev's reforms. Their beginning is marked with speedup of economic growth rates and scientific-technological advance; the revival of intellectual forces. The result of these half reforms was another economic and social crisis, the undermining of the unity of the socialist camp.

What are general **achievements and failures of the second long-term industrial cycle**?

1. Finding itself at the sharp edge of a deep world and national crisis, which ended with the undermining of economy, death of millions of people, downfall of the Russian Empire and Civil War ***Russia has chosen an extreme scenario for the pursuance of a daring experiment: formation of socialist society for the first time in the world.*** During the decades the USSR and then other countries that entered the socialist path of development did their best to realize this experiment.

What determined this choice of the way of historical development?

First, the socialist doctrine has a multi-century history. It reflects a natural aspiration of indigent sections to improve their position

through redistribution of accumulated wealth, more just socio-economic and political structure.

Second, *the acuteness of economic, social and military-political conflicts of the decline period of the industrial civilization (the end of the 19th – beginning of the 20th c.) showed the lack of prospects of the capitalist system*, raised the problem of the choice of a further path, new guidelines. Socialism seemed the most suitable of these guidelines, building of society without crises and regulated according to plan with more equal distribution of wealth.

Third, *popularity of revolutionary ideas was supported by many-century communal traditions*, which had a lot in common with a socialist ideal. Besides, the indigent and poor sections prevailed and were driven to an extreme state by a protracted deep-seated crisis, poverty and a lack of rights. There wasn't any considerable section of owners-entrepreneurs who would be able to head the movement towards the democratic law-based state.

However, as a result of the experiment it turned out that all these prerequisites were not enough to build up a viable, sustainable socialist society, implementation of communist ideals. It turned out that the ideals had serious defects: they suppressed individual initiative, were based on the principles of redistribution and not creation, and undermined economic stimuli to inventive, intensive labor, to innovations and entrepreneurship. Society based on such ideals is unable to excel the market-bourgeois economy by efficiency of production, technological level and quality of products. The dominance of leveling and aggressive ordinariness resting on repressive state machinery and party monopoly leads to the suppression of personality, its creative beginnings, formation of bureaucratic leveling in the lack of rights before arbitrariness.

But a lot of positive elements appeared in this experiment. A number of gains of social policy first implemented in the USSR won general recognition and got widespread in the world – not only in the country which took the path of socialism after Russia, but in many developed countries (socio-market economy in the FRG, Swedish model of socialism, social partnership at Japanese enterprises etc.).

2. The second semi-century cycle changed fundamentally the economy of the country. Nationalization of industry, banks, trans-

port, construction, foreign trade led to liquidation of private capitalist order. The war and devastation undermined the economy. In 1920 the products of industry made only 22% of the level of 1913, gross products of agriculture — 67%. The pre-war level of agriculture was outpaced only in 1925 and in 1927 — industrial. Based on the GOELRO plan and five-year plans an attempt was undertaken to ginger up economy based on advanced technologies and large-scale industry, which gave its results: in 1928 the level of 1913 was outpaced by 32% in the industry, and in agriculture — by 24%. It was promoted first of all by the NEP policy, restoration of a private sector and market economy under lifting restrictions hindering economic growth in Czar Russia and the years of military communism. By the way the underlying principles of NEP were further used in China and Viet Nam and gave amazing results.

However, in 1929–1933 the economy of the USSR entered a crisis the main reason of which was the policy of coercive collectivization, depriving village of its peasants, physical liquidation or exile to Siberia of most efficient, able-bodied part of well-off and middle peasants oriented at the market. As a result the gross agricultural output reduced by 23% in 1933 against 1928 (including cattle farming — by 52%), which led to a drop of production in food and consumer goods industry. And although using the inflation (the level of retail prices outpaced the level of 1928 6.4 times in 1940), they managed to veil the crisis through manipulations with statistics and redistribution of resources to the heavy industry, it really broke out and resulted in the death of several millions of people during the hunger of 1932–1933. A short rise began only from 1934.

The signs of the next stagnation could be observed from the pre-war years, mainly under the influence of mass repressions, liquidation of most qualified and active part of workers. The war of 1941–1945 caused heavy losses to the economy of the country. But in the first after-war years the pre-war level was outperformed: in 1950 the gross social product and produced national income were higher 1.6 times than the level of 1940, products of industry — 1.7 times, the level of agricultural production was restored. But these value indicators decorated the real economy in many ways. In physical terms these indicators looked more modest.

The best successes were reached at the last stage of the second cycle. Economy developed at high rates, the USSR ensured the parity with the USA in the military-technological

field, became the center of the world system of socialism that covered one fourth of the territory and one third of the population on the earth, carried over a part of liberated countries that chose a non-capitalist path of development. The socialist ideals won general recognition, they were partially implemented in some western countries (Sweden, FRG). The Soviet Union proclaimed the building of the developed socialist society and a transition to the supreme stage of communism in prospect within two-three decades.

However, economy of Russia was of a one-sided nature with the hypertrophy of heavy and military industry and weak development of industries working directly for the needs of population. The industrial might was reached mainly through a relatively low life level of people, extreme centralization of business decisions under the prevalence of bureaucratized state property.

3. A unique model of socio-political relations which met the tendencies of the formation of the totalitarian state was created.

The social structure was utterly simplified, including working class, collective farm peasantry and labor intellectual. Privileged party-state elite was formed, actually the ruling class that disposed of not only property, but freedom of other people. This social structure was reproduced in other socialist countries in this or that form. Only at the last stage of this cycle from 1953 the steps were undertaken to overcome the totalitarian nature of the state, rehabilitation of repressed, extension of political liberties. However, these were half steps and they could not change the essence of the socio-political system.

Ideology of socialism proclaimed equality and freedom of personality, the priority of *spiritual sphere*, but this sphere also became a victim of caserne-bureaucratic system. Intellectuals turned out to be the most persecuted in this society. And although the revolutionary explosion of the 20s gave an unprecedented outburst of creative search and uninhibited culture, soon a rigid ideologically repressive straitjacket was put on it. Any attempts of independent thinking which was not in line with ideological dogmas, especially in science, were stopped immediately, the brave were exiled to camps or exterminated. Deintellectualization of society took place in several waves. The first wave was liquidation and exile of a part of intellectuals during the years of Civil War, coercive deportation of scientists and cultural workers abroad. The second wave

included a series of legal proceedings pursued methodically under well-thought plan in advance, repressions broke out in the society. The third wave took place during the war including post-war repressions. The fourth wave was characterized by migration of the discontents in the 60s and in the following years. Certainly, a free thought can't be taken to prison; they needed scientists to develop military technologies, prestigious scientific lines and to represent Soviet science abroad. Therefore a dosed freethinking was allowed, but under a very rigid control.

The thesis of **N.A. Berdyaev** advanced at the rise of construction of socialism sounds prophetically: «It may be said with confidence in advance that also major ideas and tasks with which our era lives will fail, socialism which they attempt to implement and which will play a large role in the period of history that we are entering in will never succeed. In experience of its implementation socialism will not be what socialists try to attain. It will reveal internal contradictions of human life which make it impossible to implement the tasks that have been set by socialist movement. It will never implement the liberation of human labor, which Marx wanted to attain by tying labor, will never lead human to wealth or implement equality, and will only create a new enmity between people, a new disunion and new unheard-of forms of oppression» [13, p. 171]. And nevertheless, spiritual life in the country developed. Achievements in the field of natural science and engineering sciences (especially associated with the military-industrial complex), education and culture were recognized worldwide. The «thaw» was not long, the party control was restored, but it could not already stop the processes undermining spiritual fundamentals of the totalitarian system.

Attempts to reform and replace socialism by capitalism are the major contents of the third long-term cycle of the industrial civilization in Russia which began in 1965 and will probably end in 2010. Five major medium-term cycles may be distinguished within this major stage.

1965–1974 – unsuccessful attempts to reform socialism by giving it certain features of market economy, but keeping the fundamentals of the party-state monopolism, which finally resulted in stagnation obvious to everybody, accumulation of prerequisites for civilizational crisis.

1975–1985 – a period of stagnation, strengthening of conservative tendencies, intensification of militarization of the country,

a loss of a number of geopolitical positions as a result of the intrusion into Afghanistan;

1985–1998 – attempts of radical transformation of society using perestroika, political and market reforms, which led to the dissolution of the USSR unexpected by its initiators, disintegration of the Eurasian civilization, a deep-seated protracted crisis, a break-up of the party-state monopolism and regulated according to plan economy, a deep-seated economic crisis, explosion of social and national conflicts and establishment in the country of spontaneous market oligarchic capitalism;

1999–2010 – a painful way-out of crisis, revival in the economy, a gradual crystallization of new ideals of future society, change of generation of ruling and business elite, maturing of preconditions of the post-industrial civilization, determination of Russia's place in a geocivilizational space.

What tendencies have taken shape in a new whorl of the historical spiral, what are its major results?

1. *The socialist model of development of society* that opposed capitalist in the last phase of industrial world civilizations ***has undergone severe tests in the conditions of peaceful development.*** At first these tests appeared to run successfully. However, the seeds of a future downfall of socialist society in its state-bureaucratic variant matured in the depth. The attempts to reform the socialist system with respect to new demands of life undertaken by **A.N. Kossygin, Yu. V. Andropov** and at the end of the period most radically by **M.S. Gorbachev** did not bring a desired result. And the matter here is not in failures or errors of these or those leaders, but in the very essence of the model of socialism undertaken, its inherent vices and inability to settle fundamental contradictions of the industrial period in the interests of man.

It does not mean that all the path of extreme efforts and incredible sufferings walked for seven decades was a tragic mistake, a train of misfortunes. Much of what was opened and gained by the country though sufferings has made a bank of world experience, historical genotype of humankind, became property of a number of countries. But it does not cancel the major finding: the model of state-bureaucratic socialism formed in the USSR and adopted by some countries has no prospects in terms of history. This lesson is instructive for all humankind, and it will help it to choose a more reliable path to the future. However, the model of market socialism reflecting the underlying principles of the Russian NEP is successfully used in China and

Viet Nam, which have become the outposts of socialism in the 21st c. It means that it is premature to remove the ideals of socialism to the historical dump and capitalism hasn't finally triumphed. The future is likely with the integral society, the essence of which was expressed by **Pitirim Sorokin** [181, 184].

2. *The socio-political system oriented at the elimination of class and national distinctions*, at transformation of the dictatorship of proletariat into a nationwide state disappearing in future has failed tests. This system that had stood the ordeals in the years of World War II at the cost of huge losses turned out to be unable to solve efficiently the impending tasks of peaceful, evolutionary transformation of society. «The inviolable moral-political unity of society», which seemed an indisputable attainment of socialism, after all turned out to be a myth.

The elimination of distinctions between the working class, collective farm peasantry and labor intellectuals, between the city and village, between people of mental and physical labor, between nations and nationalities met the tendencies of standardizing industrial civilization, but it was not in line with new tendencies of deepening of differentiation and stratification of society, awareness of their own national and social interests of various groups of people. A persistent skipping of these differences gave rise to a social explosion and disintegration of the USSR, numerous cross-national conflicts, and a sharp intensification of social stratification.

One party system was the core of the socio-political system formed in the USSR. The CPSU possessed full political, economic and ideological power. Such monopoly that rested on the all-might of the party machinery and severe discipline of millions of ordinary party members could not, but lead to stagnation. Numerous attempts to reform the party by restoring the practice of regular holding of congresses, adoption of new programs, renewal and training of the cadres could not give reliable results. Powerful party machinery resisted radical innovations, ousted creatively thinking workers and did its best in keeping its monopoly and prevailing ideological dogmas. Thus the party appeared unable to head the impending overturn and failed. One party system was replaced by many-party system, by many political parties and movements hardly distinguishable by their programs and targets.

The steps towards reorganization of the socialist state were undertaken, stirring up and democratization of the activities of

councils, increase of the role of republican and local bodies, consolidation of legality, restriction of the functions of punitive bodies; but it did not allow surmounting of the fundamentals of the totalitarian state. A number of legislative acts aimed at the establishment of legal framework for functioning of the society on democratic principles were undertaken. But it did not lead to the establishment of a law-governed state as the party dictate survived, telephone justice, arbitrariness in the center and at the local levels. The non-conformity was persecuted, including legal lynching (although not in the scale inherent to the previous cycle). In the period of stagnation the tendencies towards corruption intensified including merging of part of state machinery with organized crime. All spoke about the brewing crisis of the state-legal system which ended with a complete failure, increasing of decentralization and weakening of the state under strengthening of corruption, irresponsibility and non-professionalism of the state machinery.

At the end of the 90s the neo-liberal concept of the withdrawal of the state from economy and society failed. However, the attempt to restore the «vertical of power» by strengthening of the absolute power of extremely swollen state machinery and its runaway from the civil society gave no effect.

3. *The country achieved a good deal of success in the first decades of the period under consideration in the development of science and renewal of technological base of society.* Science developed at the priority rates. The USSR won the first place in the world mastering of atomic power and cosmic space. However, with time the tendency towards a slowdown of a technological advance declared itself, lagging in the assimilation of the fifth technological order (especially in the field of civil technology), aging of production apparatus, and a decline in the growth rates of labor efficiency. Regular attempts that were undertaken to intensify innovative activity gave no significant results. Socialism lost a scientific-technological competition with the developed capitalist countries. Under conditions of the crisis of the 90s the tendency towards a technological degradation manifested itself clearly together with destruction of scientific-technological and innovative potential and a fall in the competitiveness of economy, a quickly increasing lagging from the world level. The course towards a change over to the innovative way of development proclaimed at the end of the period is being pursued timorously

and inconsistently, a technological lagging increases. The formation of innovatively active market economy has failed.

4. *Deep contradictions in the third whorl of the industrial development of the Eurasian civilization manifested themselves in the field of economy.* The priority of the military-industrial complex and heavy industry in the USSR intensified disproportions in economy: agriculture lagged chronically and was unable to satisfy the demands of population for major types of food, production of consumer goods made only about a fourth of industrial products, queues for housing grew. The state property reigned supreme, attempts to revive collective farm property turned out low efficient. Personal subsidiary husbandry which at the beginning of the period was the main source for meeting the demands of population for some kinds of food were essentially limited. The influence of shadow economy was increasing. The reforms of economic management were undertaken not once and were targeted at the enhancement of interest of workers, enterprises and regions in the growth of production efficiency. These reforms gave temporary success, but they could not change the foundation of the economic system based on the state-bureaucratic exploitation of the working people, priority of militarism, super centralization of management, restriction and suppression of market mechanisms and stimuli.

In the first half of the 90s the destatization of economy evolved, original accumulation of capital (sometimes in the most parasitic forms) encouraged by galloping inflation. At the same time influence of shadow economy and Mafioso structures was growing. These tendencies evolved against the background of avalanching economic decline. A record depth of decline in production and level of life of population for peaceful time was reached. Only from the end of the 90s the revival of economy began. It is first of all predetermined by external factors (world growth of oil and gas prices), increase in the internal demand and is not accompanied by innovative renewal of economy. The fuel and raw-material structure of economy strengthened, its increasingly large share turns out to be under TNC control. Fixed capital has aged to the utmost limit both physically and morally. Economy of the country and state budget have happened to be in the dangerous dependence on the conditions of the world fuel market, on fluctuations of world

prices for oil. Only at the beginning of the new century attempts have been made to overcome these tendencies.

5. *The achievements of the country in spiritual sphere – in the field of science, education and culture – seemed indisputable.* Under a considerable support from the state the Soviet science (especially fundamental researches) occupied a leading place in the world in a number of positions; however, the priority was given to the military-technological researches. The growth of the number of scientists was accompanied by worsening of their qualitative structure; social sciences were ideologized to the very core and developed in isolation from the world science. A high level was attained in education, especially higher, but the number of degreed specialists often exceeded the demand for them, and the quality of training of such specialists was gradually decaying. Ideological dictate impeded the development of culture. Much attention and resources were given to the development of cinema, television, librarianship and book-printing, but their contents were under a strict party control. The tendencies towards degradation of society, decay in morality were observed. Although religion was less persecuted than in the previous period, there was no freedom of belief. It became obvious that socialism did not lead to the heyday of spiritual sphere that a strict ideological control was a brake on spiritual development.

A deep crisis hit spiritual sphere since the beginning of the 90s. Allocations for the development of science, education and culture reduced rapidly, the drain of brain and talents assumed a large-scale nature. Despite the revival of the role of religion the dissolution of standards of morality does not stop. The preconditions for a new rise in the spiritual activity are maturing gradually as it has already been not once in Russia in critical situations. Certain signs of such activity have declared themselves in the 21st c., but they are poorly supported by the state and mass media. The crisis of spiritual sphere is not overcome yet. There is hope that a new generation which will be playing a decisive role from 2010 will be surmounting this crisis.

6. *The military-political power of the USSR on the world arena, a bipolar structure of the world survived till the middle of the 80s, but then exhausted itself.* With the help of such institution as the Council for Mutual Economic Assistance the USSR influence was extended to the Southeastern Asia (Viet Nam, North Korea) and the US continent (Cuba). A number of developing coun-

tries of Africa and Asia which got considerable military and economic assistance gravitated to the USSR. The Soviet Union played a prominent role in the UN activities, in the establishment of the Organization for European Security and Cooperation, attained the military-technological parity with the USA. The contribution of the USSR to the ending of the arms race, of production of weapons of mass annihilation and liquidation of their most deadly types is indisputable.

However, the world empire headed by the USSR turned out unstable. The peoples of some countries rejected the system imposed on them (events in the GDR, Hungary, Czechoslovakia and Poland). The military parity with the USA and support of allies were attained through overpressure upon economy. As the economic might of the USSR weakened, the empire began to crack, first of all in Eastern Europe, and it collapsed at the beginning of the 90s. In the general course of disarmament and destructive economic crisis the main part of the military-industrial complex was practically taken apart, a considerable part of defensive potential was lost. The world stopped to be bipolar.

By the end of the last cycle of the industrial development it became obvious that the chosen variant of development has no prospects. Russia entered the period rich in heavy upheavals of transition to the post-industrial civilization and it began this transition with a spurt backwards to the spontaneous market capitalism of the 19th century, to the socio-economic polarization. Only at the end of this period some of the consequences of this backward movement began to get overcome.

The country has come up to the beginning of the next super long-term historical cycle — post-industrial world civilization — with extremely unfavorable starting positions, after one of the heaviest and most destructive civilizational catastrophes for the entire of its history. Possible scenarios of the development of Russia in the 21st c. and its place in a geocivilizational space are addressed below in chapter 17 of this book.

Summing up the historical path of the local eastern Slavic (Russian, Eurasian) civilization for more than a millennium period the conclusion may be made that its originality is not only in the combination of signs of the East, South and West, the system of its values, but also that Russia took a heavy mission of search and experimental mastering of new paths of his-

torical advance (concept of the «third Rome», a breakthrough of Peter I, spiritual leadership in the 19th c., socialist experiment) in general synchronizing with the mainstream historical rhythm sometimes lagging and sometimes catching up with the vanguard countries. One had to pay a high price for such outbursts, but it didn't chill the pioneer temper of an active part of the nation for long.

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LIST OF ILLUSTRATIONS USED

1. Raphael Santi. *The School of Athens*. 1510—1511. P. 22.
2. Panaiotis Takis Vasilakis. *The Magnetic Sphere*. 1992. P. 100.
3. Heinz Mack. *The Silver Sun*. 1965. P. 120.
4. Pieter Brueghel the Elder. *The Tower of Babel*. Ca 1564. P. 152.
5. Karl Brullov. *The Last Day of Pompeii*. 1833. P. 188.
6. Martin van Meytens. *Maria Theresia and her Husband Franz I with the Children*. Ca 1735. P. 238.
7. Diego Rivera. *The Conveyer in the Car Factory*. 1932. P. 278.
8. Quentin Metsys. *The Moneychanger and His Wife*. 1514. P. 322.
9. Eugene Delacroix. *Liberty Leading the People*. 1830. P. 362.
10. Andrew Rublyov. *The Holy Trinity*. Ca 1411. P. 418.
11. Egypt. Sphinx and King Khephren's Pyramid. Third millennium B.C. P. 474.
12. Leonardo da Vinci. *Vitruvian Man*. Ca 1490. P. 566.
13. Monument «*The Millenary of Russia*». P. 656.

NAME INDEX

A

1. **Abalkin L.I.** 348
2. **Ageyev A.I.** 74, 110
3. **Akbar** 578
4. **Al-Biruni** 28, 434, 628
5. **Al-Kwarizmi** 434, 628
6. **Alexander I** 679
7. **Alexander the Great**
(Macedonian) 57, 201, 376,
491, 536
8. **Anastas of Korsun** 705
9. **Anchishkin A.I.** 288, 435
10. **Andrew the First Called** 672
11. **Andrew Rublyov** 673
12. **Andropov Yu.V.** 727
13. **Annan K.** 24, 63, 154, 158
14. **Archimedes** 428, 517
15. **Argot** 697
16. **Aristophanes** 428, 517
17. **Aristotle** 15, 376, 400, 428, 429,
491, 517, 519
18. **Ashoka** 543
19. **Ashur Ashurubalit I** 540
20. **Atheus** 551, 664
21. **Augustine Aurelius** 400
22. **Augustine, the St.** 28

B

23. **Babur Timurid** 636
24. **Bacon R.** 297, 621
25. **Baker H.** 358
26. **Beethoven L. van** 446
27. **Berdyaev N.A.** 439, 446, 465,
720, 726
28. **Bernal J.** 84, 199, 200, 292, 329,
429, 434, 443
29. **Bestujev-Lada I.V.** 78
30. **Blavatsky V.D.** 693
31. **Bledsoe W.** 82

32. **Brahe T.** 619
33. **Braudel F.** 11, 16, 38, 46,
56—59, 84, 102, 202, 297,
299, 578, 580, 608, 636, 674
34. **Brzezinsky Z.** 179, 382, 648
35. **Bocaccio** 581
36. **Bogdanov A.A.** 102, 114, 147,
384, 439
37. **Brooke S.I.** 248
38. **Buchanan P.** 414
39. **Buckle H.** 11, 35, 36, 128
40. **Byron J.G.** 446

C

41. **Cadmus of Bosphorus** 672
42. **Cambyses II** 541
43. **Catherine II** 677-679
44. **Cervantes** 445, 581
45. **Chaikovsky P.I.** 449, 720
46. **Chanakya** 402
47. **Chandragupta II** 545
48. **Chekhov A.P.** 720
49. **Cheops** 518
50. **Chernyak E.B.** 11, 65, 66
51. **Chizhevsky A.L.** 128, 191, 439,
524
52. **Churchill W.** 711
53. **Clausewitz K.** 401
54. **Comenius (Komensky) John**
Amos 452, 622
55. **Condorcet M.J.** 31
56. **Confucius** 431, 517
57. **Copernicus N.** 619
58. **Cousin V.** 33
59. **Cuvier G.** 193

D

60. **Danilevsky N.Ya.** 11, 25, 38,
41—43, 47, 53

61. Dante 445, 581
 62. Darius I 542, 551, 664
 63. Darwin Ch. 193
 64. Democritus 428, 517
 65. Descartes R. 620
 66. Devlet-Giray 708
 67. Diakonov I.M. 84, 294, 406,
 571
 68. Diderot D. 30, 402
 69. Dionysius 673
 70. Dostoevsky F.M. 446, 449, 720
 71. Dumont A. 34, 258, 260
 72. Durkheim E. 34
 73. Durer A. 445, 581

E

74. Eckhart W. 400
 75. Eisenstadt Sh. 391
 76. Engels F. 35, 38, 386, 477
 77. Epicurus 428, 517
 78. Erasmus of Rotterdam,
 Desiderius 581, 622
 79. Erasov B.S. 66
 80. Euclid 428, 517

F

81. Fedorenko N.P. 336
 82. Fedorov I. 673
 83. Fergusson A. 35
 84. Friedman A.A. 191
 85. Fukuyama F. 33, 377

G

86. Gaidar E.T. 83, 84
 87. Galilei G. 619
 88. Gandhi M.K. 166
 89. Genghis Khan 637–641
 90. Georgius Plethon 642
 91. Giorgione 581
 92. Glaziev S.Yu. 288

93. Glinka M.I. 446
 94. Goethe I.W. 446
 95. Gogol N.V. 446
 96. Gorbachev M.S. 81, 727
 97. Gorky M. 720
 98. Goya F. 446
 99. Grushevsky M. 667
 100. Guang Wudi 547
 101. Guizot F. 11, 33
 102. Gulyaev V.I. 663

H

103. Hammurabi 485, 513, 540
 104. Hegel G.N.F. 37, 401, 402
 105. Heraclites 402, 428, 517
 106. Herder J.G. 37
 107. Herodotus 28, 428, 517, 664,
 692
 108. Hippocrates 428, 517
 109. Hobbes T. 401, 402
 110. Homer 518, 536
 111. Huntington S. 60, 62, 113,
 144, 377, 379, 414, 460, 646

I

112. Ibn-Khaldoun 28, 434
 113. Ibn Sina (Avicenna) 434, 628
 114. Ikhnaton 395, 535
 115. Ikonnikova S.N. 243
 116. Inozemtsev V.L. 78, 415
 117. Ionov I.N. 27, 29, 33, 77
 118. Ito Sh. 82
 119. Ivan I Kalita 673
 120. Ivan III 672, 673
 121. Ivan IV the Terrible 672, 673
 122. Ivanter V.V. 75

J

123. Jaspers K. 84, 135, 138, 328,
 366, 395, 464, 475, 477, 521,
 531

124. [John of Gothia](#) 702
125. [John Pavel II](#) 167
126. [Justinian I](#) 514
127. [Justinian II](#) 703
- K**
128. [Kanishka](#) 543
129. [Kantemir A.D.](#) 39
130. [Kapitsa S.P.](#) 63, 154
131. [Kareyev N.I.](#) 43
132. [Karl the Great](#) 625
133. [Kennedy P.](#) 603
134. [Kepler J.](#) 619
135. [Khachaturyan V.I.](#) 27, 29, 33,
77
136. [Khatami M.](#) 154
137. [Khomyakov A.S.](#) 39
138. [Kinne E.](#) 33
139. [Kirpichnikov A.N.](#) 669
140. [Kluchevsky V.O.](#) 43
141. [Kondratieff N.D.](#) 16, 32, 102,
104, 122, 123, 125, 287, 344,
349, 402, 403, 406, 439
142. [Konechny F.](#) 53
143. [Kont A.](#) 32, 36
144. [Kornovsky S.V.](#) 667
145. [Kossygin A.N.](#) 727
146. [Kovalevsky M.M.](#) 32
147. [Kozlovsky E.A.](#) 357
148. [Kroeber A.](#) 53
149. [Kudrin B.I.](#) 287
150. [Kuhn T.](#) 426
151. [Kushlin V.I.](#) 76
152. [Kuznets S.](#) 148
153. [Kuzyk B.N.](#) 73-76, 110, 125
154. [Kwarezm-Shah](#) 639
- L**
155. [Lavrov P.L.](#) 40, 41
156. [Leibniz G.](#) 402
157. [Lenin V.I.](#) 386, 388, 679
158. [Leonardo da Vinci](#) 445, 581,
619
159. [Leontieff K.N.](#) 43, 44
160. [Leontieff V.V.](#) 205, 346
161. [Lermontov M.Yu.](#) 446
162. [Levitan I.I.](#) 449
163. [Liu Bang](#) 547
164. [Lope de Vega](#) 581
165. [Lucretius Carus](#) 28
166. [Luther M.](#) 625
- M**
167. [Maddison A.](#) 84, 129, 202, 246,
282, 330, 502, 510, 585, 634,
636, 646
168. [Marceri A.](#) 82
169. [Marx K.](#) 26, 83, 338, 349, 358,
386, 422
170. [McNeill W.](#) 60, 61
171. [Meadows, Dennis and Donella](#)
206
172. [Mechnikov L.I.](#) 44, 84, 212,
368, 720
173. [Mendeleyev D.I.](#) 174, 720
174. [Metlinsky A.L.](#) 40
175. [Michael Romanov](#) 675, 676
176. [Michelangelo](#) 445, 581
177. [Michelet J.](#) 33
178. [Milyukov P.N.](#) 44, 45
179. [Minin K.](#) 675
180. [Minos](#) 535
181. [Mirabeau Senior, de](#) 29
182. [Mitchell W.](#) 102
183. [Mitridat VI Eupator](#) 697
184. [Mo Tzu](#) 517
185. [Mohammed IV](#) 708
186. [Moisseyev N.N.](#) 16, 68, 69, 80,
114, 135, 136, 170, 196, 211,
213, 224, 225, 230—232,
234, 248, 291, 313, 316, 351,
379, 412, 423, 460, 478, 481

187. [Moisseyeva L.A.](#) 77
 188. [More Th.](#) 622
 189. [Morgan L.H.](#) 35, 38
 190. [Morozov A.G.](#) 667

N

191. [Napoleon](#) 616
 192. [Nebuchadnezzar I](#) 540
 193. [Newton I.](#) 619
 194. [Nicephorus Gregoras](#) 642
 195. [Nofretete](#) 518

O

196. [Olga, the Princess](#) 672
 197. [Orlova I.B.](#) 80
 198. [Ostrovsky A.N.](#) 446
 199. [Ostrovsky A.V.](#) 77

P

200. [Panarin A.S.](#) 81
 201. [Panini](#) 431
 202. [Pavlenko Yu.V.](#) 524, 525, 537,
 541, 542, 545, 550, 628, 643,
 694, 701, 712, 714
 203. [Pavlov I.P.](#) 720
 204. [Pericles](#) 375, 514, 518, 536
 205. [Peter I](#) 677-679, 708, 733
 206. [Phidius](#) 518
 207. [Philip of Chersoneses](#) 672
 208. [Plato](#) 15, 134, 155, 376, 400,
 517, 519
 209. [Plekhanov G.V.](#) 44, 422, 720
 210. [Pogodin M.P.](#) 39
 211. [Polibius](#) 28, 257
 212. [Popov A.S.](#) 720
 213. [Pozharsky D.](#) 675
 214. [Prigozhin I.](#) 103, 146
 215. [Psel](#) 641
 216. [Pushkin A.S.](#) 446
 217. [Pythagoras](#) 428, 517

Q

218. [Qin Shi Huangdi](#) 547

R

219. [Radischev A.N.](#) 39
 220. [Raphael](#) 445, 581
 221. [Renouvier Ch.](#) 33
 222. [Repin I.E.](#) 449, 720
 223. [Rerich N.K.](#) 720
 224. [Revonnaut M.](#) 402
 225. [Roosevelt F.](#) 711
 226. [Rousseau Jean-Jacque](#) 30, 401,
 446
 227. [Ruckert H.](#) 37, 47
 228. [Rusyaeva A.S.](#) 699
 229. [Rybakov B.A.](#)

S

230. [Sagan C.](#) 412, 413
 231. [Saiko E.V.](#) 397
 232. [Saint Simon H., de](#) 32
 233. [Schiller F.](#) 446
 234. [Schleizinger A., Jr](#) 147,
 244
 235. [Shakespeare](#) 445, 581
 236. [Shostakovich D.D.](#) 449
 237. [Shulga](#) 485, 513
 238. [Shumpeter J.](#) 16, 102, 104,
 105
 239. [Sechenov I.|M.](#) 720
 240. [Sedov V.V.](#) 702
 241. [Selim I the Terrible](#) 629
 242. [Selim-Giray](#) 708
 243. [Semennikova L.I.](#) 25, 79
 244. [Sergeyeva O.A.](#) 82
 245. [Shakhmatov A.A.](#) 667
 246. [Shemyakin Ya.G.](#) 555
 247. [Sima Quian](#) 28
 248. [Sirko I.](#) 708
 249. [Skilur](#) 697
 250. [Socrates](#) 428, 517, 519

251. Sorokin P.A. 11, 16, 32, 46,
51–56, 81, 84, 102, 125,
158, 244, 261, 335, 336, 349,
364, 365, 387, 389–391,
403, 412, 421, 423–425,
432, 439, 440, 441, 447, 461,
466, 467, 470, 495, 515, 589,
682, 728
252. Spengler O. 11, 16, 25, 38, 46,
53, 259, 423, 446, 647
253. Spencer H. 36
254. Stael A.L., de 31
255. Stalin I. 711
256. Stepin V.S. 82
257. Stratton 517
258. Subetto A.I. 123
259. Suess E. 194
260. Sukhonos S.I. 80
261. Suleiman I the Magnificent
629
262. Svyatoslav Igorevich,
the Prince 702
- T**
263. Taine H. 34
264. Tatischev V.I. 39
265. Tchaadaev P.Ya. 39
266. Tchernyshevsky N.G. 40, 402
267. Thales 428, 517
268. Theophanus the Greek 673
269. Thukydides 28
270. Timofeyev T.T. 82
271. Titian 581
272. Titus Livius 28
273. Toffler A. 318, 352, 353, 377
274. Tolstoy L.N. 446, 449, 720
275. Toynbee A. 11, 16, 25, 38,
46–51, 53, 54, 68, 135,
141–143, 460, 530, 562, 647
276. Tretyakov P. 667
277. Trubetsky N.S. 640
278. Turgenev I.S. 446, 720
279. Turgot J. 30
- U**
280. Ukolova V.I. 48
- V**
281. Vernadsky G.V. 660, 664, 701,
702
282. Vernadsky V.I. 16, 69, 162,
192–194, 211, 212, 423,
426, 427, 429, 439, 720
283. Vert N. 719
284. Vladimir I 667, 672, 702,
705
285. Vladimirov B.Ya. 637, 639
286. Voltaire 29, 446, 626
287. Vrangeli P.N. 710
288. Vrubel M.A. 720
- W**
289. Watt J. 300, 597
290. Watteau A. 446
291. Wells H. 59, 60
292. Wright Q. 399
293. Wudi 451, 519, 547
- Y**
294. Yakovenko I.G. 397
295. Yakovets Yu.V. 69, 70, 75, 76,
123, 125
296. Yaroslav the Wise 667, 668
297. Ying Cheng 547
- Z**
298. Zinoviev A.A. 79, 113
299. Zubar V.M. 698, 699

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