

Part I. GLOBALIZATION IN HISTORICAL RETROSPECTIVE

Origins of Globalization

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In this article we analyze processes and scales of global integration in historical perspective, starting with the Agrarian Revolution. We connect the main phases of historical globalization with the processes of the development of the Afroeurasian world-system. In the framework of the Afroeurasian world-system the integration began several millennia BCE. In it the continental and supracontinental links became so developed long before the Great Geographic Discoveries and thus they could well be denoted as global (albeit in a somehow limited sense). Among some researchers there is still a tendency to underestimate the scale of those links in the pre-Industrial era; thus, it appeared necessary to provide additional empirical support for our statement. It also turned necessary to apply a special methodology (which necessitated the use of the world-system approach). We analyze some versions of periodization of globalization history. We also propose our own periodization of the globalization history basing on the growth of the scale of intersocietal links as an indicator of the level of globalization development.

Keywords: *globalization, world-systems, Afroeurasian world-system, World System, global communication, cycles of political hegemony, Agrarian revolution, Industrial revolution, technologies.*

On Goals and Tasks of the Article

In the framework of this article we attempt to solve the following tasks:

1) to demonstrate that it was already a few thousand years ago (at least since the formation of the system of long-distance large-scale trade in metals in the 4th millennium BCE) when the scale of systematic trade relationships overgrew significantly the local level and became regional (and even transcontinental in a certain sense);

2) to show that already in the late 1st millennium BCE the scale of processes and links within the Afroeurasian world-system did not only exceed the regional level, it did not only reach the continental level, but it also went beyond continental limits. That is why we contend that within this system marginal systemic contacts between agents of various levels (from societies to individuals) may be defined as transcontinental (note that here we are dealing not with overland contacts only, as since the late 1st millennium BCE in some cases we confront oceanic contacts – the most salient case is represented here by the Indian Ocean communication network);

Globalistics and Globalization Studies 2013 8–35

3) to demonstrate that even prior to the Great Geographic Discoveries the scale of the global integration in certain respects could be comparable with the global integration in more recent periods. In particular, demographically, even 2000 years ago the really integrated part of the humankind encompassed 90 per cent of all the world population.¹

Our analysis suggests that the abovementioned marginal level of integration within the framework of the Afroeurasian world-system was not something insignificant or virtual; it influenced substantially the general direction of development, it accelerated significantly the development of many social systems whose rate of development would have been otherwise much slower. It is rather clear that it took signals rather long time to get from one end of the world-system to another – actually, many orders of magnitude longer than now – but still such signals went through the pre-Modern Afroeurasian world-system, and they caused very significant transformations. However, this speed was not always really low. For example, the bubonic plague pandemic (that killed dozens million) spread from the Far East to the Atlantic Ocean within two decades (in the 1330s and 1340s [see, e.g., McNeill 1976; Dols 1977; Borsch 2005]). Such fast and vigorous movements were connected directly with growing density of contacts and their diversification that opened way to rapid diffusion of pathogens. Note that the Mongol warriors went from the Pacific zone to the Atlantic zone of Eurasia with a rather similar speed.

The article also deals with a number of other issues that are important both for the world-system approach and for the study of the globalization history – such as the typology of the world-system links, special features of the Afroeurasian world-system, the possible dating of the start of its formation, factors of its transformation into the planetary World System, and so on.

Introduction. On Periods of Historical Globalization

The present article has been prepared within an emerging field that can be denoted as ‘History of Globalization’. This aspect of Globalization Studies deals with the historical dimension of globalization. Its main goal is to analyze processes and scales of global integration in historical perspective, starting with the Agrarian Revolution. Those integration processes (depending on the position of a particular researcher) may be regarded as preparatory stages of globalization, or as its initial phases. There are already quite a few studies on this subject (see, e.g., Foreman-Peck 1998; Held *et al.* 1999; O’Rourke and Williamson 1999; Hopkins 2002, 2003; Sharp 2008; Lewis and Moore 2009 *etc.*), however, there are still many points that need further research, clarification, and new interpretation.

Most students of globalization do not doubt that its origins are to be traced more or less deep in history, though there are rather diverse views as regards the exact starting point.² Yet, it is clear that it is very productive to search for the origins of globalization in the depths of history. It is no coincidence at all that the growing interest in globalization has promoted interest in the trend often denoted as ‘historical dimension of globalization’. Among such movements it is most worth noting *Global History* whose heart and novelty, according to Bruce Mazlish and Akira Iriye (Mazlish and Iriye 2005: 19), is history of

¹ Of course, this number would be a bit lower if high estimate of 50 million for the pre-Columbian Americas holds true.

² Some scholars say that it started already in the Stone Age, some others maintain that it began in the 3rd millennium BCE; there also such datings as the Axial Age of the 1st millennium BCE, the Great Geographic Discoveries period, the 19th century, 1945, or even the late 1980s. Each of those datings has certain merits. For their review see, e.g., Tracy 1990; Menard 1991; Bentley 1999; O’Rourke and Williamson 1999, 2000; Lewis and Moore 2009; Conversi 2010; Held *et al.* 1999; Chumakov 2011; Kelbessa 2006: 176; Pantin 2003, *etc.*

globalization. We contend that in a certain sense almost the whole World History can be regarded as a history of movement toward the increasing size of social systems, their integration, and globalization in general. Hereby, in history and sociology the investigation is broadening with respect to the historical development of globalization processes (see Grinin 2012a; Korotayev 2007, 2008; Grinin and Korotayev 2009a, 2009b, 2012).

According to different authors, globalization has been going on since the first movement of people out of Africa into other parts of the world, or since the 3rd millennium BC (when according to Andre Gunder Frank the World System emerged [Frank 1990, 1993; Frank and Gills 1993]), or since the so-called Axial Age (Jaspers 1953) in the 1st millennium BC, or only from the Great Geographical Discoveries, or in the 19th century, or after the year 1945, or only since the late 1980s (see also Footnote 1). Each of these dates has its own sense. It is quite reasonable to discuss the problem in the context of whether one can speak about globalization before the start of the Great Geographical Discoveries, as a result of which the idea of the Earth as a globe exceeded the limits of the opinion of a group of scientists and became practical knowledge (Chumakov 2011). But, notwithstanding this point of view, there is no doubt that historical dimension of globalization is quite challenging (for more detail see Grinin 2011).

The main task of this article is connected with the integration that began a few thousand years BCE in the framework of the Afroeurasian world-system and whose links became so developed long before the Great Geographic Discoveries that they could well be denoted as global (albeit in a somehow limited sense). However, among some researchers there is still a tendency to underestimate the scale of those links in the pre-Industrial era; thus, it appeared necessary to provide additional empirical support for our statement. It also turned necessary to apply a special methodology (which necessitated the use of the world-system approach).

There are quite a few periodizations of the history of globalization. The most widespread type is represented by trinomial periodizations that appear to be the most logical (and, *e.g.*, Gellner [1988] believes that three periods is the optimum number for a periodization).

An example looks as follows (Hopkins 2003, *e.g.*, pp. 3–7; see also Bayly 2004): (1) Archaic globalization; (2) Early modern globalization;³ (3) Modern globalization.

Trinomial periodizations are also used by those who start the globalization with the period of the Great Geographic Discoveries. For example, Thomas L. Friedman (2005) divides the history of globalization into three periods: Globalization 1 (1492–1800), Globalization 2 (1800–2000) and Globalization 3 (2000 – present). He states that Globalization 1 involved the globalization of countries, Globalization 2 involved the globalization of companies and Globalization 3 involves the globalization of individuals.

However, an apparent convenience of trinomial periodizations does not necessarily mean that they are more relevant. We believe that the number of periods within the given periodization should be rather determined by the contents of the process in question.

There are periodizations constructed on other grounds – for example, the one developed by Chumakov (2011: 166–167) who worked out the periodization of the evolution of global links on the basis of their scale (which reflects rather logically the general trend toward the growth of this scale): 1) ‘Period of Fragmentary Events’ (till 5000 BP); 2) ‘Period

³ This phase is also denoted as ‘proto-globalization’; but this notion does not appear quite appropriate.

of Regional Events' (till the 15th century CE); 3) 'Period of Global Events' (till the mid-20th century). The 4th period ('Period of Cosmic Expansion') in this periodization starts in 1957. This periodization looks interesting, but a few points here need serious clarifications and re-interpretations. First of all, as will be demonstrated below, already starting with the second half of the 1st millennium BCE, many events did not only overgrow regional levels, but had continental and transcontinental scales. Already in the previous period some events had regional-continental scales. Evidence in support of this approach is presented below, whereas its brief exposition can be found in Tables 1 and 2.

In the present article we do not try to describe the whole history of globalization in detail; however, the description of our vision of its main phases may be found in Table 1. In particular, we are basing ourselves on the following observation: though the Great Geographic Discoveries made it possible to transform intersocietal links into global in a full sense of this notion, still the period between 1500 and 1800 CE was not fully global yet due to a number of points. Firstly, not all the territories of the Earth had been discovered (Antarctica being the most salient among them); secondly, many societies (in Australia, Oceania, some parts of Inner Africa) had not been involved into global contacts in any significant way; thirdly, some all the large countries of East Asia quite consciously isolated themselves from the rest of the world; fourthly, the volume of trade could hardly be called global (see O'Rourke and Williamson 1999, 2000 for more detail on this point). In connection with this, we denote the period from the late 15th century to the early 19th century as a special period of oceanic (intercontinental) links. Chronologically this period is almost identical with the one that was identified by Hopkins (2003: 3–7) and Bayly (2004) as a period of proto-globalization or early modern globalization; however, we believe our name of this period reflects the scale and character of links in this period in a more accurate way. Indeed the period starting in the early 19th century may well be denoted as 'a very big globalization bang' (O'Rourke and Williamson 2000). That is why we denote links in this period as 'global'. This period continued till the 1970s, after which the level of intersocietal interconnectedness began to grow very fast (especially since the early 1990s). It was during that period when it was recognized that we had entered a new period of interconnectedness that was denoted as 'globalization' (*mondialisation* in French). In order to distinguish this period from the previous we have denoted it as 'planetary', which reflects, firstly, the implications of the space exploration (these are the space/satellite communication technologies that secure unprecedented opportunities of communication with respect to its speed, density, and diversity), secondly, we observe the involvement into the globalization process of those societies (in Asia, Africa, and other regions) that were weakly connected with the rest of the world, where the links were rather limited, and those links were often created in a coercive way. Thirdly, this reflects the fact that the modern globalization has not realized all its potential, that this process continues, and when it is finished in the 21st century, the level of interrelatedness will be truly planetary, when almost any place in the world will be connected with almost any other place.

Out of the seven periods outlined above (and below in Table 1), all except the first and second refer to historical globalization:

Table 1. Growth of globalization level in historical process

<i>Type of spatial links (globalization level)</i>	<i>Period</i>
Local links	1) Till the 7 th – 6 th millennium BCE
Regional links	2) From the 7 th – 6 th millennium till the second half of the 4 th millennium BCE
Regional-continental links	3) From the second half of the 4 th millennium BCE to the first half of the 1 st millennium BCE
Transcontinental links	4) From the second half of the 1 st millennium BCE to the late 15 th century CE
Oceanic (intercontinental) links	5) From the late 15 th century to the early 19 th century
Global links	6) From the early 19 th century to the 1960s and 1970s
Planetary links	7) From the last third of the 20 th century to the mid-21 st century

Note: This table does not take into account the information networks of the technological diffusion that acquired a transcontinental scale from the very time of the emergence of the Afroeurasian world-system (Korotayev 2005, 2006b, 2007, 2008, 2012; Korotayev, Malkov, and Khaltourina 2006a, 2006b; Grinin and Korotayev 2009b, 2012). See some other qualifications below.

In Table 2 we describe the correlations in historical globalization between the globalization periods and such characteristics as spatial links, political organization and level of technology:

Table 2. Correlation between spatial links, political organization and level of technology⁴

<i>Type of socio-spatial links</i>	<i>Period</i>	<i>Forms of political organization</i>	<i>Level of technology (production principles and production revolutions)</i>
1	2	3	4
Local links	Up to the second half of the 4 th millennium BCE (≈ 3500 BCE)	Pre-state (simple and medium complexity) political forms, the first complex polities	Hunter-gatherer production principle, beginning of the agrarian production principle
Regional links	The second half of the 4 th millennium BCE – the first half of the 1 st millennium BCE (≈ 3500–490 BCE)	Early states and their analogues; the first empires	The second phase of the Agrarian revolution; agrarian production principle reaches its maturity
Continental links	The second half of the 1 st millennium BCE – the late 15 th century CE (≈ 490 BCE – 1492 CE)	Rise of empires and first developed states	Final phase of the agrarian production principle

⁴ On production revolutions and production principles see Grinin and Grinin in the present volume.

1	2	3	4
Intercontinental (oceanic) links	The late 15 th century – the early 19 th century (≈ 1492–1821)	Rise of developed states, first mature states	The first phase of the industrial production principle and Industrial revolution
Global links	The early 19 th century – the 1960s and 1970s	Mature states and early forms of supranational entities	The second phase of the Industrial revolution and the final phase of the industrial production principle
Planetary links	Starting from the last third of the 20 th century	Formation of supranational entities, washing out of state sovereignty, search for new types of political unions and entities, planetary governance forms	The start and development of Cybernetic revolution whose second phase is forecasted for the 2030s and 2040s

Our analysis suggests that the abovementioned marginal level of integration within the framework of the Afroeurasian world-system was quite important and not something insignificant or virtual; it influenced substantially the general direction of development, it accelerated significantly the development of many social systems whose rate of development would have been otherwise much slower. It is rather clear that it took signals rather long time to get from one end of the world-system to another – actually, many orders of magnitude longer than now – but still such signals went through the pre-Modern Afroeurasian world-system, and they caused very significant transformations. However, this speed was not always really low. For example, the bubonic plague pandemic (that killed dozens million) spread from the Far East to the Atlantic Ocean within two decades (in the 1330s and 1340s [see, *e.g.*, McNeill 1976; Dols 1977; Borsch 2005]). Such fast and vigorous movements were connected directly with growing density of contacts and their diversification that opened way to rapid diffusion of pathogens. Note that the Mongol warriors went from the Pacific zone to the Atlantic zone of Eurasia with a rather similar speed.

I. Afroeurasian World-System: A General Overview

For the analysis of the globalization origins one may rely on traditions of various schools of thought. However, we believe that the world-system approach is one of the most promising in this respect, as it was originally constructed to solve this kind of tasks. This approach may be used much wider in this area due to its certain merits. First of all, this approach is systemic and capable to analyze processes at very wide temporal and spatial scales. As Chase-Dunn and Hall (1997) emphasize, within this approach the main unit of analysis is not a particular society, or a particular state (as is usual in ordinary historical studies), but a world-system. Secondly, the object of the world-system analysis is in many respects identical with the one of Global Studies. Thirdly, taking into consideration the interdisciplinary character of Global Studies, the integration

of new approaches into them can only enrich them. As regards the present article, the world-system approach, its issues and terminology appear rather suitable for the achievement of its goals.

The world-system approach originated in the late 1960s and 1970s due to the works by Braudel, Frank, Wallerstein, Amin, and Arrighi, and was substantially developed afterwards (see, *e.g.*, Braudel 1973; Frank 1990; 1993; Frank and Gills 1993; Wallerstein 1987; Chase-Dunn and Hall 1994, 1997; Arrighi and Silver 1999; Amin *et al.* 2006). Its formation was connected up to a considerable degree with the search for the actual socially evolving units that are larger than particular societies, states, and even civilizations, but that, on the other hand, have real system qualities.

The most widely known version of the world-system approach was developed by Immanuel Wallerstein (1974, 1987, 2004), who believes that the modern world-system was formed in the 'long 16th century' (c. 1450–1650). According to him, before that there had been a very large number of other world-systems. Those world-systems are classified by Wallerstein into three types: 1) *minisystems*; 2) *world-economies*; 3) *world-empires*. Minisystems were typical for foragers. Two other types (world-economies and world-empires) are typical for agrarian (and especially complex and supercomplex agrarian) societies.

World-economies are politically decentralized systems of societies interconnected by real economic ties. In the meantime, Wallerstein uses the so-called 'bulk goods criterion' to identify the 'reality' of economic ties, that is those ties should be manifested in massive flows of such basic goods as wheat, ore, cotton, tools, mass consumption commodities, *etc.* If the trade between two regions is limited to exchange of 'preciosities', then, according to Wallerstein, we have no grounds to consider them parts of one world-system in general, and one world-economy in particular.

If a world-economy gets centralized politically within one empire, then, according to Wallerstein, we should speak about a world-empire, not world-economy. In general, world-economies were characterized by a higher socioeconomic dynamism than world-empires, but almost all the pre-capitalist world-economies were sooner or later transformed into world-empires (world-empires also frequently disintegrated and could be replaced with world-economies, but this was just a beginning of a new cycle ending with the formation of a new world-empire in place of the world-economy).

According to Wallerstein, there was just one significant exception from this rule that was analyzed in considerable detail in his first 'world-system' monograph (Wallerstein 1974). In 'the long 16th century' the Western European world-economy blocked the tendency toward its transformation into a world-empire and experienced a capitalist transformation that led to the formation of a world-economy of a new, capitalist type. This new world-system experienced a rapid expansion already in 'the long 16th century' and, after a phase of relative stabilization (in the second half of the 17th century and 18th century), it encompassed the whole world in the 19th century.

Though the version of the world-system approach developed by Andre Gunder Frank (1990, 1993; Frank and Gills 1993) is much less known than Wallerstein's version, we believe it might be of even more scientific value. Frank brings our attention to the point

that within Wallerstein's approach the very notion of 'world-system' loses much of its sense. Indeed, if the pre-capitalist world consisted of hundreds of 'world-systems', it is not quite clear why each of them should be denoted as a 'WORLD-system'.

Andre Gunder Frank's approach is in a way more logical. He contends that we should speak only about one World System (and he prefers to denote it using capital initial letters). According to Frank, the World System originated many millennia before the 'long 16th century' in the Near East. This idea is expressed rather clearly in the title of the famous volume edited by him in cooperation with Barry Gills – *The World System: Five Hundred Years or Five Thousand?* (Frank and Gills 1993). This World System had gone through a long series of expansion and contraction phases until in the 19th century it encompassed the whole world.

We believe the synthesis of the both main versions of the world-system approach is quite possible, and in the present article we will analyze the processes that contributed to the emergence and growth of the Afroeurasian world-system that may be considered as the direct predecessor of the modern planetary World System. It was already more than 2000 years ago when the Afroeurasian world-system became connected from its one end to the other with trade links; by the late 13th century it had reached its culmination point (for the pre-capitalist epoch), since the late 15th century it started its explosive expansion and between the 16th and 19th centuries it became a truly planetary World System.⁵

In addition to the Afroeurasian world-system, there were several world-systems on the Earth (in the New World, Oceania, and Australia) prior to the transformation of the Afroeurasian world-system into the modern planetary World System (e.g., Grinin and Korotayev 2012a). However, from the time of its formation and in course of the subsequent millennia the Afroeurasian world-system was constantly leading on the global scale, it had the most salient tendency toward expansion, growth of complexity, and the highest growth rates. It is important that already in the early 1st millennium CE it encompassed more than 90 per cent of the world population (Durand 1977: 256).

The notion of 'world-system' (as it is used in the present article) can be defined as *a maximum set of human societies that has systemic characteristics, a maximum set of societies that are significantly connected among themselves in direct and indirect ways. It is important that there are no significant contacts and interactions beyond borders of this set, there are no significant contacts and interactions between societies belonging to the given world-system and societies belonging to the other world-systems.* If there are still some contacts beyond those borders, then those contacts are insignificant, that is, even after a long period of time they do not lead to any significant changes within the world-system – for example, the early Scandinavians' travels to the New World and even their settlement there did not result in any significant change either in the New World, or in Europe (see, e.g., Slezkin 1983: 16).

However, this definition appears to be the most appropriate for the period when there were a few world-systems on our planet. For the modern unique World System its definition turns out to be closer to such notions as 'planetary system', 'global system', or 'humankind as a system'.

⁵ Correspondingly, when we speak about one out of a few world-systems, we use the term 'world-system', whereas we use Frank's notion of 'the World System' when we speak about the unique global system covering the whole our planet.

Important peculiarities of the Afroeurasian world-system stemmed from its scale and very ancient age, as well as from some specific geographic conditions:

- *A special complexity (supercomplexity) of its structure* was determined by the size of its territory and the population concentration patterns. A very large world-system, such as the Afroeurasian world-system, is a sort of *supersystem that integrates numerous subsystems*, such as states, stateless polities, various spatial-cultural and cultural-political entities, like civilizations, alliances, confederations, cultural areas *etc.*

- *The primary/autochthonous character of the major part of social and technological innovations.* All the numerous borrowings and technological diffusion currents went almost exclusively within Afroeurasian world-system due to the enormous diversity of the available sociopolitical and economic conditions; sea communications and landscapes that allowed major flows of information, technologies, and commodities to reach sooner or later all the major Afroeurasian world-system centers. This secured a certain (albeit imperfect) synchronization of processes in different parts of Afroeurasian world-system, raised the general speed of its development, as well as its stability.

- *An especially high speed of changes.* The larger and the more diverse the world-system, the higher the speed of its development (see, *e.g.*, Kremer 1993; Korotayev, Malkov, and Khaltourina 2006a; Markov and Korotayev 2007; Korotayev 2007, 2008, 2009, 2012). As a result, within the Afroeurasian world-system (as the largest world-system of our planet) the growth rates were the highest, as the contacts became more and more dense and the evolution of individual social systems was influenced more and more by macroevolutionary innovations diffusing throughout the Afroeurasian world-system. This led to the fact that within the Afroeurasian world-system the speed of development was significantly higher than in smaller world-systems (Diamond 1999).

- *Succession of qualitative transformations* that changed the Afroeurasian world-systems structure due to a high speed of development and substantial continuity in its development. The Near Eastern center emerged first, South Asian and Far Eastern centers formed later; then one could observe the emergence of the European center that eventually became leading.

- *An especially high role of barbarian (and especially nomadic) periphery* was connected with certain peculiarities of climate and landscape, especially with the Eurasian Steppe Belt. For quite a long time, the development of the Afroeurasian world-system proceeded up to a very considerable extent through the integration of its periphery, the transformation of a number of peripheral societies into semiperipheral, as well as the transformation of a part of semiperipheral societies into core ones (Hall, Chase-Dunn, and Niemeyer 2009). As a result, the Afroeurasian world-system structure constantly changed, whereas the information and merchandise flows, as well as military-political interactions became more and more complex.

- *An especially important role of water communications*, due to them a number of communication networks with particular high levels of contact density emerged (the Mediterranean network, the Baltic Sea network, the Indian Ocean network, *etc.*). The Afroeurasian world-system growth proceeded up to a considerable extent through the incorporation of coastal areas suitable for colonization and trade and their hinterlands (*e.g.*, Phoenician, or Greek colonization, Sawahili cities along the East African coast, *etc.*).

A brief overview of the main phases of the Afroeurasian world-system's evolution

Processes of intersocietal interaction started several dozens thousand years ago. That is why it appears impossible to speak about anything like perfect isolation even with respect to Paleolithic cultures. Already for the Upper Paleolithic there are numerous archeological, paleolinguistic and other data on information-cultural and trade-material contacts covering hundreds and even thousands kilometers (*e.g.*, Korotayev and Kazankov 2000; Korotayev 2006a; Korotayev *et al.* 2006). For example, the Mediterranean sea shells are found at the Paleolithic sites of Germany, the Black Sea shells are discovered at the Mezine site on a bank of the Desna River 600 kilometers far from that sea (*e.g.*, Clark 1952; Rummyantsev 1987: 170–171). However, evidently, we observe a new phase of intersocietal integration after the start of the Agrarian Revolution (see about it: Childe 1952; Reed 1977; Harris and Hillman 1989; Cohen 1977; Rindos 1984; Cowan and Watson 1992; Ingold 1980; Cauvin 2000; Mellaart 1975, 1982; Smith 1976; Grinin 2007b).

In the 10th – 8th millennia BCE the transition from foraging to food production took place in the West Asia (in the Fertile Crescent area), as a result of which one could observe a significant growth of complexity of respective social systems, which marked the start of the formation of the Afroeurasian world system. **In the 8th – 5th millennia BCE** one could observe the Afroeurasian world-system's expansion and the formation of rather effective informational, cultural, and even trade links between its parts.

In the 4th and 3rd millennia first in Southern Mesopotamia, and then in most other parts of Afroeurasian world-system one could observe the formation of a large number of cities. Writing systems, large-scale irrigation agriculture, new technologies of tillage developed. First early states and civilizations formed on this basis. A large number of very important technological innovations were introduced in most parts of Afroeurasian world-system: wheel, plow, pottery wheel, harness, *etc.* The emergence and diffusion of the copper and bronze metallurgy increased military capabilities and contributed to intensification of the regional hegemony struggles. New civilization centers emerged outside the Middle Eastern core (*e.g.*, the Minoan and Harappan civilization).

In the late 3rd and the 2nd millennia BCE in Mesopotamia one could observe the succession of such large-scale political entities as the Kingdom of Akkad, the 3rd Dynasty of Ur, the Old Babylonian and Assyrian Kingdoms. The hegemony struggle in the core of the Afroeurasian world-system moved to a new level with the clash between the New Kingdom of Egypt and the Hittite Empire. The political macroprocesses were exacerbated by invasions from tribal peripheries (the Gutians, Amorites, Hyksos, *etc.*) with a gradual increase of the role of nomadic herders in such invasions. In the 2nd millennium BCE a new Afroeurasian world-system center emerged in the Far East with the formation of the first Chinese state of Shang/Yin. In general, those processes led to the enormous expansion of the Afroeurasian world-system. **In the late 2nd and 1st millennia BCE** the iron metallurgy was diffused throughout Afroeurasian world-system, which led to the significant growth of agricultural production in the areas of non-irrigation agriculture of Europe, North Africa, the Middle East, South Asia, and the Far East. This also led to the rise of crafts, trade, urbanization, and military capabilities. In the 1st millennium BCE the hegemony struggles moved far beyond the Near East. The fall of the New Assyrian Empire in the 7th cen-

4th century BCE paved way to the formation of new enormous empires (Median, and later Persian). The Greek-Persian wars marked the first clash between European and Asian powers. In the second half of the 4th century BCE Alexander the Great's campaign created (albeit for a short period of time) a truly Afroeurasian empire encompassing vast territories in all the three parts of the Old World – Asia, Africa, and Europe.

In the 2nd millennium BCE the Harappan civilization disappeared in a rather enigmatic way; however, in the 1st millennium BCE the Indoarians who had migrated to this region from Central Asia created there a new and more powerful civilization.

In the late 1st millennium BCE one could observe the formation of new empires: the Roman Republic and the Chinese Empire (Qin, and later Han). Then there developed an unusually long network of trade routes (the so-called Silk Route) between the western and eastern centers of the Afroeurasian world-system.

In the 1st millennium BCE and the early 1st millennium CE in connection with the climatic change and some important technological innovations (saddle, stirrup, *etc.*) a new type of nomadic societies emerged; new nomads were able to cover enormous distances and to transform themselves very fast into a sort of mobile army. As a result, the whole enormous landmass of the Eurasian steppe belt became the nomadic periphery of Afroeurasian world-system. The Scythian 'Kingdom' in Europe and the more recent 'empire' of Hsiung-nu that emerged to the north from China were one of the first powerful nomadic polities of such a type.

In the first centuries CE, as a result of mass migrations and military invasions of peoples from the barbarian periphery the ethnic and cultural landscape of the Afroeurasian world-system experienced very significant changes. The Western Roman Empire disappeared as a result of the barbarians' onslaught. The Han Empire in China collapsed earlier. As a result of stormy events within the Afroeurasian world-system a considerable number of new states (including states of the imperial type) emerged (Frankish, Byzantine, Sassanid empires, the Gupta Empire in India, the Tang Empire in China, *etc.*); note that some of them (like Turkic khaganates) played a role of the trade link between the East and the West.

The first millennium CE evidenced the emergence of new world religions and the wide diffusion of old and new world and super-ethnic religions (including Confucianism). Buddhism diffused very widely in many regions of Central, South-East, and East Asia (including China, Korea, Japan, and Tibet). Confucianism prevailed in East Asia. Christianity embraced the whole of Western and Eastern Europe and proliferated to some areas of Africa and Asia. Finally, starting with the 7th century one could observe an explosive spread of Islam that embraced the whole of Near and Middle East. The enormously large Islamic Khalifate emerged (it disintegrated quite soon afterwards, but it left behind a huge Islamic communication network [see, *e.g.*, Korotayev 2003a; Korotayev, Klimenko, Proussakov 1999, 2003]).

The first half of the 2nd millennium CE. The Crusades (the 11th – 13th centuries CE) were one of the most important world-system events; among other things they opened a channel of spice trade with Europe. An enormous role was played by the Mongolian conquests of the 13th century that brought unprecedented destructions and political perturbations. However, later the emergence of an unprecedentedly large Mongolian

empire secured the diffusion of a number of extremely important technologies throughout the Afroeurasian world-system (including its European part); it also established a network of trade routes connecting East Asia with Europe that was unprecedented as regards its scale and efficiency. The barbarian semiperiphery turned out to be incorporated in the civilization environment (of Islam, Buddhism, and Confucianism), which contributed to vigorous penetration of the world-system links far to the Eurasian North and deep into Africa. On the other hand, the expansion of trade contacts between the East and the West contributed to the diffusion of the Black Death pandemic in the 14th century.

An important event was the firm incorporation of South India in tight contacts with other parts of Afroeurasian world-system through a gradual penetration of the Islamic polities and a partial Islamization of its population. In the 15th century, a new political and military force emerged in West Asia, the Ottoman Empire. The Turks hindered the Levantine spice trade and, thus, accelerated the search for the sea route to India.

New qualitative changes within the Afroeurasian world-system were connected with the start of the Great Geographic Discoveries and the Afroeurasian world-system's transformation into the planetary capitalist World System, which marked the start of a qualitatively new phase in the globalization history that will be spelled out below.

II. World-system Links and Processes

Systemic character of the world-system processes. The world-system processes and transformations can be understood much better if the systemic properties are taken into account. Such systemic properties account for synchronicity or asynchronicity of certain processes, the presence of positive and negative feedbacks that can be traced for very long periods of time, say, in demographic indicators. We believe that a special attention should be paid to the idea of Chase-Dunn and Hall (1997: xi–xii) that a world-system is constituted not just by intersocietal interactions, but by the whole set of such interactions, whereas the level of analysis that is the most important for our understanding of social development is not the one of societies and states, but the one of the world-system as a whole. This way, a fundamental system property (the whole is more than just a sum of its parts) is realized with the world-systems. Changes and transformations in certain parts of a world-system can produce changes in its other parts through what may be called *impulse transformation*. It may be manifested in various forms (producing sometimes rather unexpected consequences). Thus, the hindering of the possibilities to deliver spices to Europe due to the Turkish conquests in the 15th century stimulated the search for the sea route to India, which finally changed the whole set of relationships within the Afroeurasian world-system. Due to the systemic properties, the processes that started in a certain part of the Afroeurasian world-system, could diffuse rather rapidly to most other parts of it (the rapid diffusion of the Black Death pandemic in the 14th century could serve here as an example).

A very interesting type of manifestation of the Afroeurasian world-system's systemic properties is constituted by **synchronized processes** that took place in various parts of the Afroeurasian world-system. One can mention as an example an East/West synchrony in growth and decline of the population sizes of largest cities from 500 BCE to 1500 CE in West Eurasia and those in East Eurasia (Chase-Dunn and Manning 2002). There is

a similar synchrony in the territorial sizes of the largest empires (Hall, Chase-Dunn, and Niemeyer 2009). Barfield (1989) argues that large steppe confederacies usually cycle synchronously with the rise and fall of the large sedentary agrarian states that they raid. These cycles are one hypothesized mechanism of the systemic linkages between East and West Asia (Hall, Chase-Dunn, and Niemeyer 2009). Such synchronized processes within the Afroeurasian world-system have been also detected by the students of the Bronze Age and earlier periods (Chernykh 1992; Frank 1993; Frank, Thompson 2005). One can also mention as salient examples of such synchronized processes the Axial Age transformations of the 1st millennium BCE (Jaspers 1953) or the military revolution and formation of a new type of statehood in Europe and Asia in the late 15th and 16th centuries CE that produced a colossal influence upon the formation of the modern World-System (see Grinin 2012a). However transformations were similar across different regions only in a broad sense and that development has always been spatially uneven (Chase-Dunn and Hall 1997: XIII).

While considering the general trends of Afroeurasian world-system development, it is necessary to note the following points:

a) the Afroeurasian world-system (phase) transition to a new phase produced an effect of diffusion (through borrowing, modernization, coercive transformation, incorporation, *etc.*) of the respective innovations throughout territories that turned out to be unprepared for the respective independent transformation. This can be seen in many of those processes that supported the Afroeurasian world-system development, like the diffusion of statehood, or world religions;

b) the Afroeurasian world-system development was frequently accompanied (and even supported) by the decline/underdevelopment of some of its parts; on the other hand, the flourishing of some societies could lead to the temporary decrease of the overall level of development/complexity of Afroeurasian world-system (as was observed some time after the Mongolian conquests).

c) all the processes of the Afroeurasian world-system development (and, especially, the development of the world-system links) were affected in a very significant way by migrations that often caused chain reactions of the movement of peoples and wars, which created conditions for large-scale transformations. Even for early periods of the Afroeurasian world-system formation quite large-scale migrations are known (see, *e.g.*, Berezkin 2007: 91; Frank 1993). Frank (1993) even speaks about ‘migratory system’. However, as is well known, the most large-scale migrations took place in the 3rd – 7th centuries CE;

d) already for the Neolithic period (starting from the Preceramic Neolithic) many archeologists speak (with quite serious grounds, from our point of view) about a single information space stretching (long before the Uruk culture) through vast territories from Central Turkey up to the Sinai Peninsular (see Lamberg-Karlovsky and Sabloff 1979; Bondarenko 2006 for more detail).

The most important types of the world-system links. Diffusion of innovations. The Afroeurasian world-system movement to every new level of development was inevitably connected with the expansion and strengthening of communication links and networks. Chase-Dunn and Hall (1997: 59) single out the following main types of the world-system spatial links: bulk-goods exchange, prestige-goods exchange, political-

military interaction, and information exchange. In the meantime they note that the world religions constituted major innovations in the information networks and technologies of ideological power (Chase-Dunn and Hall 1997: 185). That is why it might make sense to single out civilization-cultural (ideological) interactions as a special type of the world-system links, as they differ substantially from usual information flows. Cultural-ideological interaction played a very important role within Afroeurasian world-system, especially, during the period of its maturity. In particular, since the 8th century CE all the civilized part of Afroeurasian world-system (with a partial exception of South Asia) consisted of actively interacting world religion areas (for more detail on the influence of the world religions on the evolution of Afroeurasian world-system see, *e.g.*, Korotayev 2000, 2003a, 2003b, 2004). Initially, the world-system analysis paid its main attention to the bulk good trade (Wallerstein 1974), however, for the period of the Afroeurasian world-system formation the most important role was played by information links (and especially by the diffusion of innovations [Korotayev 2005, 2007, 2008, 2012; Korotayev, Malkov, and Khaltourina 2006a; Grinin 2007b, 2012a; Grinin, Korotayev 2009b]). The presence of the pan-Afroeurasian world-system information network secured the diffusion of innovations throughout Afroeurasian world-system. In general, the processes of innovation generation and diffusion played an immensely important role during the whole history of Afroeurasian world-system.

Development of trade links. Quite a large scale trade in strategic economically important items could be already observed in the framework of the emerging Afroeurasian world-system, in West Asia. In particular, the obsidian (that was in high demand for the manufacturing of stone tools) was transported from the Anatolian Plato throughout Afroeurasian world-system already in the 7th millennium BCE. This is likely to have been accompanied by the trade in food stuffs, leather, and textiles (Lamberg-Karlovsky and Sabloff 1979). The economic importance of such an exchange can be estimated in different ways; however, it is quite clear that the system of information exchange was rather intensive. In addition to relations between the three main Near Eastern centers (Zagros, Palestine, and Anatolia), there were direct and indirect links with North Africa and Turkmenia (Lamberg-Karlovsky and Sabloff 1992: 86, 95; on extensive cultural links of this region, say, in the 7th millennium BCE see, *e.g.* Bader [1989: 228, 233, 262]). For the 5th and 4th millennia BCE we have evidence for a large-scale trade in metals (Chernykh 1992; Frank 1993). There is even more evidence on large-scale trade in the 3rd and 2nd millennia BCE (Wilkinson 1987; Frank 1993). In the 1st millennium BCE the long distance trade (including sea trade) became even more developed (Chase-Dunn and Hall 1997). A few millennia before, we would find another belt of societies strikingly similar in level and character of cultural complexity, stretching from the Balkans up to the Indus Valley outskirts (see, *e.g.*, Peregrine, Ember 2001a, 2001b; Peregrine 2003)⁶.

In the late 7th millennium BCE the growing aridization led to the end of the Preceramic Neolithic B, though one cannot exclude that the Neolithic agriculturalists themselves contributed to the exhaustion of the ecological systems (*e.g.*, Kuijt 2000). In any case this crisis did not lead to the destruction of the emergent Afroeurasian world-system; on

⁶ It appears appropriate to emphasize that in both cases the population of respective belts engulfed the majority of the world population of respective epochs.

the contrary, it appears to have made a few groups from the world-system core migrate to more ecologically favorable areas of the Mediterranean coast, whereas some other groups migrated to forest-steppe areas, whereas the remaining groups might have turned to seminomadic patterns of subsistence (Cauvin 1989: 191). Those groups that started infiltrating back to Palestine half a millennium later developed having been enriched by new technologies and cultural traits (Lamberg-Karlovsky and Sabloff 1992: 82). This way, the Afroeurasian world-system actually expanded, as the migrations contributed to the growth of the area of high cultural complexity, they contributed to the exchange of information and the increase in the division of labor.

Global communications of the 1st millennium and the early 2nd millennium CE. In the second half of the 1st millennium CE in the Indian Ocean Basin (in the area stretching from the East African Coast to South-East Asia (including Indonesia) and China one could observe the formation of a prototype of the oceanically-connected World-System. In this enormous network of international trade an important role was played by Persian, Arab, Indian, and other merchants (see Bentley 1996 for more detail). It is important to note that the trade in this region was not restricted to luxury items, but included a considerable number of bulk goods, such as dates, timber, construction materials, *etc.* (*Ibid.*).

In the 13th and 14th centuries, one could observe the emergence and functioning of a vigorous transcontinental trade network through the territories of the Mongolian states that connected in a very tangible way all the Afroeurasian world-system's main zones. As is noted by Abu-Lughod (1989), this world-system trade network was more complexly organized, had a larger volume than any previously existing network.

III. The World System Genesis and Transformations: A Detailed Analysis

Origins of the Afroeurasian world-system. There a considerable number of points of view regarding the dates of the possible formation of the Afroeurasian world-system. For example, Frank and Thompson date its origins to the 4th and 3rd millennia BCE (Frank 1993; Frank and Thompson 2005); Wilkinson (1987) and Berezkin (2007: 92–93) consider the 2nd millennium as its beginning. The authors of the present article date the emergence of Afroeurasian world-system to a considerably earlier period, the 10th – 8th millennia BCE (Korotayev and Grinin 2006, 2012; Grinin and Korotayev 2009b; 2012). Some other world-system students believe that it only came to the real existence in the late 1st millennium BCE (Chase-Dunn and Hall 1997, 2011; Hall, Chase-Dunn, and Niemeyer 2009).

The approaches to this issue differ considerably depending on the world-system criteria employed: bulk good criterion (a more rigid one), prestige good, or information network ones (softer criteria). The more rigid the approach, the more recent the dating it produces. However, the datings also depend on the general approaches to the emergence of the Afroeurasian world-system. For example, if together with Chase-Dunn and Hall (1997: 150) we believe that by the moment of the Silk Route initiation there were three main independent world-systems (West Asian, Chinese, and South Asian) that merged later into a single world-system (Afroeurasian world-system), then it appears very logical to date the emergence of the single Afroeurasian world-system to the late 1st millennium BCE. However, if we are basing ourselves on the facts that the West Asian world-system was

from the very beginning leading technologically, socially, and economically, that it was much more innovative than other world-systems,⁷ that the West Asian world-system influenced enormously the development of South Asia and the Far East whereas the influence in the opposite direction by the late 1st millennium BCE was negligible (and hence we should speak about the incorporation of South and East Asia into Afroeurasian world-system, rather than a merger of three equally important world-systems), then the origins of the Afroeurasian world-system turn out to have much (several millennia) more ancient datings.

In any case it is quite clear that the emergence of the Afroeurasian world-system was a rather prolonged process. It should be also taken into account that this was the Near East where one could observe the earliest transition to the food production, in general, and to the cultivation of cereals in particular; to the large-scale irrigated agriculture, to the urban settlement patterns, to the metallurgy, writing, statehood, empires, and so on.⁸

Hence, whatever dating for the Afroeurasian world-system start we provide, it is perfectly clear that the roots of its formation ascend by millennia deep in time up to the beginnings of the agrarian ('Neolithic') revolution in West Asia in the 10th – 8th millennia BCE. Within this prolonged process of the Afroeurasian world-system genesis and transformation one could single out a few major phases.

1) The 8th – 4th millennia – the formation of contours and structure of the Middle Eastern core of Afroeurasian world-system (the first phase). This is a period of the finalization of the first stage of the agrarian revolution in the Near East (the second phase of the Agrarian Revolution was connected with the formation of large-scale irrigation and later intensive plow agriculture in the 4th – 1st millennia BC [Korotayev, Grinin 2006]). This period evidenced the beginning formation of rather long-distance and quite permanent information/exchange contacts. Those processes were accompanied by the formation of medium-complexity early agrarian societies, relatively complex polities, and settlements that (as regards their sizes and structure) were distantly similar to cities (*e.g.*, Kenyon 1981; Wenke 1990: 325; Schultz and Lavenda 1998: 214).

In the 5th millennium BCE, the Ubaid culture emerged in Southern Mesopotamia; it was this culture, within which the material and social basis of the Sumerian civilization was developed up to a considerable extent. The Uruk culture that succeeded the Ubeid one was characterized by the presence of a considerable number of rather large settlements. Thus, by the end of the period in question the Urban Revolution took place within the Afroeurasian world-system; this revolution can be regarded as a phase transition of the Afroeurasian world-system to a qualitatively new level of social, political, cultural, demographic, and technological complexity (Berezkin 2007). By the end of the period in

⁷ This point should be specially emphasized, as it allows suggesting a tentative dating of the World System formation, as well as to identify early phases of its development. Actually, in the Far East and South-East Asia the transition to agriculture began rather early, but these were mostly horticultural domesticates with a rather low evolutionary potential; it is also essential that nothing like cities (or even fortresses) emerged in those regions during that early period (which appears to indicate low intensity of contacts). Cities emerged in the New World, but there hardly was any developed animal husbandry, as well as any wide use of metals (with the exception of precious metals in addition to a very limited use of copper).

⁸ Note that proto-cities and cities were major indicators that the world-system in the Near East was more developed than in the other parts of the world.

question one could observe the emergence of urbanized societies (Bernbeck and Pollock 2005: 17), as well as the first early states, their analogues (Grinin and Korotayev 2006; Grinin 2003, 2008a), and civilizations. Thus, by the end of the period in question the Urban Revolution took place within Afroeurasian world-system; this revolution can be regarded as a phase transition of Afroeurasian world-system to a qualitatively new level of social, political, cultural, demographic, and technological complexity (Berezkin 2007).

In the beginning of this period the scale of links within the Afroeurasian world-system may be denoted as regional because in the very beginning this world-system itself had a size of a region. With the expansion of the Afroeurasian world-system, the scale of its world-system links expanded too. So some later (after 7–6 millennia BCE) they transform into regional-continental ones. However, during this period the Afroeurasian world-system still covered a minor part of the Globe; hence, at the global scale local links still prevailed during this period.

2) The 3rd and 2nd millennia BCE – development of the Afroeurasian world-system centers in the Bronze Age (the second phase). This is a period of a rather fast growth of agricultural intensiveness and population of the Afroeurasian world-system. A relatively rapid process of emergence and growth of the cities in the Afroeurasian world-system was observed in the second half of the 4th millennium and the first half of the 3rd millennium BCE; later the Afroeurasian world-system urbanization process slowed down very significantly until the 1st millennium BCE (Korotayev 2006a; Korotayev, Grinin 2006, 2012). One of the most important results of this period was the growth of political integration of the Afroeurasian world-system core societies, which was a consequence of rather complex military-political and other interactions. First of all, in the Afroeurasian world-system core one could observe the growth of political complexity: from cities and small polities to large early and developed states (Grinin, Korotayev 2007; Grinin 2008a). Secondly, the first empires emerged. Thirdly, since the 3rd millennium BCE one could observe cycles of political hegemony upswings and downswings (Frank, Gills 1993; see also Chase-Dunn *et al.* 2010).

In the late 3rd millennium and the 2nd millennium BCE in Mesopotamia one could observe the succession of the Akkadian Empire, the 3rd Dynasty of Ur Kingdom, the Old Babylonian Kingdom, the Assyrian Kingdom. In the second half of the 2nd millennium BCE one could see a vigorous hegemonic struggle between Assyria, Egypt, and the Hittite Kingdom.

Within the West Asian region the prestige good trade network achieved a rather high level of development and was often supported by states. Some part of Europe was included quite firmly in the Afroeurasian world-system communication network. The trade links with South Asia were established through the Persian Gulf.

Key West Asian technologies (cultivation of West Asian cereals, breeding of cattle and sheep, some important metallurgy, transportation, and military technologies) penetrated to East Asia (possibly through the Andronovo intermediaries), which is marked archaeologically by the transition from the Yangshao culture to the Longshan one (see, *e.g.*, Berezkin 2007). This way the main Afroeurasian world-system centers were formed; these centers developed throughout the subsequent history of Afroeurasian world-system; yet, during this period this development was marked with the technological (and other) leadership of the West Asian center and the strengthening of (still rather weak) communication links between various centers.

Thus, within the Afroeurasian world-system the links became not only interregional, but contours of transcontinental links also became quite visible. However, at the global scale regional links still prevailed.

3) The 1st millennium BCE till 200 BCE – the Afroeurasian world-system as a belt of expanding empires and new civilizations (the third period). This is the time of the early Iron Age. Already in the first part of this period the agrarian revolution within Afroeurasian world-system was finalized through the diffusion of the technology of plow non-irrigation agriculture based on the use of cultivation tools with iron working parts (see Korotayev, Grinin 2006, 2012 for more detail). On this production base enormous changes in trade and military-political spheres took place accompanied by a new urbanization and state development upswing (a group of developed states emerged [see Grinin, Korotayev 2006; Grinin 2008a for more detail]). One could observe within the Afroeurasian world-system a constant growth of the belt of empires: the New Babylonian, Median, Achaemenid, Macedonian Empire (and its descendants) in the world-system center, the Maurya Empire in South Asia, the Carthaginian Empire in the West. The end of the period evidenced the formation of empires both in the Far West (Rome) and the Far East (China) of the Afroeurasian world-system. This is the Axial Age period, the period of the emergence of the second generation civilizations. The development of all the Afroeurasian world-system centers proceeded rather vigorously. The West Asian center was finally integrated with the Mediterranean world, whereas the European areas of the barbarian periphery were linked more and more actively with the Afroeurasian world-system centers with military, trade, and cultural links. In South Asia a new civilization formed, and the first world religion – Buddhism – emerged. Trade links were established in the space stretching from Egypt to Afghanistan and the Indus Valley (Bentley 1996; 1999), and in general, all the territory became connected militarily-politically. The East Asian center of Afroeurasian world-system developed also very rapidly; this period evidenced the emergence there of its own super-ethnic quasi-religion, Confucianism. One could observe a rather fast development of all the world-system centers. The West Asian center was finally integrated with the Mediterranean world, whereas the European territories of the barbarian periphery became more and more actively connected with the world-system center with military, trade, and cultural links.

Thus, complexity, and density of links within the world-system continued to grow acquiring continental and intercontinental scales.

4) 200 BCE – the early 7th century CE. – Afroeurasian world-system is integrated by the steppe periphery (The fourth phase). *In this period the links within this world-system became transcontinental and could be compared with global.*

Around the 2nd century BCE relatively stable trade links (albeit involving preciosities rather than bulk goods) were established between the ‘marcher empires’ of Afroeurasian world-system through the so-called Silk Route, a significant part of which went through the territories of nomadic periphery and semiperiphery.⁹ Thus, in this period the periphery closed the circuit of Afroeurasian world-system trade links. The Afroeurasian world-

⁹ In particular, many note the important roles of steppe nomads in these linkages (Barfield 1989; Chase-Dunn and Hall 1997: ch. 8; Frank 1993; Lattimore 1940; Mair 2006; Sherratt 2006; Teggard 1939).

system expansion proceeded for a long period of time up to a considerable extent through the expanding interaction between civilizations and their barbarian peripheries. The larger and more organized civilizations grew, the more active and organized their peripheries became. In the given period this process was sharply amplified, and the Great Migration epoch evidenced the acquisition by the barbarian periphery itself of the world-system scale and synchronicity of influence. The disintegration of the Western Roman Empire, the weakening of the Eastern Roman Empire, the fast diffusion of Christianity in the western part of Afroeurasian world-system, a new rise of the Chinese Empire in its eastern part prepared Afroeurasian world-system to major geopolitical changes and its movement to a new level of complexity. On the other hand, the growth of the Afroeurasian world-system population by the end of the 1st millennium BCE up to 9-digit numbers led to increased level of pathogen threat. Thus, the Antonine and Justinian's pandemics led to catastrophic depopulations throughout Afroeurasian world-system in the 2nd and 6th centuries, contributing (in addition to the onslaught of the barbarian peripheries) in a very substantial way to the significant slowdown of the Afroeurasian world-system demographic and economic growth in the 1st millennium CE.

5) The 7th – 14th centuries – Afroeurasian world-system apogee: world religions and world trade (the fifth phase). *On the one hand, in this period the level of development of the world-system links reached the upper limits of what could be achieved on the agrarian basis. On the other hand, one could observe the formation of important preconditions for the transformation of Afroeurasian world-system into the planetary capitalist World System.*

As regards the first aspect, one should note especially the formation and development of all the world religions. In certain aspects within this phase the Afroeurasian world-system developed as a supersystem of contacting and competing third generation civilizations, which created firm cultural-information links among all the Afroeurasian world-system centers, including South Asia that remained in a relative isolation during the preceding period. Note also an unprecedented sweep of military-political contacts and the growth of the level of development of state structures.

As regards the second aspect, one should note especially: a) the formation of especially dense oceanic trade links in the second half of the 1st millennium in the Indian Ocean Basin (see above); b) the creation of vigorous major transcontinental land route through the territory of the Mongol states that connected in a rather direct way the main Afroeurasian world-system centers (see above); c) the start of formation (by the end of this period) of an urbanized zone stretching from Northern Italy through Southern Germany to the Netherlands, where the commodity production became the dominant form of economy (Bernal 1965; Wallerstein 1974; Blockmans 1989: 734).

Already in 1500 there were more than 150 cities with population of more than 10,000 in Europe (Blockmans 1989: 734). A very high level of urbanization was observed in Holland where already in 1514 more than half of the population lived in cities (Hart 1989: 664). On the other hand, a similar level of urbanization could be found that time in the Southern Netherlands (Brugge, Ghent, and Antwerp), whereas in Northern Italy in the Po River valley this level might have been even higher (Blockmans 1989: 734). Since the 14th century the city growth might have been amplified by the emergence of the developed statehood and

the concomitant process of the formation of the developed state capitals (*e.g.*, Grinin 2008a, 2012a; Grinin, Korotayev 2012; 2009a: ch. 6), and the growth of cities of all the types, including very large cities.

6) The 15th – 18th centuries – transformation of the Afroeurasian world-system into the planetary World System (the sixth phase). This phase was connected with the start (the first phase) of the industrial revolution (see Knowles 1937; Dietz 1927; Henderson 1961; Phyllis 1965; Cipolla 1976; Stearns 1993, 1998; Lieberman 1972; Mokyr 1985, 1993; More 2000; Grinin 2007b, 2012a; Grinin and Korotayev 2009a: ch. 2) that determines the transformation of Afroeurasian world-system simultaneously into the planetary and capitalist World-System (corresponding rather well to Wallerstein's [1974, 1980, 1987, 1988, 2004] world-system, as its development involves mass movements of bulk notion goods, whereas some territories [especially in the New World] got entirely specialized in their production). A really high level of intensity of the emerged planetary world-system links could be evidenced, for example, by a really high effect produced by the price revolution that resulted from the mass import into the Old World of the New World gold and silver (see, *e.g.*, Barkan and McCarthy 1975; Goldstone 1988; Hathaway 1998: 34).

However, as the agrarian production principle still absolutely prevailed, one could observe the development up to extreme of some previous trends, especially in the non-European centers of the world-system. In particular, East Asia still continued its development along its own trajectory, demonstrating indubitable achievements in the development of state or cultural structures, outstanding demographic growth, *etc.*

In the 16th and 17th centuries the so called 'military revolution' took place in Europe (*e.g.*, Grinin and Korotayev 2009a: ch. 5; Grinin 2012a). It implied the formation of modern regular armies with sophisticated firearms and artillery, which demanded the reorganization of all the financial and administration system. In its turn the growth of the military might of the European powers contributed to the start of the modernization of some non-European states (the Ottoman Empire, Iran, the Mughal Empire in India), on the one hand, and to an artificial self-isolation from Europe of some other Asian states (China, Japan, Korea, and Vietnam), on the other. This modernization touched first of all the military organization, as well as some state and financial institutions (on the relation between the 'East' and 'West' in this period see, *e.g.*, Frank 1978, 1998).

7) From the beginning of 19th century to the 20th century – the industrial World System and mature globalization (subsequent phases). The Great Geographic Discoveries extended sharply the Afroeurasian world-system's contact zone. As a result of this (as well as Europe's technological breakthrough) a new structure of this world-system started to be formed. The trade-capitalist core emerged in Europe, whereas previous world-system centers (in particular, the one in South Asia) were transformed into exploited periphery (this process became even more active at the subsequent phase of the World-System evolution). Thus the phenomenon of the world-system periphery experienced a significant transformation.

The subsequent World System development is connected directly with the second phase of the Industrial revolution (the last third of the 18th century and the first half of

the 19th century [see Grinin 2007b, 2007c for more detail]). Changes in transportation and communication produced an especially revolutionizing effect on the development of the world-system links. They contributed to the transformation of the World System still based primarily on information links into the World System exchanging regularly from the Atlantic to the Pacific with various commodities and services, into such a World System that has instead of fragmentary and irregular rather powerful and very regular information flows. This new World System became based on a truly international and global division of labor.

In the 20th century the World System development (after world wars and decolonization) was connected with the Scientific-Information revolution of the second half of the 20th century (e.g., Grinin 2012a), which in conjunction with many other processes finally led to a fast growth of globalization processes (especially those involving powerful financial flows) and their qualitative transformation (e.g., Grinin, Korotayev 2010a, 2010b; Korotayev *et al.* 2011). As a result the world became really tightly interconnected which has been recently demonstrated again in a rather convincing way by the global financial-economic crisis. By the late 20th century the view that our world is experiencing globalization (whatever meaning was assigned to this word) became a general conviction.

In the present paper we have analyzed the early phases of globalization and thus have hardly touched upon processes of the contemporary globalization. Among the important (but insufficiently analyzed) processes very tightly connected with globalization one can point out the process of the national sovereignty transformation that appears to be an essential component of the present-day globalization. Due to the limits of the article we have no opportunity to dwell on the issue but elsewhere we argue that although the national state will remain the leading player in the world scene for a long time, we suppose that in the long term the tendency to transform national sovereignty will grow (for more detail see Grinin 2007a, 2008b, 2009a, 2012a, 2012b; Grinin and Korotayev 2010a, 2010b, 2011). We are on the eve of a very complex, contradictory, and long process of the formation of a new world order; the state will not disappear within it, but its features and functions will change significantly.

References

- Abu-Lughod, J. 1989.** *Before European Hegemony: The World System A.D. 1250–1350*. New York: Oxford University Press.
- Amin, S., Arrighi, G., Frank, A. G., and Wallerstein, I. 2006.** *Transforming the Revolution: Social Movements and the World-System*. Delhi: Aakar.
- Arrighi, G., and Silver, B. J. 1999.** *Chaos and Governance in the Modern World System*. Minneapolis, MN: University of Minnesota Press.
- Bader, N. O. 1989.** *The Ancient Agriculturalists of the Northern Mesopotamia*. Moscow: Nauka. *In Russian*.
- Barfield, T. J. 1989.** *The Perilous Frontier*. London: Blackwell.
- Barkan, O., and McCarthy J. 1975.** The Price Revolution of the Sixteenth Century: A Turning Point in the Economic History of the Near East. *International Journal of Middle East Studies* 6(1): 3–28.
- Barkin, S. J., and Cronin, B. 1994.** The State and the Nation: Changing Norms and the Rules of Sovereignty in International Relations. *International Organization* 48(1): 107–130.

- Bayly, C. A. 2004.** *The Birth of the Modern World, 1780–1914: Global Connections and Comparisons*. Maiden, MA and Oxford: Blackwell.
- Bentley, J. H. 1996.** Cross-Cultural Interaction and Periodization in World History. *American Historical Review* 101(3): 749–770.
- Bentley, J. H. 1999.** Asia in World History. *Education about Asia* 4: 5–9.
- Berezkin, Yu. E. 2007.** On the Structure of History: The Temporal and Spatial Constituents. In Turchin, P. V., Grinin, L. E., Malkov, S. Yu., and Korotayev, A. V. (eds.), *History and Mathematics: The Conceptual Space and Trends for the Search* (pp. 88–98). Moscow: LKI/URSS. In Russian.
- Bernal, J. D. 1965.** *Science in History*. 3rd ed. New York: Hawthorn Books.
- Bernbeck, R., and Pollock, S. 2005.** A Cultural-Historical Framework. In Pollock, S., and Bernbeck, R. (eds.), *Archaeologies of the Middle East: Critical Perspectives* (pp. 11–40). Oxford: Blackwell.
- Blockmans, W. T. 1989.** Preindustrial Europe. *Theory and Society* 18(5): 733–755.
- Bondarenko, Ye. S. 2006.** The Information Field of the Neolithic age in the Near East. *Istoria i sovremennost* 2: 47–66. In Russian.
- Borsch, S. J. 2005.** *The Black Death in Egypt and England*. Cairo: The American University of Cairo Press.
- Braudel, F. 1973.** *Capitalism and Material Life, 1400–1800*. New York: Harper and Row.
- Cauvin, J. 1989.** The Prehistoric Origins of the Society of Pastoralists-Herders in the Levant. In Masson, V. M. (ed.), *The Interaction of Nomadic Cultures and Ancient Civilizations* (pp. 189–203). Almaaty: Nauka. In Russian.
- Cauvin, J. 2000.** *The Birth of the Gods and the Origins of Agriculture*. Cambridge: Cambridge University Press.
- Chase-Dunn, C., and Hall T. D. 1994.** The Historical Evolution of World-Systems. *Sociological Inquiry* 64: 257–280.
- Chase-Dunn, C., and Hall, T. D. 1997.** *Rise and Demise: Comparing World-Systems*. Boulder, CO: Westview.
- Chase-Dunn, C., and Hall, T. D. 2011.** East and West in World-Systems Evolution. In Manning, P., and Gills, B. (eds.), *Andrew Gunder Frank and Global Development: Visions, Remembrances, and Explorations* (pp. 97–119). London: Routledge.
- Chase-Dunn, C., and Manning, S. 2002.** City Systems and World-Systems: Four Millennia of City Growth and Decline. *Cross-Cultural Research* 36(4): 379–398.
- Chase-Dunn, C., Niemeyer, R., Alvarez, A., Inoue, H., and Love J. 2010.** Cycles of Rise and Fall, Upsweeps and Collapses: Changes in the Scale of Settlements and Politics since the Bronze Age. In Grinin, L. E., Herrmann, P., Korotayev, A. V., and Tausch, A. (eds.), *History & Mathematics: Processes and Models of Global Dynamics* (pp. 64–91). Volgograd: Uchitel.
- Chernykh, E. N. 1992.** *Ancient Metallurgy in the USSR: The Early Metal Age*. Cambridge: Cambridge University Press.
- Childe, G. 1952.** *New Light on the Most Ancient East*. 4th ed. London: Routledge & Kegan Paul.
- Chumakov, A. N. 2011.** *Globalization. The Outlines of the Integral World*. 2nd edition. Moscow: Prospekt. In Russian.
- Cipolla, C. M. 1976. (ed.).** *The Industrial Revolution. 1700–1914*. London: Harvester.
- Clark, J. G. D. 1952.** *Prehistoric Europe: the Economic Basis*. London: Methuen.

- Cohen, M. N. 1977.** *The Food Crisis in Prehistory. Overpopulation and the Origins of Agriculture.* New Haven and London: Yale University Press.
- Conversi, D. 2010.** The Limits of Cultural Globalisation? *Journal of Critical Globalisation Studies* 3: 36–59.
- Courchene, T. J., and Savoie, D. J. 2003. (Eds.).** *The Art of the State: Governance in a World without Frontiers.* Montreal: Institute for Research on Public Policy.
- Cowan, S. W., and Watson, P. J. 1992. (Eds.).** *The Origins of Agriculture.* Washington & London: Smithsonian Institution Press.
- Dahrendorf, R. 1976.** Changes in the Class Structure of Industrial Societies. In Beteille, A. (ed.), *Social Inequality* (pp. 93–121). Harmondsworth: Penguin Books.
- Diamond, J. 1999.** *Guns, Germs, and Steel: The Fates of Human Societies.* New York: Norton.
- Dietz, F. 1927.** *The Industrial Revolution.* New York: Holt.
- Dols, M. W. 1977.** *The Black Death in the Middle East.* Princeton, NJ: Princeton University Press.
- Durand, J. D. 1977.** Historical Estimates of World Population. An Evaluation. *Population and Development Review* 3(3): 253–296.
- Farer, T. 1996. (Ed.).** *Beyond Sovereignty: Collectively Defending Democracy in the Americas.* Baltimore and London: JHU Press.
- Fisher, V. 1999.** *Europe: Economy, Society and State: 1914–1980.* Moscow: Vlasos. In *Russian.*
- Foreman-Peck, J. 1998.** Historical Foundations of Globalization. Cheltenham: Edward Elgar.
- Frank, A. G. 1978.** *World Accumulation 1492–1789.* New York: Monthly Review Press.
- Frank, A. G. 1990.** A Theoretical Introduction to 5,000 Years of World System History. *Review* 13(2): 155–248.
- Frank, A. G. 1993.** Bronze Age World System Cycles. *Current Anthropology* 34(4): 383–419.
- Frank, A. G. 1998.** *ReORIENT: Global Economy in the Asian Age.* Berkeley, CA: University of California Press.
- Frank A. G., Gills B. K. 1993. (Eds.)** *The World System: Five Hundred Years or Five Thousand?* London: Routledge.
- Frank, A. G., Thompson, W. R. 2005.** Afro-Eurasian Bronze Age Economic Expansion and Contraction Revisited. *Journal of World History* 16: 115–172.
- Friedman, T. L. 2005.** It's a Flat World, After All. *New York Times Magazine* 3-4-2005.
- Gans, C. 2001.** Historical Rights: The Evaluation of Nationalist Claims to Sovereignty. *Political Theory* 29(1): 58–79.
- Gelber, H. G. 1997.** *Sovereignty through Interdependence.* London – The Hague–Boston: Kluwer Law International.
- Gellner, E. 1988.** *Plough, Sword and Book. The Structure of Human History.* Chicago, IL: The University of Chicago Press.
- Giddens, A. 1990.** *The Consequences of Modernity.* Stanford: Stanford University Press.
- Gilpin, R. 2001.** *Global Political Economy: Understanding the International Economic Order.* Princeton, NJ: Princeton University Press.
- Goldstone, J. 1988.** East and West in the Seventeenth Century: Political Crises in Stuart England, Ottoman Turkey and Ming China. *Comparative Studies in Society and History* 30: 103–142.

- Grinin, L. E. 2003.** *Productive Forces and Historical Process*. Volgograd: Uchitel. In Russian.
- Grinin, L. E. 2007a.** Globalization and the Transformation of National Sovereignty. In Sheffield, J., and Fielden, K. (eds.), *Systemic Development: Local Solutions in a Global Environment*. Goodyear: ISCE Publishing.
- Grinin, L. E. 2007b.** Production Revolutions and Periodization of History: A Comparative and Theoretic-mathematical Approach. *Social Evolution & History* 6(2): 75–120.
- Grinin, L. E. 2007c.** Production Revolutions and Periodization of History. *Vestnik Rossiiskoi Akademii Nauk* 77(4): 309–315. In Russian.
- Grinin, L. E. 2008a.** Early State, Developed State, Mature State: The Statehood Evolutionary Sequence. *Social Evolution & History* 7(1): 67–81.
- Grinin, L. E. 2008b.** Globalization and Sovereignty: Why do States Abandon their Sovereign Prerogatives? *Age of Globalization* 1: 22–32.
- Grinin, L. E. 2009a.** The State in the Past and in the Future. *Herald of the Russian Academy of Sciences* 79(5): 480–486.
- Grinin, L. E. 2009b.** *The State and Historical Process. The Political Aspect of Historical Process. 2nd edition*. Moscow: LIBROCOM. In Russian.
- Grinin, L. E. 2011.** Globalization Origin: World-System Analysis. *Vek globalizatsii* 1(7): 80–94. In Russian.
- Grinin, L. E. 2012a.** *Macrohistory and Globalization*. Volgograd: Uchitel.
- Grinin, L. E. 2012b.** New Foundations of International System or Why do States Lose Their Sovereignty in the Age of Globalization? *Journal of Globalization Studies* 3(1): 3–38.
- Grinin, L. E., and Korotayev, A. V. 2006.** Political Development of the World System: A Formal Quantitative Analysis. In Malkov, S. Yu., Grinin, L. E., and Korotayev, A. V. (eds.), *History & Mathematics: Historical Dynamics and Development of Complex Societies* (pp. 49–101). Moscow: KomKniga.
- Grinin, L. E., Korotayev, A. V. 2009a.** *Social Macroevolution: The Genesis and Transformation of the World System*. Moscow: LIBROCOM. In Russian.
- Grinin, L. E., Korotayev, A. V. 2009b.** Social Macroevolution: Growth of the World System Integrity and a System of Phase Transitions. *World Futures* 65(7): 477–506.
- Grinin, L. E., Korotayev, A. V. 2010a.** Will the Global Crisis Lead to Global Transformations. 1. The Global Financial System: Pros and Cons. *Journal of Globalization Studies* 1(1): 70–89.
- Grinin, L. E., Korotayev, A. V. 2010b.** Will the Global Crisis Lead to Global Transformations? 2. The Coming Epoch of New Coalitions. *Journal of Globalization Studies* 1(2): 166–183.
- Grinin, L. E., Korotayev, A. V. 2011.** The Coming Epoch of New Coalitions: Possible Global Scenarios. *World Futures* 67(8): 531–563.
- Grinin, L. E., Korotayev, A. V. 2012.** Afroeurasian World-System: Genesis, Transformations, Characteristics. In Babones, S., and Chase-Dunn, C. (eds.), *Routledge Handbook of World-Systems Analysis* (pp. 30–39). London: Routledge.
- Hall, T. D., Chase-Dunn, C., and Niemeyer R. 2009.** The Roles of Central Asian Middlemen and Marcher States in Afroeurasian World-System Synchrony. In Trinchur, G. (ed.), *The Rise of Asia and the Transformation of the World-System*. Boulder, CO: Paradigm Press.
- Harris, D., and Hillman, G. 1989.** An Evolutionary Continuum of People-plant Interaction. *Foraging and Farming. The Evolution of Plant Exploitation* (pp. 11–27). London: Unwin Hyman.

- Hart, M. T. 1989.** Cities and Statemaking in the Dutch Republic, 1580–1680. *Theory and Society* 18(5): 663–687.
- Hathaway, J. 1998.** Egypt in the Seventeenth century. In Daly, M. (ed.), *The Cambridge History of Egypt*. Vol. 2 (p. 34–58). Cambridge: Cambridge University Press.
- Held, D., McGrew, A., Goldblatt, D., and Perraton, J. 1999.** *Global Transformations. Politics, Economics and Culture*. Stanford: Stanford University Press.
- Held, D., and McGrew, A. 2003. (Eds.).** *The Global Transformation Reader: An Introduction to the Globalization Debate*. Cambridge: Polity Press.
- Henderson, W. O. 1961.** *The Industrial Revolution on the Continent: Germany, France, Russia, 1800–1914*. [London]: F. Cass.
- Hopkins, A. G. 2002.** *Globalization in World History*. New York: Norton.
- Hopkins, A.G. 2003. (Ed.)** *Globalization in World History*. New York City: Norton.
- Jaspers K. 1953.** *The Origin and Goal of History*. New Haven, CT: Yale University Press.
- ICISS (International Commission on Intervention and State Sovereignty). 2001.** *The Responsibility to Protect: Research, Bibliography, Background*. Supplementary volume to the report of the International Commission on Intervention and State Sovereignty. December 2001. Ottawa.
- Ingold, T. 1980.** *Hunters, Pastoralists, and Ranchers: Reindeer Economies and Their Transformations*. Cambridge: Cambridge University Press.
- Kelbessa, V. 2006.** Globalization and Localization. In Mazour, I. I., and Chumakov, A. N. (eds.), *Global Studies. The International Encyclopedic Dictionary*. Moscow – St. Petersburg – New York: Eliba, Piter. *In Russian*.
- Kenyon, K. M. 1981.** *Excavations at Jericho*. Vol. 3. Jerusalem: British School of Archaeology.
- Knowles, L. C. A. 1937.** *The Industrial and Commercial Revolutions in Great Britain during the Nineteenth Century*. London: Routledge.
- Korotayev, A. 2000.** Parallel Cousin (FBD) Marriage, Islamization, and Arabization. *Ethnology* 39(4): 395–407.
- Korotayev, A. 2003a.** Religion and Society in Southern Arabia and among the Arabs. *Arabia* 1: 65–76.
- Korotayev, A. 2003b.** Unilineal Descent Groups and Deep Christianization: A Cross-Cultural Comparison. *Cross-Cultural Research* 37(1): 132–156.
- Korotayev, A. 2004.** *World Religions and Social Evolution of the Old World Oikumene Civilizations: A Cross-cultural Perspective*. Lewiston, NY: The Edwin Mellen Press.
- Korotayev, A. 2005.** A Compact Macromodel of World System Evolution. *Journal of World-Systems Research* 11(1): 79–93.
- Korotayev, A. 2006a.** ‘Midwest-Amazonian’ Folklore-Mythological Parallels? *Acta Americana* 14(1): 5–24.
- Korotayev, A. 2006b.** The World System Urbanization Dynamics: A Quantitative Analysis. In Turchin, P., Grinin, L., Korotayev, A., and de Munck, V. C. (eds.), *History & Mathematics: Historical Dynamics and Development of Complex Societies* (pp. 44–62). Moscow: KomKniga/URSS.
- Korotayev, A. 2007.** Compact Mathematical Models of World System Development, and How they can Help us to Clarify our Understanding of Globalization Processes. In Modelski, G., Devezas, T., and Thompson, W. R. (eds.), *Globalization as Evolutionary Process: Modeling Global Change* (pp. 133–160). London: Routledge.

- Korotayev, A. 2008.** Globalization and Mathematical Modeling of Global Development. In Grinin L. E., Beliaev. D. D., and Korotayev, A. V. (eds.), *Hierarchy and Power in the History of Civilizations: Political Aspects of Modernity* (pp. 225–240). Moscow: LIBRO-COM/URSS.
- Korotayev, A. 2009.** Compact Mathematical Models of the World System Development and Their Applicability to the Development of Local Solutions in Third World Countries. In Sheffield, J. (ed.), *Systemic Development: Local Solutions in a Global Environment* (pp. 103–116). Litchfield Park, AZ: ISCE Publishing.
- Korotayev, A. 2012.** Globalization and Mathematical Modeling of Global Development. In Grinin, L., Ilyin, I., and Korotayev, A. (eds.), *Globalistics and Globalization Studies* (pp. 148–158). Moscow – Volgograd: Moscow University – Uchitel.
- Korotayev, A., Berezkin, Yu., Kozmin, A., and Arkhipova, A. 2006.** Return of the White Raven: Postdiluvial Reconnaissance Motif A2234.1.1 Reconsidered. *Journal of American Folklore* 119: 472–520.
- Korotayev, A., and Grinin, L. 2006.** Urbanization and Political Development of the World System: A Comparative Quantitative Analysis. In Turchin, P. *et al.* (eds.), *History and Mathematics. Historical Dynamics and Development of Complex Societies* (pp. 115–153). Moscow: URSS.
- Korotayev, A., and Grinin, L. 2012.** Global Urbanization and Political Development of the World System. In Grinin, L., Ilyin, I., and Korotayev, A. (eds.), *Globalistics and Globalization Studies* (pp. 28–78). Moscow – Volgograd: Moscow University – Uchitel.
- Korotayev, A., and Kazankov, A. 2000.** Regions Based on Social Structure: A Reconsideration. *Current Anthropology* 41(5): 668–690.
- Korotayev, A., Klimenko, V., and Proussakov, D. 1999.** Origins of Islam: Political-Anthropological and Environmental Context. *Acta Orientalia* 52: 243–276.
- Korotayev, A., Klimenko, V., and Proussakov, D. 2003.** Globalizing Trends in the Pre-Modern Islamic World and Modern Globalization. In Mahmoud `Ouda *et al.* (ed.), *Globalization and the Dialogue of Civilizations* (pp. 41–70). Cairo: Ain Shams University.
- Korotayev, A., Malkov, A., and Khaltourina, D. 2006a.** *Introduction to Social Macrodynamics: Compact Macromodels of the World System Growth*. Moscow: KomKniga/URSS.
- Korotayev, A., Malkov, A., and Khaltourina, D. 2006b.** *Introduction to Social Macrodynamics: Secular Cycles and Millennial Trends*. Moscow: KomKniga/URSS.
- Korotayev, A., Zinkina, J., Bogevolnov, J., and Malkov A. 2011.** Global Unconditional Convergence among Larger Economies after 1998? *Journal of Globalization Studies* 2(2): 25–62.
- Kradin, N. N., Bondarenko, D. M., and Barfield, T. J. 2003. (Eds.).** *Nomadic Pathways in Social Evolution*. Moscow: Center for Civilizational and Regional Studies RAS.
- Kremer, M. 1993.** Population Growth and Technological Change: One Million B.C. to 1990. *The Quarterly Journal of Economics* 108: 681–716.
- Kuijt, I. 2000. (Ed.).** *Life in Neolithic Farming Communities. Social Organization, Identity, and Differentiation*. New York: Kluwer.
- Lamberg-Karlovsky, C. C., and Sabloff J.A. 1979.** *Ancient civilizations. The Near East and Mesoamerica*. Menlo Park, CA: The Benjamin/Cummins.
- Lamberg-Karlovsky, C. C., and Sabloff J.A. 1992.** *Ancient civilizations. The Near East and Mesoamerica*. Moscow: Nauka. *In Russian*.

- Lattimore, O. 1940.** *Inner Asian Frontiers of China*. New York: American Geographical Society.
- Lewis, D., and Moore, K. 2009.** *The Origins of Globalization*. London: Routledge.
- Lieberman, S. 1972. (Ed.).** *Europe and the Industrial Revolution*. Cambridge, MA: Schenkman.
- Mair, V. H. 2006. (Ed.).** *Contact and Exchange in the Ancient World* (pp. 30–61). Honolulu: University of Hawai'i Press.
- Markov, A. V., and Korotayev, A. V. 2007.** Phanerozoic Marine Biodiversity Follows a Hyperbolic Trend. *Palaeoworld* 16: 311–318.
- Marshall, T. Ch. 2005 [1959].** The Nature of the Class Conflict. *Lichnost. Cultura. Obschestvo* 25: 18–30. *In Russian*.
- Mazlish, B., and Iriye, A. 2005. (Eds.).** *The Global History Reader*. New York – London: Routledge.
- McNeill, W. H. 1976.** *Plagues and Peoples*. New York: Monticello.
- Mellaart, J. 1975.** *The Neolithic of the Near East*. London: Thames and Hudson.
- Mellaart, J. 1982.** *The Most Ancient Civilizations of the Near East*. Moscow: Nauka. *In Russian*.
- Menard, R. 1991.** Transport Costs and Long-Range Trade, 1300–1800: Was There a European 'Transport Revolution' in the Early Modern Era? In J. D. Tracy (ed.), *Political Economy of Merchant Empires* (pp. 228–275). Cambridge: Cambridge University Press.
- Mokyr, J. 1985.** *The Economics of the Industrial Revolution*. London: George Allen & Unwin.
- Mokyr, J. 1993. (Ed.).** *The British Industrial Revolution: an Economic Perspective*. Boulder, CO: Westview.
- More, C. 2000.** *Understanding the Industrial Revolution*. London: Routledge.
- O'Rourke, K. H., and Williamson, J. G. 1999.** *Globalization and History: The Evolution of a Nineteenth-Century Atlantic Economy*. Cambridge, MA: MIT Press.
- O'Rourke, K. H., and Williamson, J. G. 2000.** *When did Globalization Begin?* NBER Working Paper 7632. Cambridge, MA: NBER.
- Pantin, V. I. 2003.** *Cycles and Waves of Global History. Globalization in terms of History*. Moscow: Novyi vek. *In Russian*.
- Peregrine, P. 2003.** Atlas of Cultural Evolution. *World Cultures* 14: 2–88.
- Peregrine, P., and Ember, M. 2001a. (Eds.).** *Encyclopedia of Prehistory*. Vol. 4. *Europe*. New York: Kluwer.
- Peregrine, P., and Ember, M. 2001b. (Eds.).** *Encyclopedia of Prehistory*. Vol. 8. *South and Southwest Asia*. New York: Kluwer.
- Phyllis, D. 1965.** *The First Industrial Revolution*. Cambridge: University Press.
- Povalikhina, T. I. 2002.** The USA Economic Might in the Post-War World. In Golubovich, V. I. (ed.), *The Foreign Countries' Economic History* (pp. 410–442). Minsk: Interpress-service. *In Russian*.
- Reed, Ch. A. 1977. (Ed.).** *Origins of Agriculture*. The Hague: Mouton.
- Rindos, D. 1984.** *The Origins of Agriculture: an Evolutionary Perspective*. Orlando, CA: Academic Press.
- Rumyantsev, A. M. 1987.** *The Primitive Productive Mode (the Political and Economic Essays)*. Moscow: Nauka. *In Russian*.

- Schultz, E. A., and Lavenda, R. H. 1998.** *Anthropology. A Perspective on the Human Condition*. 2nd ed. Mountain View, CA: Mayfield.
- Sharp, P. 2008.** Why Globalization Might Have Started in the Eighteenth Century. *VoxEU*. May 16, 2008.
- Sherratt, A. 2006.** The Trans-Eurasian Exchange: The Prehistory of Chinese Relations with the West. In Mair, V. H. (ed.), *Contact and Exchange in the Ancient World* (pp. 30–61). Honolulu: University of Hawai'i Press.
- Slezkin, L. Yu. 1983.** The Establishment of the First English Colonies in North America. In Bolkhovitinov, N. N. (ed.), *The History of the USA*. Vol. 1 (pp. 15–49). Moscow: Nauka. *In Russian*.
- Smith, Ph. E. L. 1976.** *Food Production and Its Consequences*. Menlo Park, CA: Cumming Publishing Company.
- Solovyov, S. A., and Yevzerov, R. Ya. 2001.** The Monopolistic Capitalism of the Early 20th Century in the Western Europe and Countries and the USA. In Grigorieva, I. V. (ed.), *Modern History of Europe and America. Early 1870s – 1918* (pp. 267–299). Moscow: Moscow University Press. *In Russian*.
- Stearns, P. N. 1993.** Interpreting the Industrial Revolution. In Adams, M. (ed.), *Islamic and European Expansion. The Forging of a Global Order* (pp. 199–242). Philadelphia, PA: Temple University Press.
- Stearns, P. N. 1998 (Ed.).** *The Industrial Revolution in the World History*. 2nd ed. Boulder, CO: Westview.
- Teggard, F. 1939.** *Rome and China: A Study of Correlation in Historical Events*. Berkeley: University of California Press.
- Tekin, A. 2005.** On the Futures of Sovereignty. *Futures* 37: 563–566.
- Tracy J. D. 1990.** Introduction. In Tracy J. D. (ed.), *The Rise of Merchant Empires* (pp. 1–13). Cambridge: Cambridge University Press.
- Walker, R. B. J., and Mendlovitz, S. H. 1990a (Eds.).** *Contending Sovereignties: Redefining Political Community*. Boulder, CO: Lynne Rienner.
- Walker, R. B. J., and Mendlovitz, S. H. 1990b.** Interrogating State Sovereignty. In Walker and Mendlovitz 1990a.
- Wallerstein, I. 1974, 1980, 1988.** *The Modern World-System*. 3 vols. New York: Academic Press.
- Wallerstein, I. 1987.** World-Systems Analysis. In Giddens A., and Turner, J. (eds.), *Social Theory Today* (pp. 309–324). Cambridge: Polity Press.
- Wallerstein, I. 2004.** *World-Systems Analysis: An Introduction*. Durham, NC: Duke University Press.
- Weiss, L. 2003. (Ed.).** *States in the Global Economy: Bringing Domestic Institutions Back In*. New York – Cambridge.
- Wenke, R. J. 1990.** *Patterns in Prehistory*. New York – Oxford: Oxford University Press.
- Wilkinson, D. 1987.** Central Civilization. *Comparative Civilizations Review* 17: 31–59.