

Leonid E. Grinin and Andrey V. Korotayev

3.1 On Objectives and Tasks of the Chapter

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

1. to demonstrate that as early as a few thousand years ago (at least since the formation of the system of long-distance and large-scale trade in metals in the fourth millennium BCE) the scale of systemic trade relations grew significantly beyond the local level and became regional (and even transcontinental in a certain sense);
2. to show that already in the late first millennium BCE the scale of processes and links within the Afroeurasian world-system not only exceeded the regional level, as well as reached the continental level, but it also went beyond continental limits. That is why we contend that within this system, the marginal systemic contacts between the agents of various levels (from societies to individuals) may be defined as *transcontinental* (note that we deal here not only with overland contacts, because after the late first millennium BCE in some cases we can speak about the oceanic contacts—the most salient case is represented here by the Indian Ocean communication network [for more details see Chew in this work]);
3. to demonstrate that even prior to the Great Geographic Discoveries the scale of the global integration in certain respects could be compared with the global integration in more recent periods. In particular, in terms of demography, even

This research has been supported by the Russian Foundation for the Humanities (project No. 14-02-00330).

L.E. Grinin (✉) • A.V. Korotayev

Higher School of Economics, National Research University, Myasnitskaya str. 20, 10100 Moscow, Russian Federation

e-mail: leonid.grinin@gmail.com; akorotayev@gmail.com

2000 years ago a really integrated part of the humankind encompassed 90% of the total world population.¹

Our analysis suggests that the above-mentioned marginal level of integration within the Afroeurasian world-system can be hardly considered as something insignificant or virtual; it substantially influenced the general direction of development and accelerated the development of many social systems. The article also deals with several other issues that are important both for the world-system approach and for the study of the history of globalization—such as the typology of the world-system links, peculiar 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.²

3.2 Introduction: On the Periods of Historical Globalization

The present article chapter has been prepared within 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 from the Agrarian Revolution. Those integration processes (depending on the viewpoint of a particular researcher) may be regarded as preparatory stages of globalization, or as its initial phases. There are already many studies on the subject (see, e.g., Foreman-Peck, 1998; Held, McGrew, Goldblatt, & Perraton, 1999; Hopkins, 2002; Lewis & Moore, 2009; O’Rourke & Williamson, 1999; Sharp, 2008, etc.). However, many points still need further research, clarification, and reinterpretation. Most students of globalization do not doubt that its origins can be traced more or less deep in history, though there are rather diverse views as regards the exact starting point.³ 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 new fields one can mention Global History whose heart and novelty, according to Bruce Mazlish and Akira Iriye (2005: 19; see

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

²Concerning the alternative spatial frameworks for considering Africa and Eurasia separately and together see Manning in this issue. However, we believe that there are more arguments to regard Africa and Eurasia as a whole system (especially, as regards North Africa).

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

also Little in this work), is history of globalization. We contend that in a certain sense almost the whole World History can be regarded as a history of advancement 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; Grinin & Korotayev, 2009a, 2009b, 2012; Korotayev, 2007, 2008).

According to different authors, globalization has been going on either since the first movement of people out of Africa into other parts of the world, or since the third millennium BC [when according to Andre Gunder Frank the World System⁴ emerged (Frank, 1990, 1993; Frank & Gills, 1993)], or since the so-called Axial Age (Jaspers, 1953) in the first millennium BC, or only since the Great Geographical Discoveries, or in the nineteenth century, or after the year 1945, or only since the late 1980s. 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 Great Geographical Discoveries. After them 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 details see Grinin, 2011).

The main objective of the present chapter focusses on 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 facts in support of our statement. It also turned necessary to apply a specific 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 Gellner (1988) believes that three periods is the optimum number for periodization].

An example looks as follows (e.g., Hopkins, 2002: 3–7; see also Bayly, 2004): (1) Archaic globalization; (2) Early modern globalization;⁵ and (3) Modern globalization.

Trinomial periodizations are also used by those who trace the origin of globalization to the period of the Great Geographic Discoveries. For example, Thomas L. Friedman (2005) divides the history of globalization into three periods:

⁴Note that Andre Gunder Frank uses the term “World System”, whereas Wallerstein (e.g., 1974, 1987, 2004), Chase-Dunn and Hall (e.g., 1994, 1997, 2011), Kardulias (e.g., 2007) and others use the term “world-system” or “world-systems”. The hyphen is an indicator of significantly different approaches to these topics.

⁵This phase is also denoted as ‘proto-globalization’; but this notion does not appear quite appropriate.

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 argue that the number of periods in any historical division should be determined, first of all, by the contents of the process under study.

There are periodizations based on other grounds—for example, the one developed by Alexander Chumakov (2011: 166–167) who worked out a periodization of 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 of Regional Events’ (till the fifteenth century CE); (3) ‘Period of Global Events’ (till the mid-twentieth century). The fourth period (‘Period of Cosmic Expansion’) of this periodization started in 1957. This periodization is of interest, but some of its underlying ideas need serious clarifications and reinterpretations. First, as will be demonstrated below, as early as in the second half of the first millennium BCE, many events not only grew beyond regional levels, but had continental and transcontinental scales. Already in the previous period some events had been of regional-continental scales. Evidence in support of this approach is presented below, whereas its brief exposition can be found in Tables 3.1 and 3.2.

In the present chapter we do not try to describe the whole history of globalization in detail; however, our vision of its main phases may be found in Table 3.1. In particular, we proceed from the following observation: though the Great Geographic Discoveries made it possible to transform the intersocietal links into global

Table 3.1 Growth of globalization level in historical process

Type of spatial links (globalization level)	Period
Local links	1. Till the seventh–sixth millennium BCE
Regional links	2. From the seventh–sixth millennium till the second half of the fourth millennium BCE
Regional-continental links	3. From the second half of the fourth millennium BCE to the first half of the 1st millennium BCE
Transcontinental links	4. From the second half of the 1st millennium BCE to the late fifteenth century CE
Oceanic (intercontinental) links	5. From the late fifteenth century to the early nineteenth century
Global links	6. From the early nineteenth century to the 1960s and 1970s
Planetary links	7. From the last third of the twentieth century to the mid-twenty-first 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 worldsystem (Grinin & Korotayev, 2009b, 2012; Korotayev, 2005, 2006b, 2007, 2008, 2012; Korotayev, Malkov, & Khaltourina, 2006a, 2006b). See some other qualifications below

Table 3.2 Correlation between spatial links, political organization and level of technology

Type of socio-spatial links	Period	Forms of political organization	Level of technology (production principles and production revolutions)
Local links	Up to the second half of the fourth 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 fourth millennium BCE—the first half of the first 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 first millennium BCE—the late fifteenth century CE (≈490 BCE–1492 CE)	Rise of empires and first developed states	Final phase of the agrarian production principle
Intercontinental (oceanic) links	The late fifteenth century—the early nineteenth 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 nineteenth 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 twentieth 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 scientific-information revolution whose second phase is forecasted for the 2030s and 2040s

links, the period between 1500 and 1800 CE was not yet fully global. First, not all the territories of the Earth had been discovered (Antarctica being the most salient among them). Second, many societies (in Australia, Oceania, and some parts of Inner Africa) had not been involved into global contacts in any significant way. Third, some large countries of East Asia quite voluntarily isolated themselves from the rest of the world. Fourth, the volume of trade could hardly be called global (see O'Rourke & Williamson, 1999, 2000 for more details on this point). Thereby, we denote the period from the late fifteenth century to the early nineteenth century as a specific period of oceanic (intercontinental) links. Chronologically this period

almost coincides with the one defined by Hopkins (2002: 3–7) and Bayly (2004) as a period of proto-globalization or early modern globalization. However, we argue our designation of this period reflects in a more accurate way the scale and character of links during this period. Indeed, the period that started in the early nineteenth century may well be denoted as ‘a very big globalization bang’ (O’Rourke & Williamson, 2000). That is why we denote the links in this period as ‘global’. This period lasted till the 1970s, after which the level of intersocietal interconnectedness began to grow very fast (especially after the early 1990s). During that very period it was recognized that we had entered a new era of interconnectedness that was denoted as ‘globalization’ (*mondialisation* in French). In order to distinguish this period from the previous one we suggest denoting it as ‘planetary’, which reflects, first, the implications of the space exploration (these are the space/satellite communication technologies that provide unprecedented communication opportunities in terms of speed, density, and diversity); second, 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, and whose links were rather limited and often established by means of coercion. Third, this reflects the fact that modern globalization has not realized its potential to the full, that this process continues, and when it is finished in the twenty-first century, the level of interrelatedness will be truly planetary, when almost any place in the world will be connected with almost any other place.

Among the seven periods outlined above (and below in Table 3.1), except for the first and second ones, all refer to historical globalization.

In Table 3.2 we present the correlations in historical globalization between the globalization periods and such characteristics as spatial links, political organization and level of technological development.

As we have already mentioned above, it is very important to take into consideration that the level of integration within the Afroeurasian world-system substantially influenced the general direction of development, as well as significantly accelerated the development of many social systems whose development rate, otherwise, would have been much slower. It is quite clear that it took the signals rather long time to get from one end of the world-system to another—actually, much 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 pandemia (that killed dozens million) spread from the Far East to the Atlantic Ocean within two decades [in the 1330s and 1340s (see, e.g., Borsch, 2005; Dols, 1977; McNeill, 1976)]. 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.

3.3 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 argue that the world-system approach is one of the most promising in this respect, as it was originally constructed to cope with tasks of this kind. This approach may be used much more widely in this area due to its certain merits. In particular, 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 common in ordinary historical studies), but a world-system (see also articles by Hall and Chase-Dunn in this work).

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., Amin, Arrighi, Frank, & Wallerstein, 2006; Arrighi & Silver, 1999; Braudel, 1973; Chase-Dunn & Hall, 1994, 1997; Frank, 1990, 1993; Frank & Gills, 1993; Wallerstein, 1987; in Chap. 1, Hall reviews much of this history). Its formation was connected 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 argued that the modern world-system was formed in the ‘long sixteenth century’ (c. 1450–1650). According to him, before that there had been a very large number of other world-systems. Wallerstein classifies the world-systems into three types: (1) *minisystems*; (2) *world-economies*; and (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. Meanwhile, 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 an empire, then, as Wallerstein states, we should speak about a world-empire, not world-economy. In general, world-economies were characterized by a higher socioeconomic dynamism than worldempires, but almost all the pre-capitalist world-economies sooner or later transformed into world-empires (world-empires would also frequently disintegrate and 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 which he analyzed in considerable detail in his first ‘world-system’ monograph

(Wallerstein, 1974). In ‘the long sixteenth 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 sixteenth century’ and, after a phase of a relative stabilization (in the second half of the seventeenth–eighteenth century), it encompassed the whole world in the nineteenth century.

Though the version of the world-system approach developed by Andre Gunder Frank (1990, 1993; Frank & Gills, 1993) is lesser known than Wallerstein’s version, we suggest that it might have 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 initial capital letters). According to Frank, the World System originated in the Near East many millennia before the ‘long sixteenth century’. This idea is expressed rather explicitly in the title of the famous volume he edited in cooperation with Barry Gills—*The World System: Five Hundred Years or Five Thousand?* (Frank & Gills, 1993). This World System had gone through a long series of expansion and contraction phases until in the nineteenth century it encompassed the whole world.

We propose that a synthesis of the two main versions of the world-system approach is quite possible, and in the present chapter we analyze the processes that contributed to the emergence and growth of the Afroeurasian world-system which may be considered as a direct predecessor of the modern planetary World System. Already more than two millennia ago, the Afroeurasian world-system became connected from its one end to the other with trade links; by the late thirteenth century it had reached its culmination point (for the pre-capitalist epoch), since the late fifteenth century it started its explosive expansion and between the sixteenth and nineteenth centuries it became a truly planetary World System.⁶

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 & Korotayev, 2012). However, from the time of its formation and in the 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

⁶Correspondingly, 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 our whole planet.

the early first millennium CE it encompassed more than 90% of the world population (Durand, 1977: 256).

The notion of ‘world-system’ (as it is used in the present chapter) can be defined as *a maximum set of human societies that has systemic characteristics, a maximum set of societies that are significantly connected with each other 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 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 Norse voyages to the New World and even their settlement did not lead to 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 the definition turns out to be closer to such notions as ‘planetary system’, ‘global system’, or ‘humankind as a system’.

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 its territory size 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 culturalpolitical 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 waves 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 sooner or later to reach all the major Afroeurasian world-system centers. This contributed to a certain (albeit imperfect) synchronization of processes in different parts of the 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 is the world-system, the higher is the speed of its development (see, e.g., Korotayev, 2007, 2008, 2009, 2012; Korotayev, Malkov, & Khaltourina, 2006a; Kremer, 1993; Markov & Korotayev, 2007). 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 worldsystem. This led to a significant increase in the rate of development in the Afroeurasian world-system than in smaller world-systems (Diamond, 1999).

- *Succession of qualitative transformations* that changed the Afroeurasian world-system's 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 the leading center.
- *An especially high role of the barbarian (and especially nomadic) periphery* was determined by 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 many peripheral societies into semiperipheral, as well as the transformation of a part of semiperipheral societies into core ones (Hall, Chase-Dunn, & 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*, which contributed to the emergence of several communication networks with particularly high levels of contact density (the Mediterranean network, the Baltic Sea network, the Indian Ocean network, etc.). The Afroeurasian world-system growth proceeded up to a considerable degree through the incorporation of coastal areas suitable for colonization and trade and their hinterlands (e.g., the Phoenician, or Greek colonization, Sawahili cities along the East African coast, etc.).

3.3.1 A Brief Overview of the Main Phases of the Afroeurasian World-System's Evolution

The processes of intersocietal interaction started several dozens thousand years ago. That is why it seems inappropriate to speak about any perfect isolation even with respect to the 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, 2006a; Korotayev, Berezkin, Kozmin, & Arkhipova, 2006; Korotayev & Kazankov, 2000). 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 km from that sea (e.g., Clark, 1952; Rummyantsev, 1987: 170–171). However, we, evidently, observe a new phase of intersocietal integration after the start of the Agrarian Revolution (about it see Cauvin, 2000; Childe, 1952; Cohen, 1977; Cowan & Watson, 1992; Grinin, 2007b; Harris & Hillman, 1989; Ingold, 1980; Mellaart, 1975, 1982; Reed, 1977; Rindos, 1984; Smith, 1976).

In the tenth to eighth millennia BCE, the transition from foraging to food production took place in West Asia (in the Fertile Crescent area), and thus, one could observe a significantly growing complexity of respective social systems, which marked the start of the formation of the Afroeurasian world system. The

formation of the Afroeurasian world-system was one of the crucial points of social evolution, starting from which the social evolution rate and effectiveness increased dramatically. In the eighth to fifth 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 fourth and third millennia first, in Southern Mesopotamia, and then in most other parts of the Afroeurasian world-system one could observe the formation of a large number of cities. Writing systems, large-scale irrigation-based agriculture, new technologies of tillage had developed. The first early states and civilizations would form on this basis. Many very important technological innovations were introduced in most parts of the 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 the intensification of regional struggles for hegemony. New civilization centers emerged outside the Middle Eastern core (e.g., the Minoan and Harappan civilization).

In the late third and second millennia BCE, in Mesopotamia one could observe the succession of such large-scale political entities as the Kingdom of Akkad, the Third Dynasty of Ur, the Old Babylonian and Assyrian Kingdoms. The struggle for hegemony in the core of the Afroeurasian world-system reached a new level with a clash between the New Kingdom of Egypt and the Hittite Empire. The political macroprocesses were exacerbated by invasions from the tribal peripheries (the Gutians, Amorites, Hyksos, etc.) with a gradual increase of the role of nomadic herders in such invasions. *In the second 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 second and first millennia BCE*, iron metallurgy diffused throughout Afroeurasian world-system, which led to a significant growth of agricultural production in the areas of non-irrigation agriculture in 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 first millennium BCE, the hegemonic struggles moved far beyond the Near East. The fall of the New Assyrian Empire in the seventh century BCE paved the way to the formation of new enormous empires (Median, and later Persian ones). The Greek-Persian wars marked the first clash between European and Asian powers. In the second half of the fourth century BCE, Alexander the Great's campaign created (albeit for a short time) a truly Afroeurasian empire encompassing vast territories in all the three parts of the Old World—Asia, Africa, and Europe.

In the second millennium BCE, the Harappan civilization disappeared in a rather mysterious way; however, in the first millennium BCE the Indoarians who had migrated to this region from Central Asia created a new and more powerful civilization.

In the late first millennium BCE, one could observe a 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.

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

In the first centuries CE mass migrations and military invasions from the barbarian periphery the ethnic and cultural landscape of the Afroeurasian world-system changed significantly. The Western Roman Empire disappeared as a result of the barbarians' onslaught. The Han Empire in China had collapsed earlier. As a result of the 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 the Turkic khaganates) played a role of a trade link between the East and the West.

The first millennium CE evidenced the emergence of new world religions and a wide diffusion of old and new world and super-ethnic religions (including Confucianism). Buddhism spread 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 whole Western and Eastern Europe and proliferated to some areas of Africa and Asia. Finally, starting with the seventh 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 a huge Islamic communication network (see, e.g., Korotayev, 2003a; Korotayev, Klimenko, & Prussakov, 1999, 2003)].

The first half of the second millennium CE. The Crusades (the eleventh–thirteenth centuries CE) were one of the most important world-system events. Among other things they opened a channel of spice trade with Europe. The Mongolian conquests in the thirteenth century played a tremendous role as they led to unprecedented destructions and political perturbations. However, later the emergence of an unprecedentedly large Mongolian empire contributed to the diffusion of several extremely important technologies throughout the Afroeurasian world-system (including its European part). It also established a network of trade routes between East Asia and Europe that was unprecedented in terms of 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 fourteenth century.

An important event was the firm incorporation of South India into tight contacts with other parts of the Afroeurasian world-system through a gradual penetration of the Islamic polities and a partial Islamization of its population. In the fifteenth 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 helped start 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.

3.4 World-System Links and Processes

Systemic Character of the World-System Processes World-system processes and transformations can be understood much better by focussing on its systemic properties. 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 assert that special attention should be paid to Chase-Dunn and Hall's idea that a world-system is constituted not just by intersocietal interactions, but by a 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 (Chase-Dunn & Hall, 1997: xi–xii). This way, a fundamental system property (the whole is more than just a sum of its parts) is realized within the world-system. 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 manifest 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 fifteenth 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 its most other parts (for instance, the diffusion of the Black Death in the fourteenth century).

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 the 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 & Manning, 2002). There is a similar synchrony in the territorial sizes of the largest empires (Hall et al., 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 a hypothesized mechanism of the systemic linkages between East and West Asia. 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 first millennium BCE (Jaspers, 1953) or the military revolution and formation of a new type of statehood in Europe and Asia in the late fifteenth and sixteenth centuries CE that produced a colossal influence upon the formation of the modern World-System (see Grinin, 2012a). However, the transformations were similar across different regions only in a broad sense and that development has always been spatially uneven (Chase-Dunn & Hall, 1997: xiii).

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

- (a) the Afroeurasian world-system transition to a new phase produced 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 accompanied 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 the 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 frequently 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 third–seventh 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 Bondarenko, 2006; Lamberg-Karlovsky & Sabloff, 1979 for more details).

3.4.1 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 (*Ibid.*: 185). That is why it may 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. Since the eighth century CE the whole civilized part of Afroeurasian world-system (with a partial exception of South Asia) consisted of actively interacting world religion areas (for more details 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 was focused mainly on 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 (Grinin, 2007b, 2012a; Grinin & Korotayev, 2009b; Korotayev, 2005, 2007, 2008, 2012; Korotayev, Malkov, & Khaltourina 2006a)]. The presence of the pan-Afroeurasian world-system information network contributed to 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 Large scale trade in strategic economically important items could be already observed in the framework of the emerging Afroeurasian world-system, in West Asia. The obsidian (that was in high demand for the manufacturing of stone tools) was transported from the Anatolian plateau throughout Afroeurasian world-system already in the seventh millennium BCE. This is likely to have been accompanied by the trade in food stuffs, leather, and textiles (Lamberg-Karlovsky & 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 & Sabloff, 1992: 86, 95; on extensive cultural links of this region, say, in the seventh millennium BCE see, e.g. Bader (1989: 228, 233, 262)). For the fifth and fourth 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 third and the second millennia BCE (Frank, 1993; Wilkinson, 1987). In the first millennium BCE, the long-distance trade (including sea trade) became even more developed (Chase-Dunn & 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, 2003; Peregrine & Ember, 2001a, 2001b).⁷

⁷It appears appropriate to emphasize that in both cases the population of respective belts engulfed the majority of the world population of respective epochs.

In the late seventh millennium BCE, the growing aridization led to the end of the Pre-ceramic 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 worldsystem; on 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, and 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 through new technologies and cultural traits (Lamberg-Karlovsky & Sabloff, 1992: 82). This way, the Afroeurasian world-system 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 First Millennium and the Early Second Millennium CE In the second half of the first 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 the Persian, Arab, Indian, and other merchants (see Bentley, 1996 for more details). It is important to note that the trade in this region did not limit by luxury items, but included a considerable number of bulk goods, such as dates, timber, construction materials, etc. (*Ibid.*).

In the thirteenth and fourteenth 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 worldsystem'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.

3.4.2 The World System Genesis and Transformations: A Detailed Analysis

Origins of the Afroeurasian World-System There are 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 fourth and third millennia BCE (Frank, 1993; Frank and Thompson 2005); Wilkinson (1987) and Berezkin (2007: 92–93) consider the second millennium as its beginning. The authors of the present article date the emergence of the Afroeurasian world-system to a considerably earlier period, the tenth to eighth millennia BCE (Grinin & Korotayev, 2009b, 2012; Korotayev & Grinin, 2006, 2012). Some other world-system students believe that it only came to the real existence in the late first

millennium BCE (Chase-Dunn & Hall, 1997, 2011; Hall, Chase-Dunn, & Niemeyer, 2009).

The approaches to this issue differ considerably depending on the world-system criteria employed: the bulk good criterion (a more rigid one), prestige good, or information network ones (softer criteria). The more rigid the approach, the more recent is the dating that it employs. However, the dating also depends on general approaches to the emergence of the Afroeurasian world-system. For example, if together with Chase-Dunn and Hall (1997: 150) we consider that by the moment of the Silk Route emergence there were three main independent world-systems (the West Asian, Chinese, and South Asian ones) which later merged into a single (Afroeurasian) world-system, then it appears quite logical to date the emergence of the single Afroeurasian world-system to the late first millennium BCE. However, based on a West Asian world-system which led from the very beginning in technological, social, and economic terms, it was much more innovative than the other world-systems.⁸ 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 first millennium BCE was negligible (and hence we should speak about the incorporation of South and East Asia into the Afroeurasian world-system, rather than a merger of three equally important world-systems), then the origins of the Afroeurasian world-system would have a much older origin (by several millennia).

In any case, it is quite clear that the emergence of the Afroeurasian world-system was a rather prolonged process. We also note that in the Near East 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.⁹

Hence, whatever dating we provide for the Afroeurasian world-system start, it is perfectly clear that the roots of its formation date to the beginning of the agrarian ('Neolithic') revolution in West Asia in the tenth to eighth millennia BCE. Within this prolonged process of the Afroeurasian world-system genesis and transformation one could single out a few major phases.

⁸This point should be emphasized specially, as it allows suggesting a tentative dating of the World System formation, as well as identifying 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 the 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).

⁹Note 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.

1. From the eighth to the fourth millennia—the formation of contours and structure of the Middle Eastern core of the Afroeurasian world-system (the first phase).

This is a period of the completing 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 fourth to first millennia BC (Korotayev and Grinin, 2006)]. This period evidenced the beginning of formation of rather long-distance and quite permanent information/exchange contacts. Those processes were accompanied by the formation of medium-complex early agrarian societies, relatively complex polities, and settlements that (as regards their size and structure) slightly resembled cities (e.g., Kenyon, 1981; Schultz & Lavenda, 1998: 214; Wenke, 1990: 325).

In the fifth millennium BCE, the Ubaid culture emerged in Southern Mesopotamia; within just that very culture the material and social basis of the Sumerian civilization was developed up to a considerable level. The Uruk culture that succeeded the Ubaid one was characterized by the presence of a considerable number of rather large settlements. By the end of the period in question one could observe the emergence of urbanized societies (Bernbeck & Pollock, 2005: 17), as well as the first early states, their analogues (Grinin, 2003, 2008a; Grinin & Korotayev, 2006), 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 the 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 worldsystem may be defined as regional because this world-system itself initially had a size of a region. With the expansion of the Afroeurasian world-system, the scale of its worldsystem links expanded too, thus, some time later (after the seventh to sixth millennia BCE) they transformed into regional-continental ones. However, during this period the Afroeurasian world-system still covered a minor part of the Globe; and hence, at the global scale the local links still prevailed.

2. The third and second millennia BCE—the development of the Afroeurasian world-system centers during 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 fourth millennium and the first half of the third millennium BCE; later the Afroeurasian world-system urbanization process significantly slowed down until the first 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, 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, 2008a; Grinin & Korotayev, 2006). Second, the first empires emerged. Third, after the third millennium BCE one could observe upswings and downswings of the cycles of political hegemony (Frank & Gills, 1993; see also Chase-Dunn, Niemeyer, Alvarez, Inoue, & Love, 2010).

In the late third millennium and the second millennium BCE, in Mesopotamia one could observe the succession of the Akkadian Empire, the third Dynasty of Ur Kingdom, the Old Babylonian Kingdom, the Assyrian Kingdom. In the second half of the second 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.

The 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 formation of the main Afroeurasian world-system centers took place; these centers developed throughout the subsequent history of the 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 inter-regional, but contours of transcontinental links also became quite visible. However, at the global scale regional links still prevailed.

3. **From the first millennium BCE till 200 BCE—the Afroeurasian worldsystem 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 completed 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 details). On this production base enormous changes in trade and military-political spheres took place accompanied with a new urbanization and state development upswing [a group of developed states emerged (see Grinin & Korotayev, 2006; for more details see Grinin, 2008a)]. One could observe within 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 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 territory 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 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 increase, acquiring continental and intercontinental scales.

4. **From 200 BCE to the early seventh century CE—the 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 links.*

Around the second century BCE, relatively stable trade links (albeit involving preciousness 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.¹⁰ Thus, in this period the periphery closed the circuit of Afroeurasian world-system trade links. For a long time the Afroeurasian world-system expansion proceeded 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 barbarian periphery itself acquired a world-system scale and synchronized its 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 first millennium BCE up to nine-digit numbers led to increased level of pathogen threat. Thus, the Antonine and Justinian’s

¹⁰In particular, many scholars 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; Teggart, 1939).

pandemics caused catastrophic depopulations throughout Afroeurasian world-system in the second and sixth 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 first millennium CE.

5. **From the seventh to the fourteenth centuries—the 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 maximum 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 the 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 particularly note: (a) the formation of especially dense oceanic trade links in the second half of the first millennium in the Indian Ocean Basin (see above); (b) the creation of vigorous major transcontinental land routes 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; Blockmans, 1989: 734; Wallerstein, 1974).

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 as early as 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 at 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 fourteenth century, the city growth might have been amplified by the emergence of the developed statehood and the concomitant process of formation of the developed state capitals (e.g., Grinin, 2008a, 2012a; Grinin & Korotayev, 2012, 2009a: Ch. 6), and the growth of cities of all types, including very large cities.

6. **The fifteenth–eighteenth centuries—the transformation of the Afroeurasian world-system into the planetary World System (the sixth phase).** This phase was associated with the start (the first phase) of the industrial revolution (see Cipolla, 1976; Dietz, 1927; Grinin, 2007b, 2012a; Grinin & Korotayev, 2009a: Ch. 2; Henderson, 1961; Knowles, 1937; Lieberman, 1972; Mokyr, 1985, 1993;

More, 2000; Phyllis, 1965; Stearns, 1993, 1998) that determines the transformation of the Afroeurasian worldsystem simultaneously into the planetary (on the one hand) and capitalist (on the other hand) World-System [satisfying rather well Wallerstein's (1974, 1980, 1987, 1988, 2004)] notion of the world-system, as its development involved now mass movements of bulk goods throughout its territory, whereas some territories [especially in the New World] got entirely specialized in their production). A very high level of intensity of the emerged planetary world-system links could be evidenced, for example, by a very high effect produced by the price revolution that resulted from the mass import of gold and silver from the New World to the Old World (see, e.g., Barkan and McCarthy, 1975; Goldstone, 1988; Hathaway, 1998: 34).

However, as the agrarian productive principle still prevailed, one could observe the development 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 sixteenth–seventeenth centuries, the so-called ‘military revolution’ took place in Europe (e.g., Grinin, 2012a; Grinin & Korotayev, 2009a: Ch. 5). It implied the formation of modern regular armies with sophisticated firearms and artillery, which demanded the reorganization of the whole financial and administration system. In its turn the growth of the Europeans’ military power 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 Viet Nam), on the other. This modernization touched first 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 the nineteenth century to the twentieth century—the industrial World System and mature globalization (subsequent phases).**

The Great Geographic Discoveries sharply extended the Afroeurasian world-system's contact zone. As a result of this (alongside European technological breakthroughs) a new structure of this world-system began to take shape. 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 peripheral areas of the world-system experienced significant transformations.

Subsequent World-System development is connected directly with the second phase of the industrial revolution (the last third of the eighteenth century and the first half of the nineteenth century [for more details see Grinin, 2007b, 2007c]). 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, which 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 rather powerful and very regular information flows instead of fragmentary and irregular ones. This new World System became based on a truly international and global division of labor. In the twentieth century, the World System development (after world wars and decolonization) was connected with the scientific-information revolution of the second half of the twentieth century (e.g., Grinin, 2012a), which in conjunction with many other processes finally led to the fast growth of globalization processes (especially of those involving powerful financial flows) and their qualitative transformation (e.g., Grinin & Korotayev, 2010a, 2010b; Korotayev, Zinkina, Bogevoynov, & Malkov, 2011). Thus, the world became very tightly interconnected as the global financial-economic crisis has recently demonstrated in a rather convincing way. By the late twentieth century, the idea that our world is experiencing globalization (whatever meaning was assigned to this word) became a generally accepted.

3.4.3 Afterward

This chapter is devoted to the study of the early phases of globalization; that is why we have hardly touched upon the aspects of contemporary globalization. However, in the Afterward we find it appropriate to analyze a very important (but insufficiently analyzed) process very tightly connected with globalization. This is the process of the national sovereignty transformation that appears to be an essential component of present day globalization.

In the nineteenth century, when the globalization processes achieved a truly global level, the European states, generally, moved to a new phase of the statehood macroevolution, to the phase that we denoted as the 'Mature Statehood Phase' (see Grinin, 2008a, 2009a; Grinin & Korotayev, 2006, 2009a). Generally speaking, within history of statehood one can identify three evolutionary types of statehood: the early states, the developed states, and the mature states.

Early states are only beginning to become centralized with underdeveloped bureaucracy. Their flourishing falls in the period of Ancient World history and the most part of the Middle Ages. The developed states are the centralized estate-corporative and bureaucratic states of the Late Antiquity, Middle Ages, and Modern Age. The mature states are the states of the industrial epoch with rational law and government where the classes of industrial society and modern type of nation have formed (for more details see Grinin, 2008b, 2012a).

Thus, in a certain sense, the 'mature state' can be treated as an imperfect synonym of the notion of 'nation-state'.

3.4.4 Mature State Transformation in the Twentieth Century

The mature state developed due to the formation of the classes of entrepreneurs and employees and the emergence of the class-corporate state. For the European mature

states, this process was completed by the end of the nineteenth century. However, social classes gradually began to ‘diffuse’ and turn into fragmented and less consolidated groups, such as strata, layers, and so on. The transformation is determined by very rapid changes in production, demography, and education.¹¹ This process took place in Europe in the first half of the twentieth century. Such a transformation of the mature state is connected with very fast changes in production and related spheres, including the acceleration of migration processes, creation of conveyor production, explosive growth of the education subsystem, the service spheres, women’s employment, and so on (on some of these processes see, e.g., Marshall, 2005 [1959]: 23). Suffice to mention that the fourfold growth of the world industrial production between 1890 and 1913 (Solovyov & Yevzerov, 2001: 280).

The most important features of the new social structure are as follows:

- the formation and development of the middle class that gradually became numerically
- dominant (Fisher, 1999: 89);
- the growing importance of such factors of social stratification signs as education and social mobility (Fisher, 1999: 91); and, consequently, the growing share of ‘white collar’ workers;
- the increased impact of social legislation and laws, limiting society polarization (high income taxes, inheritance taxes, etc.);¹² and
- the strengthening of previously insignificant factors, such as gender, age, and professional-group characteristics.

We consider these transformations in retrospective. Actually, the first half of the twentieth century can be generally characterized as a period of struggle for the introduction of the most important social laws. The global social and economic events dramatically changed the respective views and ideologies: revolutions, the example of the USSR, the world economic crisis and so on. Sometimes quickly, sometimes gradually social policy experienced radical changes. Later this course was strengthened and developed (on the dynamics of social development see Fisher, 1999: 335–351). Immense changes took place in the sphere of income redistribution. This was achieved, in particular, through the progressive income taxation (see, e.g., *Ibid.*: 86–87) and social welfare programs for low-income groups. As a result of the development of social programs the taxation rates grew

¹¹We think that the fuller is the legal equality of human rights, the weaker are the borders between social classes that tend to disintegrate into smaller and less consolidated groups: strata, factions, etc. (for more details see Grinin, 2012a).

¹²In the last decades of the twentieth century, in some developed countries the lower class shrank to five per cent, the upper class constituted less than five per cent of the total population, whereas the rest of the strata could be attributed to the middle or lower-middle classes (see Fisher, 1999: 89), whereas in the early nineteenth century up to two thirds of the total population belonged to the lower class (Fisher, 1999: 89).

significantly in comparison with the period of classical capitalism (reaching 50 or more per cent of personal income).¹³

When in the 1950s and 1960s the USA and several European countries became welfare states/mass consumption societies, this implied that the mature state had acquired some features that were not typical of its earlier version, and that a new form of state had developed. Since we can observe the transformation of the mature class state into the mature social state, that is the state that actively pursues a policy to provide support for poor, socially unprotected groups and that places limits on the growth of inequality.

In the 1960s, new changes in all spheres of life (especially the new [information-scientific] production revolution) began. In particular, one could mention the growing role of various non-class social movements in the Western countries (student, youth, race, 'green', women movements, consumers' organizations and so on). The class characteristics became vaguer, among other things through the dispersion of ownership (see, e.g., Dahrendorf, 1976), whereas the social structure became determined more and more not only by economic ownership, but by other parameters, including education and popularity.

Thus, many present-day characteristics of the Western states cannot be regarded as definitely the ones of the mature state. Moreover, they have features that are also uncharacteristic of the state as a political organization in general. Especially noteworthy is the extremely important and seemingly strange phenomenon of partial waiving of legal sovereign rights. It is also necessary to note the formation of various supranational organizations and the growth of their importance. That is why there are certain grounds to expect that the end of the period of the mature states is forthcoming, and the world is entering the phase of its new (suprastate and supranational) political organization (for more details see Grinin, 2012a: Ch. 3).

3.4.5 Why Do States Lose Their Sovereignty in the Age of Globalization?

Among the important (but insufficiently analyzed) processes very tightly connected with globalization is the process of the national sovereignty transformation that appears to be an essential component of the present-day globalization. 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 details see Grinin, 2007a, 2008b, 2009a, 2012a, 2012b; Grinin & Korotayev, 2010a, 2010b, 2011).

¹³They only began to be reduced since the 1980s in connection with the introduction of the neoconservative course (that corrected the previously dominant Keynesian one) into the economic policies of a number of the leading states, such as the USA, Britain and so on. In particular, in the USA in 1986 the upper limit of personal income taxation was reduced from 50 to 28%, whereas the maximum rate of taxes on the corporations' profits was reduced from 46 to 34% (Povalikhina, 2002: 434).

The problems of national sovereignty in political science have attracted much attention since Jean Bodin's times. However, in the last two decades there were revealed some new aspects of this phenomenon, especially in the context of discussing the issues of globalization and new world order. In political science the subject of change, 'diffusion', or 'disappearing' of national sovereignty started to be raised in the late twentieth–early twenty-first century in connection with problems of globalization and new world order (see, e.g., Barkin & Cronin, 1994; Courchene & Savoie, 2003; Farer, 1996; Gans, 2001; Gelber, 1997; Giddens, 1990; Gilpin, 2001; Grinin, 2007a, 2008b, 2009a, 2012a, 2012b, Held & McGrew, 2003; Held et al., 1999; Tekin, 2005; Walker & Mendlovitz, 1990; Weiss, 2003).¹⁴ In our opinion, the processes of sovereignty change nowadays are among the most significant. It is reasonable to speak about the transition of most countries and the system of international relations in general to a new state of sovereignty. Presumably, if such processes (of course, with much fluctuation) gain strength, it will surely affect all spheres of life, including changes in ideology and social psychology (the moment which is still underestimated by many analysts).

On the one hand, much has been said about the way globalization strengthens factors that objectively weaken the countries' sovereignties. On the other hand, since the post-war times, more states have been willingly and consciously limiting their sovereign rights (a process surprisingly seldom debated). The change and reduction of nomenclature and scope of state sovereign powers is a bilateral process: on the one hand, the factors are strengthening that fairly undermine the countries' sovereignty, on the other—most states voluntarily and deliberately limit the scope of their sovereignty.

The process of globalization undoubtedly contributes to the change and reduction of the scope of state sovereign powers. The list of threats to state sovereignty often includes global financial flows, multinational corporations, global media empires, the Internet etc. and, of course, international interventions, as we have recently witnessed in Libya. At the same time after the end of World War II, more states have been willingly and deliberately limiting their sovereign rights, including the rights to determine the size of taxes and duties, to issue money; the right of supreme jurisdiction; the right to use capital punishment, to proclaim certain political freedoms or to limit them, to establish fundamental election rules, etc. Clearly sovereignty has decreased widely. And what is extremely important, many countries quite often give away a part of their sovereign powers voluntarily indeed. In our opinion, the factor of voluntariness in reducing one's own authority is, no doubt, the most important one in comprehending the future of the state.

What stands behind voluntary self-limitation of sovereignty prerogatives? There are several reasons for such voluntariness and 'altruism', including the fact that such a restriction becomes profitable, as in return the countries expect to gain advantages especially as members of regional and interregional unions. Besides, the world public opinion is also an important cause of sovereignty reduction: the

¹⁴For an almost exhaustive survey of such works prior to 2001 see ICISS (2001).

wider the circle of countries voluntarily limiting their sovereignty, states which do not make such restriction appear inferior.

However, it is worth noting that the voluntary reduction of sovereignty is more characteristic of the Western countries. The transformation of sovereignty in countries with different cultural traditions proceeds with more difficulty and is closely connected with the level of economic development. Nevertheless, the transformation of sovereignty proceeds in this or that way in almost all countries.

Some crucial events of the present could be regarded as precursors of forthcoming fundamental changes. The turbulent events of late 2010–2012 in the Arab World may well be regarded as a start of the global reconfiguration (for details see Grinin & Korotayev, 2011). We designate the process of probable future transformations with respect to the crisis and socioeconomic and political advance of the world within the forthcoming decades as *The Coming Epoch of New Coalitions* (see Grinin, 2009a, 2009b, 2012a; Grinin & Korotayev, 2010a, 2010b). Considering some global scenarios of the World System's near future, one can say that within the struggle for participation in organizing and operating the new world order, an epoch of new coalitions will come to outline the contours of a new political landscape for a considerably period. These changes will prepare the world to the transition to a new phase of globalization (it will be a great success if this will be the phase of sustainable globalization) whose contours are not clear yet.

The conclusion is 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. Of course, this is not a unilateral tendency. For instance, the current world crisis shows that a 'renaissance' of the state's role is quite probable in the near future. 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 characteristics and functions will change significantly.

References

- Abu-Lughod, J. (1989). *Before European hegemony: The world system AD 1250–1350*. New York: Oxford University Press.
- Amin, S., Arrighi, G., Frank, A. G., & Wallerstein, I. (2006). *Transforming the revolution: Social movements and the world-system*. Delhi: Aakar.
- Arrighi, G., & 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 (Бадер Н. О. Древнейшие земледельцы Северной Месопотамии. М.: Наука).
- Barfield, T. J. (1989). *The perilous frontier*. London: Blackwell.
- Barkan, O., & 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., & 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. In *Maiden*. Oxford, MA: 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, Y. E. (2007). On the structure of history: The temporal and spatial constituents. In P. V. Turchin, L. E. Grinin, S. Y. Malkov, & A. V. Korotayev (Eds.), *History and mathematics: The conceptual space and trends for the search* (pp. 88–98). Moscow: LKI/URSS. In Russian (Березкин Ю. Е. О структуре истории: временные и пространственные составляющие. *История и математика: концептуальное пространство и направления поиска*/Ред. П. В. Турчин, Л. Е. Гринин, С. Ю. Малков, А. В. Коротаев, с. 88–98. М.: ЛКИ/УРСС).
- Bernal, J. D. (1965). *Science in history* (3rd ed.). New York: Hawthorn Books.
- Bernbeck, R., & Pollock, S. (2005). A cultural-historical framework. In S. Pollock & R. Bernbeck (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, Y. S. (2006). The information field of the Neolithic Age in the Near East. *Istoria i sovremennost*, 2, 47–66. In Russian (Бондаренко Е. С. Информационное поле неолита Ближнего Востока. *История и современность* 2: 47–66).
- 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 V. M. Masson (Ed.), *The interaction of nomadic cultures and ancient civilizations* (pp. 189–203). Almaty: Nauka. In Russian (Ковэн, Ж. Доисторические истоки общества пастухов-кочевников в Леванте. *Взаимодействие кочевых культур и древних цивилизаций*/Ред. В. М. Массон, с. 189–203. Алма-Ата: Наука).
- Cauvin, J. (2000). *The birth of the gods and the origins of agriculture*. Cambridge: Cambridge University Press.
- Chase-Dunn, C., & Hall, T. D. (1994). The historical evolution of world-systems. *Sociological Inquiry*, 64, 257–280.
- Chase-Dunn, C., & Hall, T. D. (1997). *Rise and demise: Comparing world-systems*. Boulder, CO: Westview.
- Chase-Dunn, C., & Hall, T. D. (2011). East and west in world-systems evolution. In P. Manning & B. Gills (Eds.), *Andre Gunder Frank and global development: Visions, remembrances, and explorations* (pp. 97–119). London: Routledge.
- Chase-Dunn, C., & 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., & Love, J. (2010). Cycles of rise and fall, upsweeps and collapses: Changes in the scale of settlements and polities since the Bronze Age. In L. E. Grinin, P. Herrmann, A. V. Korotayev, & A. Tausch (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 ed.). Moscow: Prospekt. In Russian (Чумаков А. Н. *Глобализация и контуры целостного мира*. 2-е изд. М.: Проспект).
- Cipolla, C. M. (1976). *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 – London: Yale University Press.

- Conversi, D. (2010). The limits of cultural globalisation? *Journal of Critical Globalisation Studies*, 3, 36–59.
- Courchene, T. J., & Savoie, D. J. (Eds.). (2003). *The art of the state: Governance in a world without frontiers*. Montreal: Institute for Research on Public Policy.
- Cowan, S. W., & Watson, P. J. (Eds.). (1992). *The origins of agriculture*. Washington & London: Smithsonian Institution Press.
- Dahrendorf, R. (1976). Changes in the class structure of industrial societies. In A. Beteille (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. (Ed.). (1996). *Beyond sovereignty: Collectively defending democracy in the Americas*. Baltimore – London: HU Press.
- Fisher, V. (1999). *Europe: Economy, society and state: 1914–1980*. Moscow: Vlasos. In Russian (Фишер В. Европа: экономика, общество и государство: 1914–1980. М.: Владос).
- 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. (Eds.). (1993). *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.
- 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*. Kluwer Law International: London – The Hague – Boston.
- 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 (Гринин Л. Е. Производительные силы и исторический процесс. Волгоград: Учитель).
- Grinin, L. E. (2007a). Globalization and the transformation of national sovereignty. In J. Sheffield & K. Fielden (Eds.), *Systemic development: Local solutions in a global environment* (pp. 47–53). 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 (Гринин Л. Е. Производственные революции и периодизация истории. Вестник Российской Академии наук 77(4): 309–315).

- 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 ed.). Moscow: LIBROCOM. In Russian (Гринин Л. Е. *Государство и исторический процесс. Политический срез исторического процесса*. 2-ое изд. М.: ЛИБРОКОМ).
- Grinin, L. E. (2011). The origins of globalization: World-system analysis. *Vek globalizatsii*, 1(7), 80–94. In Russian (Гринин Л. Е. Истоки глобализации: мир-системный анализ. *Век глобализации* 1(7):80–94).
- 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., & Korotayev, A. V. (2006). Political development of the world system: A formal quantitative analysis. In S. Y. Malkov, L. E. Grinin, & A. V. Korotayev (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 (Гринин Л. Е., Коротаев А. В. *Социальная макроэволюция: генезис и трансформация Мир-Системы*. М.: ЛИБРОКОМ).
- 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 S. Babones & C. Chase-Dunn (Eds.), *Routledge handbook of world-systems analysis* (pp. 30–39). London: Routledge.
- Hall, T. D., Chase-Dunn, C., & Niemeyer, R. (2009). The roles of Central Asian middlemen and marcher states in Afroeurasian world-system synchrony. In G. Trinchur (Ed.), *The rise of Asia and the transformation of the world-system* (pp. 69–82). Boulder, CO: Paradigm Press.
- Harris, D., & Hillman, G. (1989). An evolutionary continuum of people-plant interaction. In D. R. Harris & G. C. Hillman (Eds.), *Foraging and farming. The evolution of plant exploitation* (pp. 11–26). 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 M. Daly (Ed.), *The Cambridge history of Egypt* (Vol. 2, pp. 34–58). Cambridge: Cambridge University Press.
- Held, D., McGrew, A., Goldblatt, D., & Perraton, J. (1999). *Global transformations. politics, economics and culture*. Stanford: Stanford University Press.
- Held, D., & McGrew, A. (Eds.). (2003). *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. (Ed.). (2002). *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, December). *The responsibility to protect: Research, bibliography, background*. Supplementary volume to the report of the International Commission on Intervention and State Sovereignty, Ottawa.
- Ingold, T. (1980). *Hunters, pastoralists, and ranchers: Reindeer economies and their transformations*. Cambridge: Cambridge University Press.
- Kardulias, P. N. (2007). Negotiation and incorporation on the margins of world-systems: Examples from Cyprus and North America. *Journal of World-Systems Research*, 13, 55–82.
- Kelbessa, V. (2006). Globalization and localization. Global studies. In I. I. Mazour & A. N. Chumakov (Eds.), *The international encyclopedic dictionary* (pp. 175–177). Moscow, St. Petersburg, New York: Elima, Piter. In Russian (Келбесса В. Глобализация и локализация. *Глобалистика. Международный междисциплинарный энциклопедический словарь*/Ред. И. И. Мазур, А. Н. Чумаков, с. 175–177. М. – СПб. – Н.-Й.: ИЦ «Элима»; ИД «Питер»).
- 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. V. (2000). Parallel cousin (FBD) marriage, Islamization, and Arabization. *Ethnology*, 39(4), 395–407.
- Korotayev, A. V. (2003a). Religion and society in Southern Arabia and among the Arabs. *Arabia*, 1, 65–76.
- Korotayev, A. V. (2003b). Unilineal descent groups and deep Christianization: A cross-cultural comparison. *Cross-Cultural Research*, 37(1), 132–156.
- Korotayev, A. V. (2004). *World religions and social evolution of the old world Oikumene civilizations: A cross-cultural perspective*. Lewiston, NY: The Edwin Mellen Press.
- Korotayev, A. V. (2005). A compact macromodel of world system evolution. *Journal of World-Systems Research*, 11(1), 79–93.
- Korotayev, A. V. (2006a). 'Midwest-Amazonian' folklore-mythological parallels? *Acta Americana*, 14(1), 5–24.
- Korotayev, A. V. (2006b). The world system urbanization dynamics: A quantitative analysis. In P. Turchin, L. Grinin, A. Korotayev, & V. C. de Munck (Eds.), *History & mathematics: Historical dynamics and development of complex societies* (pp. 44–62). Moscow: KomKniga/URSS.
- Korotayev, A. V. (2007). Compact mathematical models of world system development, and how they can help us to clarify our understanding of globalization processes. In G. Modelski, T. Devezas, & W. R. Thompson (Eds.), *Globalization as evolutionary process: Modeling global change* (pp. 133–160). London: Routledge.
- Korotayev, A. V. (2008). Globalization and mathematical modeling of global development. In L. E. Grinin, D. D. Beliaev, & A. V. Korotayev (Eds.), *Hierarchy and power in the history of civilizations: Political aspects of modernity* (pp. 225–240). Moscow: LIBROCOM/URSS.
- Korotayev, A. V. (2009). Compact mathematical models of the world system development and their applicability to the development of local solutions in third world countries. In J. Sheffield & K. Fielden (Eds.), *Systemic development: Local solutions in a global environment* (pp. 103–116). Goodyear: ISCE Publishing.
- Korotayev, A. V. (2012). Globalization and mathematical modeling of global development. In L. Grinin, I. Plyn, & A. Korotayev (Eds.), *Globalistics and globalization studies* (pp. 148–158). Moscow/Volgograd: Moscow University/Uchitel.
- Korotayev, A., Berezkin, Y., Kozmin, A., & Arkhipova, A. (2006). Return of the white raven: Postdiluvial reconnaissance motif A2234.1.1 reconsidered. *Journal of American Folklore*, 119, 472–520.
- Korotayev, A., & Grinin, L. (2006). Urbanization and political development of the world system: A comparative quantitative analysis. In P. Turchin et al. (Eds.), *History and mathematics. Historical dynamics and development of complex societies* (pp. 115–153). URSS: Moscow.

- Korotayev, A., & Grinin, L. (2012). Global urbanization and political development of the world system. In L. Grinin, I. Ilyin, & A. Korotayev (Eds.), *Globalistics and globalization studies* (pp. 28–78). Moscow – Volgograd: Moscow University – Uchitel.
- Korotayev, A., & Kazankov, A. (2000). Regions based on social structure: A reconsideration. *Current Anthropology*, 41(5), 668–690.
- Korotayev, A., Klimenko, V., & Proussakov, D. (1999). Origins of Islam: Political-anthropological and environmental context. *Acta Orientalia*, 52, 243–276.
- Korotayev, A., Klimenko, V., & Proussakov, D. (2003). Globalizing trends in the Pre-Modern Islamic World and modern globalization. In M. Ouda et al. (Eds.), *Globalization and the dialogue of civilizations* (pp. 41–70). Cairo: Ain Shams University.
- Korotayev, A., Malkov, A., & Khalitourina, D. (2006a). *Introduction to social macrodynamics: Compact macromodels of the world system growth*. Moscow: Kom-Kniga/URSS.
- Korotayev, A., Malkov, A., & Khalitourina, D. (2006b). *Introduction to social macrodynamics: Secular cycles and millennial trends*. Moscow: KomKniga/URSS.
- Korotayev, A., Zinkina, J., Bogevolnov, J., & Malkov, A. (2011). Global unconditional convergence among larger economies after 1998? *Journal of Globalization Studies*, 2(2), 25–62.
- Kremer, M. (1993). Population growth and technological change: One million B.C. to 1990. *The Quarterly Journal of Economics*, 108, 681–716.
- Kuijt, I. (Ed.). (2000). *Life in neolithic farming communities. Social organization, identity, and differentiation*. New York: Kluwer.
- Lamberg-Karlovsky, C. C., & Sabloff, J. A. (1979). *Ancient civilizations. The Near East and Mesoamerica*. Menlo Park, CA: The Benjamin/Cummins.
- Lamberg-Karlovsky, C. C., & Sabloff, J. A. (1992). *Ancient Civilizations. The Near East and Mesoamerica*. Moscow: Nauka. In Russian (Ламберг-Карловски К. К., Саблов Дж. А. Древние цивилизации. Ближний Восток и Мезоамерика. М.: Наука).
- Lattimore, O. (1940). *Inner Asian frontiers of China*. New York: American Geographical Society.
- Lewis, D., & Moore, K. (2009). *The origins of globalization*. London: Routledge.
- Lieberman, S. (Ed.). (1972). *Europe and the industrial revolution*. Cambridge, MA: Schenkman.
- Mair, V. H. (Ed.). (2006). *Contact and exchange in the ancient world*. Honolulu, HI: University of Hawai'i Press.
- Markov, A. V., & 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 (Маршалл Т. Х. Природа классового конфликта. *Личность. Культура. Общество* 25: 18–30).
- Mazlish, B., & Iriye, A. (Eds.). (2005). *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 (Мелларт Дж. Древнейшие цивилизации Ближнего Востока. М.: Наука).
- 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. (Ed.). (1993). *The British industrial revolution: An economic perspective*. Boulder, CO: Westview.
- More, C. (2000). *Understanding the industrial revolution*. London: Routledge.
- O'Rourke, K. H., & Williamson, J. G. (1999). *Globalization and history: The evolution of a nineteenth-century Atlantic economy*. Cambridge, MA: MIT Press.
- O'Rourke, K. H., & 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 (Пантин В. И. *Циклы и волны глобальной истории. Глобализация в условиях истории*. М.: НОВЫЙ ВЕК).
- Peregrine, P. (2003). Atlas of cultural evolution. *World Cultures*, 14, 2–88.
- Peregrine, P., & Ember, M. (Eds.). (2001a). *Encyclopedia of prehistory. Vol. 4. Europe*. New York: Kluwer.
- Peregrine, P., & Ember, M. (Eds.). (2001b). *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 V. I. Golubovich (Ed.), *The foreign countries' economic history* (pp. 410–442). Minsk: Interpress-service. In Russian (Повалихина Т. И. Экономическое могущество США в после-военном мире. *Экономическая история зарубежных стран*/Ред. В. И. Голубович, с. 410–442. Минск: Интерпрессервис).
- Reed, C. A. (Ed.). (1977). *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 (Румянцев А. М. *Первобытный способ производства. Политико-экономические очерки*. М.: Наука).
- Schultz, E. A., & Lavenda, R. H. (1998). *Anthropology. A perspective on the human condition* (2nd ed.). Mountain View, CA: Mayfield.
- Sharp, P. (2008, May 16). Why globalization might have started in the eighteenth century. *VoxEU*.
- Sherratt, A. (2006). The Trans-Eurasian exchange: The prehistory of Chinese relations with the west. In V. H. Mair (Ed.), *Contact and exchange in the ancient world* (pp. 30–61). Honolulu, HI: University of Hawai'i Press.
- Slezkin, L. Y. (1983). The establishment of the first English colonies in North America. In N. N. Bolkhovitinov (Ed.), *The history of the USA* (Vol. 1, pp. 15–49). Moscow: Nauka. In Russian (Слезкин Л. Ю. Основание первых английских колоний в Северной Америке. т. 1. *История США*/Ред. Н. Н. Болховитинов, с. 15–49. М.: Наука).
- Smith, P. E. L. (1976). *Food production and its consequences*. Menlo Park, CA: Cumming Publishing Company.
- Solovyov, S. A., & Yevzerov, R. Y. (2001). The monopolistic capitalism of the early 20th century in the Western Europe and countries and the USA. In I. V. Grigorieva (Ed.), *Modern history of Europe and America. The Early 1870s – 1918* (pp. 267–299). Moscow: Moscow University Press. In Russian (Соловьев С. А., Евзеров, Р. Я. Монополистический капитализм начала XX в. в странах Западной Европы и в США. *Новая история стран Европы и Америки. Начало 1870–1918 гг.*/Ред. И. В. Григорьева, с. 267–299. М.: Издательство Московского университета).
- Stearns, P. N. (1993). Interpreting the industrial revolution. Islamic and European expansion. In M. Adams (Ed.), *The forging of a global order* (pp. 199–242). Philadelphia, PA: Temple University Press.
- Stearns, P. N. (Ed.). (1998). *The industrial revolution in the world history* (2nd ed.). Boulder, CO: Westview.
- Teggart, F. (1939). *Rome and China: A study of correlation in historical events*. Berkeley, CA: University of California Press.
- Tekin, A. (2005). On the futures of sovereignty. *Futures*, 37, 563–566.
- Tracy, J. D. (1990). Introduction. In J. D. Tracy (Ed.), *The rise of merchant empires* (pp. 1–13). Cambridge: Cambridge University Press.
- Walker, R. B. J., & Mendlovitz, S. H. (Eds.). (1990). *Contending sovereignties: Redefining political community*. Boulder, CO: Lynne Rienner.
- Wallerstein, I. (1974). *The modern world-system* (Vol. 3 vols). New York: Academic Press.
- Wallerstein, I. (1980). *The modern world-system*. New York: Academic Press.
- Wallerstein, I. (1988). *The modern world-system*. New York: Academic Press.

-
- Wallerstein, I. (1987). World-systems analysis. In A. Giddens & J. Turner (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. (Ed.). (2003). *States in the global economy: Bringing domestic institutions back in*. New York: Cambridge University Press.
- Wenke, R. J. (1990). *Patterns in prehistory*. Oxford, New York: Oxford University Press.
- Wilkinson, D. (1987). Central civilization. *Comparative Civilizations Review*, 17, 31–59.