Zygmunt Bauman: Liquid Modernity Revisited

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Financial Globalization Can Wreck Societies And The World Economy: An Interview With Political

Economist Gerald Epstein

Prof.dr. Gerald Epstein

Since the outbreak of the 'global financial crisis' of 2008, there has been an explosion of interest in finance capital and on the so-called 'financialization' of the economy. Yet, there is no general consensus among scholars either on the causes behind the rise of finance capital or on the actual impact of 'financialization' on the economy and society. One of the leading scholars in the field of political economy interested in the 'financialization' of the economy and on the links between neoliberalism, globalization and 'financialization' is Gerald Epstein, Professor of Economics and Co-Director of the Political Economy Research Institute (PERI) at the University of Massachusetts at Amherst. In the interview below, Professor Epstein addresses several issues related to 'financialization', including it's macroeconomics and impact on the world economy, as well as it's links to instability and capitalist crises.

J. Polychroniou and Marcus Rolle: Professor Epstein, an increasing number of scholars have been turning their attention since the outbreak of the 'global financial crisis' of 2008 to the role of the finance sector in advanced capitalist economies. Can you give us a sense of how we should proceed to understand 'financialization', and address the question on whether it represents a distinct 'phase' in the evolution of capitalism?

Gerald Epstein: 'Financialization' is the latest, and probably most widely used term by analysts trying to 'name' and understand the contemporary rise of finance and its powerful role. The term had been developed long before the crisis of 2008 but, understandably, since the crisis hit, it has become even more

popular. This vast and rapidly expanding literature on financialization has a number of important strands. Some of the literature focuses on clarifying the definition of financialization, and assessing whether it is a dominant cause of the ills confronting capitalism or is just a symptom of other, deeper causes; some asks whether financialization is a new 'phase: of capitalist development, perhaps a new 'mode of accumulation', or considers whether it is just one among a number of important developments along with 'neo-liberalism', 'digitization' and 'globalization' that are arising in the contemporary world; other literature is focused on less theoretical and more empirical matters, trying to measure the nature and extent of financialization, however defined, and to describe its institutional and economic dimensions; and still other work is focused on attempting to analyze theoretically and empirically the impact of financialization on important phenomena such as financial crises, productive investment, productivity growth, wages and income distribution; and finally, other parts of the literature are more policy-oriented, trying to grapple with policies and structural changes than can improve the role that finance plays in the economy. There are still many conundrums and open questions about 'financialization' which means it will remain a fruitful area for multi-disciplinary research and an important arena for political battles and structural reform for the foreseeable future.

As discussed by Malcolm Sawyer, the term financialization goes back at least to the 1990's and probably was originated by Republican political operative and iconoclastic writer Kevin Phillips, who first used the term in his book *Boiling Point* (New York: Random House, 1993) and, a year later, used the term extensively in his *Arrogant Capital* in a chapter entitled the "Financialization of America". Phillips defined *financialization as* "a prolonged split between the divergent real and financial economies (New York: Little, Brown and Co., 1994). (Sawyer, 2013, pp. 5-6).

Scholars have adopted the term, but have proposed numerous other definitions. Sociologist, Greta Krippner, for one, gives an excellent discussion of the history of the term and the pros and cons of various definitions. As she summarizes the discussion, some writers use the term 'financialization' to mean the ascendancy of "shareholder value" as a mode of corporate governance; some use it to refer to the growing dominance of capital market financial systems over bank-based financial systems; some follow Hilferding's lead and use the term financialization to refer to the increasing political and economic power of a particular class

segment, the rentier class; for some financialization represents the explosion of financial trading with myriad new financial instruments; finally, for Krippner herself, the term refers to a "pattern of accumulation in which profit making occurs increasingly through financial channels rather than through trade and commodity production". (Greta Krippner, 'Thought Financialization of the American Economy,' Socio-Economic Review 3 (2), 2005, p. 174).

I have defined the term quite broadly and generally as: "the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies." (Gerald Epstein, ed., Financialization and the World Economy. Northampton, MA: Edward Elgar Publishers, 2005). This definition focuses on financialization as a process, and is quite agnostic on the issue of whether it constitutes a new mode of accumulation or broadly characterizes an entire new phase of capitalism. Broad definitions like mine have the advantage of incorporating many features, but have the disadvantage, perhaps, of lacking specificity.

Other analysts have used variations on the term financialization to refer to more or less the same set of phenomena. Tom Palley has used the term 'neo-liberal financializaton' in his writings to emphasize the importance of neo-liberalism as part and parcel of the rise of financialization (Palley, 2013a, p. 8) Eckhard Hein and Tom Palley have not referred to financialization but to 'finance-dominated capitalism'.

Another important debate is on the periodization of 'financialization'. Is it only a recent phenomenon, say, important since the 1980's? Or does it go back at least 5000 years, as Malcolm Sawyer has suggested? If it goes back a long time, does it come in waves, perhaps linked with broader waves of production, commerce and technology or is it a relatively independent process driven by government policy such as the degree of financial regulation or liberalization? Giovanni Arrighi famously argued that over the course of capitalist history, financialization tends to become a dominant force when the productive economy is in decline, and when the dominant global power (or "hegemon") is in retreat. Think, for example the early 20th century when Great Britain was losing power relative to Germany and the US, and the UK economy was stagnating. This was a period also of a great increase in financial speculation and instability.

In this way of thinking, financialization represents a new phase of capitalism,

perhaps one that signals a decline in the power of the hegemonic country, in this case, the United States.

I hesitate to make such a sweeping claim. I think it is clear that financialization is a highly important phenomenon that is having big impacts on our economy. Does it define our epoch? This is a crowded stage. Financialization can cause massive problems but, unlike climate change, it is not likely to destroy the planet.

Polychroniou and Rolle: To what extent can we speak of the macroeconomics of financialization? In other words, how does financialization impact on investment, consumption, and distribution?

Gerald Epstein: There has been important research on the macroeconomics of financialization. Eckhard Hein and Til Van Treeck from Berlin, Tom Palley of the US and Englebert Stockhammer from the UK have been among the forerunners in this research area. These researchers identify three key channels through which financialization can affect macro variables and outcomes: 1) The objectives of firms and the restrictions that finance places on firm behavior; 2) New opportunities for households' wealth-based and debt-financed consumption; and 3) The distribution of income and wealth between capital and labour, on the one hand, and between management and workers on the other hand.

The net effect of these factors can mean that financialization can lead to economic expansion or stagnation dependeing on the relative size of these factors. But it almost always increases inequality. In addition, it almost always leads to financial instability and even crises.

Empricial work has looked at more specific impacts. Much of the macroeconomic literature on financialization concerns, of course, the impact of financialization on crucial macroeconomic outcomes such as economic growth, investment, productivity growth, employment, stability and income distribution. Stockhammer pioneered the theoretical analysis of the impact of financialized manager motives on investment. He showed that finance oriented management might choose to undertake lower investment levels than managers with less financialized orientations. Ozghu Orhangazi used firm level data to study the impact of financialisation on real capital accumulation in the United States. He used data from a sample of non-financial corporations from 1973 to 2003, and finds a negative relationship between real investment and financialisation.

Leila Davis provided further evidence of negative impact of financialization on real investment. Her results are consistent with the concerns expressed by heterodox analysts and others that financialization will tend to reduce real investment.

An increasing chorus of analysts have expressed concerns that 'short-termism' associated with financialization may be coming at the expense of investments in human capital, research and development, employment and productivity growth. In a set of surveys of corporate managers, economists have shown that many chief financial officers are willing to sacrifice longer term investments in research and development and hold on to value employees in order to meet short-term earnings per share targets. Other empirical studies show that managers are willing to trade-off investments and employment for stock repurchases that allow them to meet earnings per share forecasts. Eileen Appelbaum and Rosemary Batt find in a survey of econometric studies of private equity firms find that especially large firms that use financial engineering to extract value from target companies, have a negative impact on investment, employment and research and development in these companies. In short, there is significant empirical evidence that 'short-termism' and other aspects of financial orientation have negative impacts on workers well-being, productivity and longer-term growth.

This raises the issue of the over-all impact of financialization on income distribution. There has been some empirical work to look at the impact of financialization on income and wealth distribution. Descriptive analysis in the U.S. indicates that the top earners, the 1% or even .01% of the income distribution get the bulk of their incomes from CEO pay or from finance.

There has also been interesting research on the relationship between financialization and economic growth. As the massive recession stemming from the great financial crisis makes clear, there is no linear relationship between the size and complexity of financial markets and economic growth. Several econometric studies have suggested an inverted U shaped relationship between the size of the financial sector and economic growth. A larger financial sector raises the rate of economic growth up to a point, but when the financial sector gets too large relative to the size of the economy, economic growth begins to decline. To the extent that this relationship is true, economists are still searching for the explanation. One argument is that as the financial sector increases in size, because of its relatively high pay levels, it pulls talented and highly educated

employees away from other sectors that might contribute more to economic growth and productivity. As a University Professor teaching economics since the 1980's, I can verify that many of my undergraduate students had the dream of going to work on Wall Street. Perhaps some of them could have contributed more elsewhere.

Adding up all these factors in the case of the United States, Juan Montecino and I estimated that, at the margin, the US financial sector in its current configuration has had a net *negative* on the US economy. We estimate that it has cost the US economy as much as $22 trillion over a thirty year period. (See, The Roosevelt Institute *Overcharged: The High Cost of High Finance* .

Polychroniou and Rolle: Neoliberalism, globalization and 'financialization' have shaped much of the world economy since the early 1980s. Is 'financialization' directly linked to globalization?

Gerald Epstein: Yes, definitely. In fact, modern globalization has, as one of its key components, a massive amount and increase in the level of financial transactions of all kinds. To take one stark measure, according to the Bank for International Settlements (BIS), there were $5.1 TRILLION in foreign exchange trades PER DAY in 2016, compared with only $80 BILLION of trades in goods and services per day. In short, there are more than $6 of foreign exchange trading for every $1 of foreign trade. What's being done with all this foreign exchange trading? Presumably the buying and selling for foreign financial assets and liabilities — much of this for speculation. The interconnection financialization and globalization in this sense is so intertwined that for years, mainstream economists and some policy makers have been referring to the current era in financial economic relations as one of "financial globalization" – even before the term 'financialization' became popular. Another clear sign of the global nature of 'financialization' comes from the international nature of financial crises in recent decades, the most recent one being the great financial crisis of 2008. In this case, European banks in particular were greatly implicated in the deals that led up to the crisis, and a number of them are still paying the price.

However, it is not just the international banks that are involved in global aspects of financialization. Much of global investment by multinational corporations (MNC's) have highly financialized components to them. The New School's Will Milberg and his co-author, Debora Winkler, have written a terrific book called

"Outsourcing Economics" that describes the financial activities of MNC's. They argue that these financial activities can sometimes support real investment that creates jobs and enhances productivity, but that much of it can also be engaged in other, less productive activities, such as tax evasion through the purchasing of financial assets or other financial dealings, and also various forms of financial speculation. *Citizens for Tax Justice* and authors like Nicholas Shaxson in *Treasure Islands; Uncovering the Damage of Offshore Banking and Tax Havens*, and James Henry who has written widely on global aspects of the financial underground.

Polychroniou and Rolle: According to the literature, there have been numerous financial crises from the late 1970s onwards, more than any other time in the history of capitalism, with the financial crisis of 2008 having by far the most destabilizing effects. In your view, what makes financialization such a destabilizing force?

Gerald Epstein: For centuries, finance and banking have been associated with financial crises, both domestic and international. The late, great economic historian Charles Kindleberger wrote in his famous book *Manias, Panics and Crashes*, that international financial crises are a "hardy perennial". Going back to the 16th century, Kindleberger estimated that a financial crisis happened someplace in the world once every 7 years on average.

Finance is inherently de-stabilizing because it is based on a promise about the future that can be reneged on, or just plain mis-calculated, since, as Keynes reminded us, the future is highly uncertain. And finance can easily lead to a whole chain of fragile interconnections through the economy which can come down like a house of cards. Now this would not matter much if finance wasn't important to the operations of modern economies, but it is. And this is especially true of "financialized economies"….in financialized economies, finance has become more and more central to the operations of the economy….finance has insinuated itself into almost every nook and cranny, and so, when something goes wrong, the vulnerability can spread and wreck havoc. And I am not talking only about instability and crises, but also about destructive aspects of the everyday operations of the economy.

Interestingly, economists Carmen Reinhart and Kenneth Rogoff showed in their book *This Time is Different: Eight Centuries of Financial Folly,* this cycle was

interrupted in the first 35 years or so after the Second World War, when there were virtually no financial crisis anywhere in the world. Why was this the case? The reason was that private finance, and especially global private finance, played a relatively small role in the period 1945-1980. This is because public finance was so important, because financial regulations were so stringent, and also because private finance had crashed so badly in the 1930's and it took decades for it to recover.

The financial de-regulation pushed by the bankers and their allies in the decades following the second world war eventually succeded and for the last several decades we have been back in the world of the "hardy perennial" financial crisis.

Polychroniou and Rolle: Is a return to the era of industrial capitalism as a means of countering the destructive effects of financialization a realistic policy that progressives should embrace?

Gerald Epstein: I think the impulse to bring finance under social control and reduce its role and destructive economic and political behaviors is absolutely correct and must be accomplished if we are going to make significant progress on reigning in financial instability and other destructive financial practices. To do this we need to not only re-regulate finance, but also need to develop and spread more public options in finance, what I have called 'finance without financiers' – more 'stakeholder financial institutions' — banks, savings institutions, insurance providers that are controlled by stakeholders and not shareholders.

Now that doesn't necessarily mean that these set of financial initiatives ought to be accompanied by more 'industrial' activities as our salvation. This is a very complex question that I cannot pretend to answer, especially in a short interview. But suffice it to point out the obvious problem that we are faced with an existential threat of climate change. This means that our economic alternatives must confront this problem. As my colleague Robert Pollin and his colleagues have shown, a significant push in the US and elsewhere toward the production of renewable energy and energy conservation can have many collorary benefits, including job creation and reduction in income inequality. It is these initiatives that a reformed and revitalized finance can help to promote and that we should focus on, especially in the US and other rich countries.

Polychroniou and Rolle: Quite a few people argue that another financial crisis will

surely erupt in the near future, especially with Donald Trump advocating deregulation. In this context, what signs in the economy should we be looking for in order to predict the next financial crisis?

Gerald Epstein: While it is true that no two financial crises are ever exactly the same, and that massive crises like the one we had in the 1930's and then again in 2007-2008 are infrequent, there are, nonetheless a few common signs to watch out for:

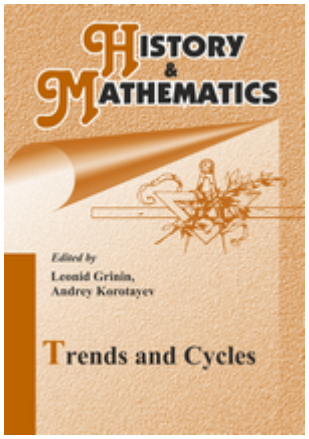
First, massive increases in private debt in relation to the size of the economy. High levels and large increases in 'leverage' as this debt ratio is called, has been shown to be one clear sign of financial vulnerability.

Second, big asset bubbles, such as we saw in the housing market in 2004-2007, or that we saw in the U.S. stock market in the 1920's, or in tulips in Amsterdam in the 17th century – these can be very dangerous because they are usually fed by massive increases in debt – the first point above – which leads to dangerous interconnections and the building of a financial house of cards.

Finally, complacency. The idea that 'this time is different' — the idea, that is, that we have reached a 'new age' such that bubbles and massive increases in private debt aren't dangerous this time because of some new invention or strategy….these self-delusional ideas are always present in the build up to crisis, and are always wrong.

Biosocial Evolution, Ecological Aspects, And Consciousness ~

Modeling Of Biological And Social Phases Of Big History



Abstract

In the first part of this article we survey general similarities and differences between biological and social macroevolution. In the second (and main) part, we consider a concrete mathematical model capable of describing important features of both biological and social macroevolution. In mathematical models of historical macrodynamics, a hyperbolic pattern of world population growth arises from non-linear, second-order positive feedback between demographic growth and technological development. Based on diverse paleontological data and an analogy with macrosociological models, we suggest that the hyperbolic character of biodiversity growth can be similarly accounted for by non-linear, second-order positive feedback between diversity growth and the complexity of community structure. We discuss how such positive feedback mechanisms can be modelled mathematically. ~ *This research has been supported by the Russian Science Foundation (Project No 14-11-00634).*

Keywords: *social evolution, biological evolution, mathematical model, biodiversity, population growth, positive feedback, hyperbolic growth.*

Introduction

The present article represents an attempt to move further in our research on the similarities and differences between social and biological evolution (see Grinin, Markov, and Korotayev 2008, 2009a, 2009b, 2011, 2012). We have endeavored to make a systematic comparison between biological and social evolution at different levels of analysis and in various aspects. We have formulated a considerable number of general principles and rules of evolution, and worked to develop a common terminology to describe some key processes in biological and social evolution. In particular, we have introduced the notion of 'social aromorphosis' to describe the process of widely diffused social innovation that enhances the complexity, adaptability, integrity, and interconnectedness of a society or social system (Grinin, Markov, and Korotayev 2008, 2009a, 2009b). This work has convinced us that it might be possible to find mathematical models that can

describe important features of both biological and social macroevolution. In the first part of this article we survey general similarities and differences between the two types of macroevolution. In the second (and main) part, we consider a concrete mathematical model that we deem capable of describing important features of both biological and social macroevolution.

The comparison of biological and social evolution is an important but (unfortunately) understudied subject. Students of culture still vigorously debate the applicability of Darwinian evolutionary theory to social/cultural evolution. Unfortunately, the result is largely a polarization of views. On the one hand, there is a total rejection of Darwin's theory of social evolution (see, *e.g.*, Hallpike 1986). On the other hand, there are arguments that cultural evolution demonstrates all of the key characteristics of Darwinian evolution (Mesoudi *et al.* 2006).

We believe that, instead of following the outdated objectivist principle of 'either – or', we should concentrate on the search for methods that could allow us to apply the achievements of evolutionary biology to understanding social evolution and *vice versa*. In other words, we should search for productive generalizations and analogies for the analysis of evolutionary mechanisms in both contexts. The Universal Evolution approach aims for the inclusion of all mega-evolution within a single paradigm (discussed in Grinin, Carneiro, *et al.* 2011). Thus, this approach provides an effective means by which to address the above-mentioned task.

It is not only systems that evolve, but also mechanisms of evolution (see Grinin, Markov, and Korotayev 2008). Each sequential phase of macroevolution is accompanied by the emergence of new evolutionary mechanisms. Certain prerequisites and preadaptations can, therefore, be detected within the previous phase, and the development of new mechanisms does not invalidate the evolutionary mechanisms that were active during earlier phases. As a result, one can observe the emergence of a complex system of interaction composed of the forces and mechanisms that work together to shape the evolution of new forms.

Biological organisms operate in the framework of certain physical, chemical and geological laws. Likewise, the behaviors of social systems and people have certain biological limitations (naturally, in addition to various social-structural, historical, and infrastructural limitations). From the standpoint of Universal Evolution, new forms of evolution that determine phase transitions may result from activities going in different directions. Some forms that are similar in principle may emerge

at breakthrough points, but may also result in evolutionary dead-ends. For example, social forms of life emerged among many biological phyla and classes, including bacteria, insects, birds, and mammals. Among insects, in particular, one finds rather highly developed forms of socialization (see, *e.g.*, Robson and Traniello 2002; Ryabko and Reznikova 2009; Reznikova 2011). Yet, despite the seemingly common trajectory and interrelation of social behaviors among these various life forms, the impacts that each have had on the Earth are remarkably different.

Further, regarding information transmission mechanisms, it appears possible to speak about certain 'evolutionary freaks'. Some of these mechanisms were relatively widespread in the biological evolution of simple organisms, but later became less so. Consider, for example, the horizontal exchange of genetic information (genes) among microorganisms, which makes many useful genetic 'inventions' available in a sort of 'commons' for microbe communities. Among bacteria, the horizontal transmission of genes contributes to the rapid development of antibiotic resistance (*e.g.*, Markov and Naymark 2009). By contrast, this mechanism of information transmission became obsolete or was transformed into highly specialized mechanisms (*e.g.*, sexual reproduction) in the evolution of more complex organisms. Today, horizontal transmission is mostly confined to the simplest forms of life.

These examples suggest that an analysis of the similarities and differences between the mechanisms of biological and social evolution may help us to understand the general principles of megaevolution[1] in a much fuller way. These similarities and differences may also reveal the driving forces and supra-phase mechanisms (*i.e.*, mechanisms that operate in two or more phases) of megaevolution. One of our previous articles was devoted to the analysis of one such mechanism: *aromorphosis*, the process of widely diffused social innovation that enhances the complexity, adaptability, integrity, and interconnectedness of a society or social system (Grinin, Markov, and Korotayev 2011; see also Grinin and Korotayev 2008, 2009a, 2009b; Grinin, Markov, and Korotayev 2009a, 2009b).

It is important to carefully compare the two types of macroevolution (*i.e.*, biological and social) at various levels and in various aspects. This is necessary because such comparisons often tend to be incomplete and deformed by conceptual extremes. These limitations are evident, for example, in the above-

referenced paper by Mesoudi *et al.* (2006), which attempts to apply a Darwinian method to the study of social evolution. Unfortunately, a failure to recognize or accept important differences between biological and social evolution reduces the overall value of the method that these authors propose. Christopher Hallpike's rather thorough monograph, *Principles of Social Evolution* (1986), provides another illustration of these limitations. Here, Hallpike offers a fairly complete analysis of the similarities and differences between social and biological organisms, but does not provide a clear and systematic comparison between social and biological evolution. In what follows, we hope to avoid similar pitfalls.

Biological and Social Evolution: A Comparison at Various Levels

There are a few important differences between biological and social macroevolution. Nonetheless, it is possible to identify a number of fundamental similarities, including at least three basic sets of shared factors. First, we are discussing very complex, non-equilibrium, but stable systems whose function and evolution can be described by General Systems Theory, as well as by a number of cybernetic principles and laws. Second, we are not dealing with isolated systems, but with the complex interactions between organisms and their external environments. As a result, the reactions of systems to 'external' challenges can be described in terms of general principles that express themselves within a biological reality and a social reality. Third (and finally), a direct 'genetic' link exists between the two types of macroevolution and their mutual influence.

We believe that the laws and forces driving the biological and social phases of Big History can be comprehended more effectively if we apply the concept of biological and social aromorphosis (Grinin, Markov, and Korotayev 2011). There are some important similarities between the evolutionary algorithms of biological and social aromorphoses. Thus, it has been noticed that the basis of biological aromorphosis is usually formed by some partial evolutionary change that… creates significant advantages for an organism, puts it in more favorable conditions for reproduction, multiplies its numbers and its changeability…, thus accelerating the speed of its further evolution. In those favorable conditions, the total restructurization of the whole organization takes place afterwards (Shmal'gauzen 1969: 410; see also Severtsov 1987: 64–76).

During the course of adaptive radiation, such changes in organization diffuse more or less widely (frequently with significant variations).

A similar pattern is observed within social macroevolution. An example is the invention and diffusion of iron metallurgy. Iron production was practiced sporadically in the 3rd millennium BCE, but regular production of low-grade steel did not begin until the mid-2nd millennium BCE in Asia Minor (see, *e.g.*, Chubarov 1991: 109). At this point, the Hittite kingdom guarded its monopoly over the new technology. The diffusion of iron technology led to revolutionary changes in different spheres of life, including a significant advancement in plough agriculture and, consequently, in the agrarian system as a whole (Grinin and Korotayev 2006); an intensive development of crafts; an increase in urbanism; the formation of new types of militaries, armed with relatively cheap but effective iron weapons; and the emergence of significantly more developed systems of taxation, as well as information collection and processing systems, that were necessary to support these armies (*e.g.*, Grinin and Korotayev 2007a, 2007b). Ironically, by introducing cheaply made weapons and other tools into the hands of people who might resist the Hittite state, this aromorphosis not only supported the growth of that kingdom, it also laid the groundwork for historical phase shifts.

Considering such cases through the lens of aromorphosis has helped us to detect a number of regularities and rules that appear to be common to biological and social evolution (Grinin, Markov, and Korotayev 2011). Such rules and regularities (*e.g.*, payment for arogenic progress, special conditions for the emergence of aromorphosis, *etc.*) are similar for both biological and social macroevolution. It is important to emphasize, however, that similarity between the two types of macroevolution does not imply commonality. Rather, significant similarities are frequently accompanied by enormous differences. For example, the genomes of chimpanzees and the humans are 98 per cent similar, yet there are enormous intellectual and social differences between chimpanzees and humans that arise from the apparently 'insignificant' variations between the two genomes (see Markov and Naymark 2009).

Despite its aforementioned limitations, it appears reasonable to continue the comparison between the two types of macroevolution following the analysis offered by Hallpike (1986). Therefore, it may prove useful to revisit the pertinent observations of this analysis here. Table 1 summarizes the similarities and differences that Hallpike (*Ibid.*: 33–34) finds between social and biological *organisms*.

While we do not entirely agree with all of his observations – for example, the establishment of colonies could be seen as a kind of social reproduction akin to organic reproduction – we do feel that Hallpike comes to a sound conclusion: that similarities between social and biological organisms are, in general, determined by similarities in organization and structure (we would say similarities between different types of systems). As a result, Hallpike believes that one can use certain analogies in which institutions are similar to some organs. In this way, cells may be regarded as similar to individuals, central government similar to the brain, and so on. Examples of this kind of thinking can be found in the classic texts of social theory (see, *e.g.*, Spencer 1898 and Durkheim 1991 [1893]), as well as in more recent work (see, *e.g.*, Heylighen 2011).

Table 1. Similarities and differences between social and biological organisms, as described by Hallpike (1986)

Similarities	Differences
Social institutions are interrelated in a manner analogous to the organs of the body.	Individual societies do not have clear boundaries. For example, two societies may be distinct politically, but not culturally or religiously.
Despite changes in membership, social institutions maintain continuity, as do biological organs when individual cells are replaced.	Unlike organic cells, the individuals within a society have agency and are capable of learning from experience.
The social division of labor is analogous to the specialization of organic functions.	Social structure and function are far less closely related than in organic structure and function.
Self-maintenance and feedback processes characterize both kinds of system.	Societies do not reproduce. Cultural transmission between generations cannot be distinguished from the processes of system maintenance.
Adaptive responses to the physical environment characterize both kinds of system.	Societies are more mutable than organisms, displaying a capacity for metamorphosis only seen in organic phylogeny.
The trade, communication, and other transmission processes that characterize social systems are analogous to the processes that transmit matter, energy, and information in biological organisms.	Societies are not physical entities, rather their individual members are linked by information bonds.

When comparing biological *species* and societies, Hallpike (1986: 34) singles out the following similarities:
(1) that, like societies, species do not reproduce;
(2) that both have phylogenies reflecting change over time; and
(3) that both are made up of individuals who compete against one another.

Importantly, he also indicates the following *difference*: '[S]ocieties are organized systems, whereas species are simply collections of individual organisms' (Hallpike 1986: 34).

Hallpike tries to demonstrate that, because of the differences between biological and social organisms, the very idea of natural selection does not appear to apply to social evolution. However, we do not find his proofs very convincing on this account, although they do make sense in certain respects. Further, his analysis is

confined mainly to the level of the individual organism and the individual society. He rarely considers interactions at the supra-organism level (though he does, of course, discuss the evolution of species). His desire to demonstrate the sterility of Darwinian theory to discussions of social evolution notwithstanding, it seems that Hallpike involuntarily highlights the similarity between biological and social evolution. As he, himself, admits, the analogy between the biological organism and society is quite noteworthy.

Just as he fails to discuss interactions and developments at the level of the supra-organism in great detail, Hallpike does not take into account the point in social evolution where new supra-societal developments emerge (up to the level of the emergence of the World System [*e.g.*, Korotayev 2005, 2007, 2008, 2012; Grinin and Korotayev 2009b]). We contend that it is very important to consider not only evolution at the level of a society but also at the level above individual societies, as well as the point at which both levels are interconnected. The supra-organism level is very important to understanding biological evolution, though the differences between organisms and societies make the importance of this supra-level to understanding social evolution unclear. Thus, it might be more productive to compare societies with ecosystems rather than with organisms or species. However, this would demand the development of special methods, as it would be necessary to consider the society not as a social organism, but as a part of a wider system, which includes the natural and social environment (*cf.*, Lekevičius 2009, 2011).

In our own analysis, we seek to build on the observations of Hallpike while, at the same time, providing a bit more nuance and different scales of analysis. Viewing each as a process involving selection (natural, social, or both), we identify the differences between social and biological evolution at the level of the individual biological organism and individual society, as well as at the supra-organismic and supra-societal level.

Natural and Social Selection

Biological evolution is more additive (cumulative) than substitutive. Put another way: the new is added to the old. By contrast, social evolution (especially over the two recent centuries) is more substitutive than additive: the new replaces the old (Grinin, Markov, and Korotayev 2008, 2011).

Further, the mechanisms that control the emergence, fixation, and diffusion of

evolutionary breakthroughs (aromorphoses) differ between biological and social evolution. These differences lead to long-term restructuring in the size and complexity of social organisms. Unlike biological evolution, where some growth of complexity is also observed, social reorganization becomes continuous. In recent decades, societies that do not experience a constant and significant evolution look inadequate and risk extinction.

In addition, the size of societies (and systems of societies) tends to grow constantly through more and more tightly integrative links (this trend has become especially salient in recent millennia), whereas the trend towards increase in the size of biological organisms in nature is rather limited and far from general. At another level of analysis, one can observe the formation of special suprasocietal systems that also tend to grow in size. This is one of the results of social evolution and serves as a method of aromorphosis fixation and diffusion.

The Individual Biological Organism and the Individual Society

It is very important to note that, although biological and social organisms are significantly (actually 'systemically') similar, they are radically different in their capacities to evolve. For example, as indicated by Hallpike (see above), societies are capable of rapid evolutionary metamorphoses that were not observed in the pre-human organic world. In biological evolution, the characteristics acquired by an individual are not inherited by its offspring; thus, they do not influence the very slow process of change.

There are critical differences in how biological and social information are transmitted during the process of evolution. Social systems are not only capable of rapid transformation, they are also able to borrow innovations and new elements from other societies. Social systems may also be transformed consciously and with a certain purpose. Such characteristics are absent in natural biological evolution.

The biological organism does not evolve by itself: evolution may only take place at a higher level (*e.g.*, population, species, *etc.*). By contrast, social evolution can often be traced at the level of the individual social organism (*i.e.*, society). Moreover, it is frequently possible to trace the evolution of particular institutions and subsystems within a social organism. In the process of social evolution the same social organism or institution may experience radical transformation more than once.

The Supra-organic and Supra-societal Level

Given the above-mentioned differences, within the process of social evolution we observe the formation of two types of special supra-societal entity:
(1) amalgamations of societies with varieties of complexity that have analogues in biological evolution, and (2) elements and systems that do not belong to any particular society and lack many analogues in biological evolution.

The first type of amalgamation is rather typical, not only in social but also in biological evolution. There is, however, a major difference between the two kinds of evolution. Any large society usually consists of a whole hierarchy of social systems. For example, a typical agrarian empire might include nuclear families, extended families, clan communities, village communities, primary districts, secondary districts, and provinces, each operating with their own rules of interaction but at the same time interconnected. This kind of supra-societal amalgamation can hardly be compared with a single biological organism (though both systems can still be compared functionally, as is correctly noted by Hallpike [1986]). Within biological evolution, amalgamations of organisms with more than one level of organization (as found in a pack or herd) are usually very unstable and are especially unstable among highly organized animals. Of course, analogues do exist within the communities of some social animals (*e.g.*, social insects, primates). Neither should we forget that scale is important: while we might compare a society with an individual biological organism, we must also consider groups of organisms bound by cooperative relationships (see, *e.g.*, Boyd and Richerson 1996; Reeve and Hölldobler 2007). Such groups are quite common among bacteria and even among viruses. These caveats aside, it remains the case that within social evolution, one observes the emergence of more and more levels: from groups of small sociums to humankind as a whole.

The multiplication of these levels rapidly produces the second kind of amalgamation. It is clear that the level of analysis is very important for comparison of biological and social evolution. Which systems should be compared? Analogues appear to be more frequent when a society (a social organism) is compared to a biological organism or species. However, in many cases, it may turn out to be more productive to compare societies with other levels of the biota's systemic organization. This might entail comparisons with populations, ecosystems and communities; with particular structural elements or blocks of communities (*e.g.*, with particular fragments of trophic networks or with

particular symbiotic complexes); with colonies; or with groups of highly organized animals (*e.g.*, cetaceans, primates, and other social mammals or termites, ants, bees and other social insects).

Thus, here we confront a rather complex and rarely studied methodological problem: which levels of biological and social process are most congruent? What are the levels whose comparison could produce the most interesting results? In general, it seems clear that such an approach should not be a mechanical equation of 'social organism = biological organism' at all times and in every situation. The comparisons should be operational and instrumental. This means that we should choose the scale and level of social and biological phenomena, forms, and processes that are adequate for and appropriate to our intended comparisons.

Again, it is sometimes more appropriate to compare a society with an individual biological organism, whereas in other cases it could well be more appropriate to compare the society with a community, a colony, a population, or a species. At yet another scale, as we will see below, in some cases it appears rather fruitful to compare the evolution of the biosphere with the evolution of the anthroposphere.

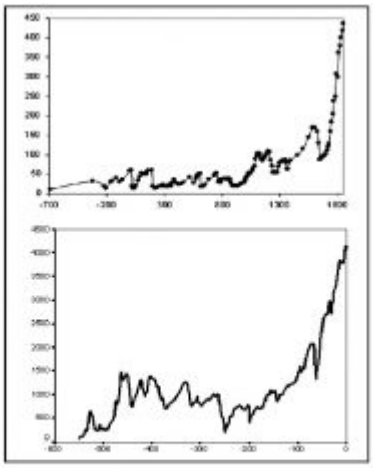


Fig. 1. Similarity between the long-term population dynamics of China (top: millions of people, following Korotayev, Malkov, *et al.* 2006b: 47–88) and the dynamics of Phanerozoic marine biodiversity (bottom: number of genera, *N*, following Markov and Korotayev 2007)

Mathematical Modeling of Biological and Social Macroevolution

The authors of this article met for the first time in 2005, in the town of Dubna (near Moscow), at what seems to have been the first ever international conference dedicated specifically to Big History studies. Without advance knowledge of one another, we found ourselves in a single session. During the course of the session, we presented two different diagrams. One illustrated population dynamics in China between 700 BCE and 1851 CE, the other illustrated the dynamics of marine Phanerozoic biodiversity over the past 542 million years (Fig. 1).

The similarity between the two diagrams was striking. This, despite the fact that they depicted the development of very different systems (human population *vs.* biota) at different time scales (hundreds of years *vs.* millions of years), and had

been generated using the methods of different sciences (historical demography *vs.* paleontology) with different sources (demographic estimates *vs.* paleontological data). What could have caused similarity of developmental dynamics in very different systems?

* * *

In 1960, von Foerster *et al.* published a striking discovery in the journal *Science*. They showed that between 1 and 1958 CE, the world's population (N) dynamics could be described in an extremely accurate way with an astonishingly simple equation:[2]

$$N_t = \frac{C}{(t_0 - t)}, \qquad \text{(Eq. 1)}$$

where N_t is the world population at time t, and C and t_0 are constants, with t_0 corresponding to an absolute limit ('singularity' point) at which N would become infinite. Parameter t_0 was estimated by von Foerster and his colleagues as 2026.87, which corresponds to November 13, 2026; this made it possible for them to supply their article with a title that was a public-relations masterpiece: 'Doomsday: Friday, 13 November, A.D. 2026'.

Of course, von Foerster and his colleagues did not imply that the world population on that day could actually become infinite. The real implication was that the world population growth pattern that operated for many centuries prior to 1960 was about to end and be transformed into a radically different pattern. This prediction began to be fulfilled only a few years after the 'Doomsday' paper was published as World System growth (and world population growth in particular) began to diverge more and more from the previous blow-up regime. Now no longer hyperbolic, the world population growth pattern is closer to a logistic one (see, *e.g.*, Korotayev, Malkov *et al.* 2006a; Korotayev 2009).

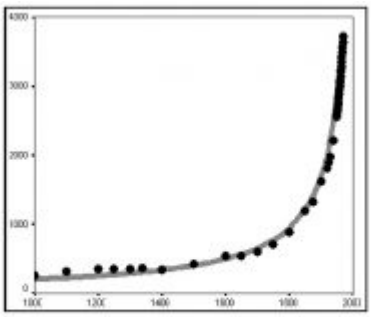


Fig. 2. Correlation between empirical estimates of world population (black, in millions of people, 1000–1970) and the curve generated by von Foerster *et al.*'s equation (grey)

Fig. 2 presents the overall correlation between the curve generated by von Foerster *et al.*'s equation and the most detailed series of empirical estimates of world population (McEvedy and Jones 1978, for the period 1000–1950; U.S. Bureau of the Census 2013, for 1950–1970). The formal characteristics are:

$R = 0.998$; $R^2 = 0.996$; $p = 9.4 \times 10^{-17} \approx 1 \times 10^{-16}$. For readers unfamiliar with mathematical statistics: R^2 can be regarded as a measure of the fit between the dynamics generated by a mathematical model and the empirically observed situation, and can be interpreted as the proportion of the variation accounted for by the respective equation. Note that 0.996 also can be expressed as 99.6 per cent.[3] Thus, von Foerster *et al.*'s equation accounts for an astonishing 99.6 per cent of all the macrovariation in world population, from 1000 CE through 1970, as estimated by McEvedy and Jones (1978) and the U.S. Bureau of the Census (2013).[4] Note also that the empirical estimates of world population find themselves aligned in an extremely neat way along the hyperbolic curve, which convincingly justifies the designation of the pre-1970s world population growth pattern as 'hyperbolic'.

The von Foerster *et al.'s* equation, , is the solution for the following differential equation (see, *e.g.*, Korotayev, Malkov *et al.* 2006a: 119–120):

The von Foerster *et al.*'s equation, $N_1 = \frac{C}{t_0 - t}$, is the solution for the following differential equation (see, *e.g.*, Korotayev, Malkov *et al.* 2006a: 119–120):

$$\frac{dN}{dt} = \frac{N^2}{C}. \quad \text{(Eq. 2)}$$

This equation can be also written as:

$$\frac{dN}{dt} = aN^2, \quad \text{(Eq. 3)}$$

where $a = \frac{1}{C}$.

What is the meaning of this mathematical expression? In our context, *dN/dt* denotes the absolute population growth rate at a certain moment in time. Hence, this equation states that the absolute population growth rate at any moment in time should be proportional to the square of world population at this moment. This significantly demystifies the problem of hyperbolic growth. To explain this hyperbolic growth, one need only explain why for many millennia the world population's absolute growth rate tended to be proportional to the square of the population.

The main mathematical models of hyperbolic growth in the world population (Taagapera 1976, 1979; Kremer 1993; Cohen 1995; Podlazov 2004; Tsirel 2004; Korotayev 2005, 2007, 2008, 2009, 2012; Korotayev, Malkov *et al.* 2006a: 21–36; Golosovsky 2010; Korotayev and Malkov 2012) are based on the following two assumptions:
'the Malthusian (Malthus 1978 [1798]) assumption that population is limited by the available technology, so that the growth rate of population is proportional to the growth rate of technology' (Kremer 1993: 681–682),[5] and
the idea that '[h]igh population spurs technological change because it increases the number of potential inventors… In a larger population there will be proportionally more people lucky or smart enough to come up with new ideas', thus, 'the growth rate of technology is proportional to total population'(Kremer 1993: 685).[6]

Here Kremer uses the main assumption of Endogenous Technological Growth theory (see, *e.g.*, Kuznets 1960; Grossman and Helpman 1991; Aghion and Howitt 1998; Simon 1977, 2000; Komlos and Nefedov 2002; Jones 1995, 2005).

The first assumption looks quite convincing. Indeed, throughout most of human history the world population was limited by the technologically determined ceiling of the carrying capacity of land. For example, with foraging subsistence technologies the Earth could not support more than 8 million people because the amount of naturally available useful biomass on this planet is limited. The world population could only grow over this limit when people started to apply various means to artificially increase the amount of available biomass that is with the transition from foraging to food production. Extensive agriculture is also limited in terms of the number of people that it can support. Thus, further growth of the world population only became possible with the intensification of agriculture and other technological improvements (see, *e.g.*, Turchin 2003; Korotayev, Malkov *et*

al. 2006a, 2006b; Korotayev and Khaltourina 2006). However, as is well known, the technological level is not constant, but variable (see, *e.g.*, Grinin 2007a, 2007b, 2012), and in order to describe its dynamics the second basic assumption is employed.

As this second supposition was, to our knowledge, first proposed by Simon Kuznets (1960), we shall denote the corresponding type of dynamics as 'Kuznetsian'. (The systems in which the Kuznetsian population-technological dynamics are combined with Malthusian demographic dynamics will be denoted as 'Malthusian-Kuznetsian'.) In general, we find this assumption rather plausible – in fact, it is quite probable that, other things being equal, within a given period of time, five million people will make approximately five times more inventions than one million people.

This assumption was expressed mathematically by Kremer in the following way:

$$\frac{dT}{dt} = kNT \qquad \text{(Eq. 4)}$$

This equation simply says that the absolute technological growth rate at a given moment in time (dT/dt) is proportional to the technological level (T) observed at this moment (the wider the technological base, the higher the number of inventions that can be made on its basis). On the other hand, this growth rate is also proportional to the population (N): the larger the population, the larger the number of potential inventors.[7]

When united in one system, Malthusian and Kuznetsian equations account quite well for the hyperbolic growth of the world population observed before the early 1990s (see, *e.g.*, Korotayev 2005, 2007, 2008, 2012; Korotayev, Malkov *et al.* 2006a). The resultant models provide a rather convincing explanation of *why,* throughout most of human history, the world population followed the hyperbolic pattern with the absolute population growth rate tending to be proportional to N^2. For example, why would the growth of population from, say, 10 million to 100 million, result in the growth of dN/dt 100 times? The above mentioned models

explain this rather convincingly. The point is that the growth of world population from 10 to 100 million implies that human subsistence technologies also grew approximately 10 times (given that it will have proven, after all, to be able to support a population ten times larger). On the other hand, the tenfold population growth also implies a tenfold growth in
the number of potential inventors, and, hence, a tenfold increase in the relative technological growth rate. Thus, the absolute technological growth rate would expand 10 × 10 = 100 times as, in accordance with Eq. 4, an order of magnitude higher number of people having at their disposal an order of magnitude wider technological base would tend to make two orders of magnitude more inventions. If, as throughout the Malthusian epoch, the world population (N) tended toward the technologically determined carrying capacity of the Earth, we have good reason to expect that dN/dt should also grow just by about 100 times.

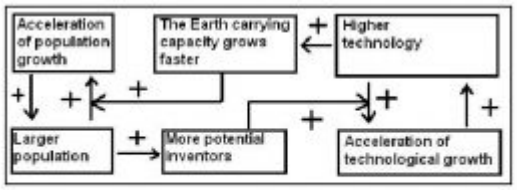


Fig. 3. Cognitive scheme of the nonlinear second order positive feedback between technological development and demographic growth

In fact, it can be shown (see, *e.g.*, Korotayev, Malkov *et al.* 2006a, 2006b; Korotayev and Khaltourina 2006) that the hyperbolic pattern of the world's population growth could be accounted for by a nonlinear second-order positive feedback mechanism that was long ago shown to generate just the hyperbolic growth, also known as the 'blow-up regime' (see, *e.g.*, Kurdyumov 1999). In our case, this nonlinear second-order positive feedback looks as follows: more people – more potential inventors – faster technological growth – faster growth of the Earth's carrying capacity – faster population growth – more people allow for more potential inventors – faster technological growth, and so on (see Fig. 3).

Note that the relationship between technological development and demographic growth cannot be analyzed through any simple cause-and-effect model, as we observe a true dynamic relationship between these two processes – each of them is both the cause and the effect of the other.

The feedback system described here should be identified with the process of 'collective learning' described, principally, by Christian (2005: 146–148). The mathematical models of World System development discussed in this article can be interpreted as models of the influence that collective learning has on global social evolution (*i.e.*, the evolution of the World System). Thus, the rather peculiar hyperbolic shape of accelerated global development prior to the early 1970s may

be regarded as a product of global collective learning. We have also shown (Korotayev, Malkov *et al.* 2006a: 34–66) that, for the period prior to the 1970s, World System economic and demographic macrodynamics, driven by the above-mentioned positive feedback loops, can simply and accurately be described with the following model:

$$\frac{dN}{dt} = aSN, \qquad \text{(Eq. 5)}$$

$$\frac{dS}{dt} = bNS, \qquad \text{(Eq. 6)}$$

The world GDP (G) can be calculated using the following equation:

$G = mN + SN,$	(Eq. 7)

where G is the world GDP, N is population, and S is the produced surplus per capita, over the subsistence amount (m) that is minimally necessary to reproduce the population with a zero growth rate in a Malthusian system (thus, $S = g - m$, where g denotes per capita GDP); a and b are parameters.

The mathematical analysis of the basic model (not described here) suggests that up to the 1970s, the amount of S should be proportional, in the long run, to the World System's population: $S = kN$. Our statistical analysis of available empirical data has confirmed this theoretical proportionality (Korotayev, Malkov *et al.* 2006a: 49–50). Thus, in the right-hand side of Eq. 6, S can be replaced with kN, resulting in the following equation:

$$\frac{dN}{dt} = kaN^2.$$

Recall that the solution of this type of differential equations is:

$$N_t = \frac{C}{(t_0 - t)},$$

which produces a simple hyperbolic curve.

As, according to our model, S can be approximated as kN, its long-term dynamics can be approximated with the following equation:

$$S = \frac{kC}{t_0 - t}. \qquad \text{(Eq. 8)}$$

Thus, the long-term dynamics of the most dynamic component of the world GDP, *SN*, the 'world surplus product', can be approximated as follows:

$$SN = \frac{kC^2}{(t_0 - t)^2}, \qquad \text{(Eq. 9)}$$

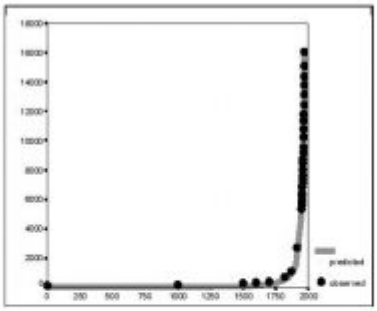


Fig. 4. The fit between predictions of a quadratic-hyperbolic model and observed world GDP dynamics, 1–1973 CE (in billions of 1990 international dollars, PPP)

Note: $R = .9993$, $R^2 = .9986$, $p << .0001$. The black markers correspond to Maddison's (2001) estimates (Maddison's estimates of the world per capita GDP for 1000 CE has been corrected on the basis of [Meliantsev 2004]). The grey solid line has been generated by the following equation:

$$G = \frac{17749573.1}{(2006 - t)^2},$$

Thus, up to the 1970s the hyperbolic growth of the world population was accompanied by the quadratic-hyperbolic growth of the world GDP, as suggested by our model. Note that the hyperbolic growth of the world population and the quadratic-hyperbolic growth of the world GDP are very tightly connected processes, actually two sides of the same coin, two dimensions of one process propelled by nonlinear second-order positive feedback loops between the technological development and demographic growth (see Fig. 5).

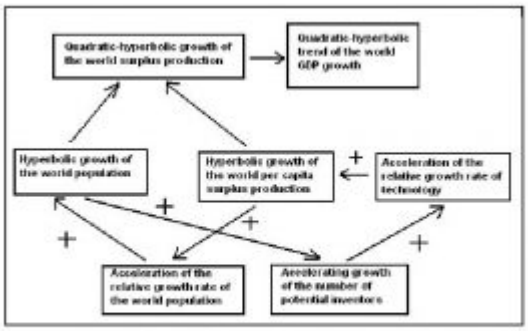


Fig. 5. Cognitive scheme of the world economic growth generated by nonlinear second-order positive feedback between technological development and demographic growth

We have also demonstrated (Korotayev, Malkov *et al.* 2006a: 67–80) that the World System population's literacy (l) dynamics are rather accurately described by the following differential equation:

$$\frac{dl}{dt} = aSl\ (1-l), \qquad \text{(Eq. 10)}$$

where l is the proportion of the population that is literate, S is per capita surplus, and a is a constant. In fact, this is a version of the autocatalytic model. Literacy growth is proportional to the fraction of the population that is literate, l (potential teachers), to the fraction of the population that is illiterate, (1 – l) (potential pupils), and to the amount of per capita surplus S, since it can be used to support educational programs. (Additionally, S reflects the technological level T that implies, among other things, the level of development of educational technologies.) From a mathematical point of view, Eq. 9 can be regarded as logistic where saturation is reached at literacy level $l = 1$. S is responsible for the speed with which this level is being approached.

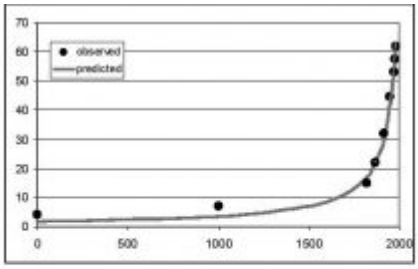


Fig. 6. The fit between predictions of the hyperbolic model and observed world literacy dynamics, 1–1980 CE (%%)

Note: $R = 0.997$, $R^2 = 0.994$, $p << 0.0001$. Black dots correspond to World Bank (2013) estimates for the period since 1970, and to Meliantsev's (2004) estimates for the earlier period. The grey solid line has been generated by the following equation:

$$l_t = \frac{3769.264}{(2040 - t)^2}.$$

The best-fit values of parameters C (3769.264) and t_0 (2040) have been calculated with the least squares method.

It is important to stress that with low values of l (which correspond to most of human history, with recent decades being the exception), the rate of increase in world literacy generated by this model (against the background of hyperbolic growth of S) can be approximated rather accurately as hyperbolic (see Fig. 6).

The overall number of literate people is proportional both to the literacy level and to the overall population. As both of these variables experienced hyperbolic growth until the 1960s/1970s, one has sufficient grounds to expect that until recently the overall number of literate people in the world (L)[8] was growing not just hyperbolically, but rather in a quadratic-hyperbolic way (as was world GDP). Our empirical test has confirmed this – the quadratic-hyperbolic model describes the growth of the literate population of this planet with an extremely good fit indeed (see Fig. 7).

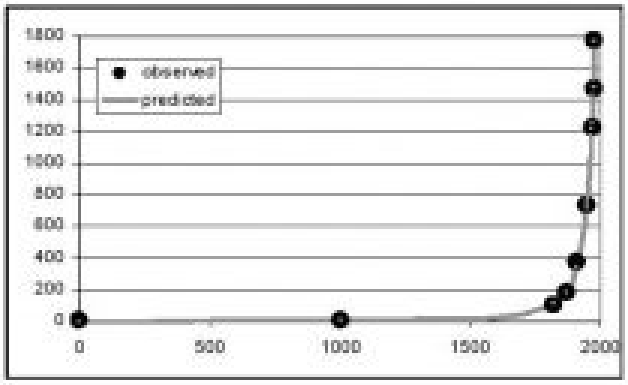


Fig. 7. The fit between predictions of the quadratic-hyperbolic model and observed world literate population dynamics, 1–1980 CE (L, millions)

Note: $R = 0.9997$, $R^2 = 0.9994$, $p << 0.0001$. The black dots correspond to UNESCO/World Bank (2014) estimates for the period since 1970, and to Meliantsev's (2004) estimates for the earlier period; we have also taken into account the changes of age structure on the basis of UN Population Division (2014) data. The grey solid line has been generated by the following equation:

$$L_t = \frac{4958551}{(2033 - t)^2},$$

The best-fit values of parameters C (4958551) and t_0 (2033) have been calculated with the least squares method.

Similar processes are observed with respect to world urbanization, the macrodynamics of which appear to be described by the differential equation:

$$\frac{du}{dt} = bSu\,(u_{\lim} - u), \qquad \text{(Eq. 11)}$$

where u is the proportion of the population that is urban, S is per capita surplus produced with the given level of the World System's technological development, b is a constant, and $u_{\lim}$ is the maximum possible proportion of the population that can be urban. Note that this model implies that during the Malthusian-Kuznetsian era of the blow-up regime, the hyperbolic growth of world urbanization must have been accompanied by a quadratic-hyperbolic growth of the urban population of the world, as supported by our empirical tests (see Figs 8–9).

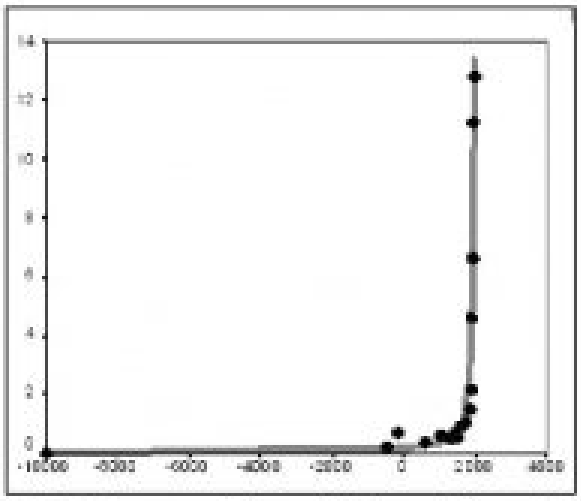


Fig. 8. The fit between predictions of the hyperbolic model and empirical estimates of world megaurbanization dynamics (% of the world population living in cities with > 250,000 inhabitants), 10,000 BCE – 1960 CE

Note: $R = 0.987$, $R^2 = 0.974$, $p << 0.0001$. The black dots correspond to Chandler's (1987) estimates, UN Population Division (2014), Modelski (2003), and Grübler (2006). The grey solid line has been generated by the following equation:

$$u_t = \frac{403.012}{(1990 - t)}$$

The best-fit values of parameters C (403.012) and t_0 (1990) have been calculated with the least squares method. For comparison, the best fit (R^2) obtained here for the exponential model is 0.492.

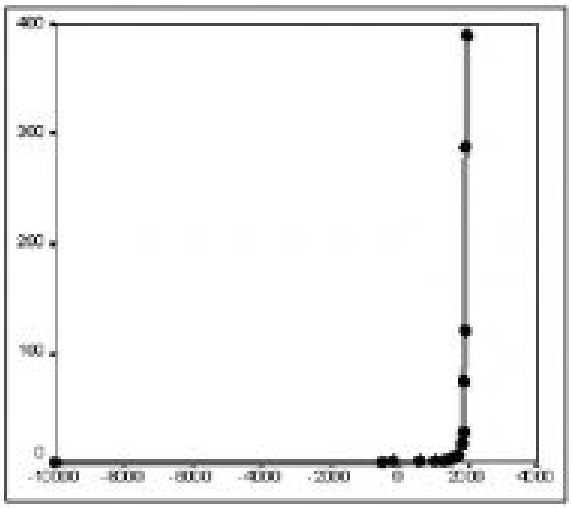


Fig. 9. The fit between predictions of the quadratic-hyperbolic model and the observed dynamics of world urban population living in cities with > 250,000 inhabitants (millions), 10,000 BCE – 1960 CE

Note: $R = 0.998$, $R^2 = 0.996$, $p << 0.0001$. The black markers correspond to estimates of Chandler (1987) and UN Population Division (2014). The grey solid line has been generated by the following equation:

$$U_t = \frac{912057.9}{(2008 - t)^2}$$

The best-fit values of parameters C (912057.9) and t_0 (2008) have been calculated with the least squares method. For comparison, the best fit (R^2) obtained here for the exponential model is 0.637.

Within this context it is hardly surprising to find that the general macrodynamics of largest settlements within the World System are also quadratic-hyperbolic (see Fig. 10).

As has been demonstrated by socio-cultural anthropologists working across cultures (see, *e.g.*, Naroll and Divale 1976; Levinson and Malone 1980: 34), for pre-agrarian, agrarian, and early industrial cultures the size of the largest settlement is a rather effective indicator of the general sociocultural complexity of a social system. This, of course, suggests that the World System's general sociocultural complexity also grew, in the Malthusian-Kuznetsian era, in a generally quadratic-hyperbolic way.

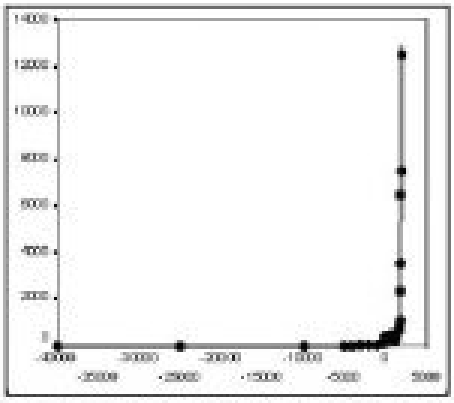


Fig. 10. The fit between predictions of the quadratic-hyperbolic model and the observed dynamics of size of the largest settlement of the world (thousands of inhabitants), 10,000 BCE – 1950 CE

Note: $R = 0.992$, $R^2 = 0.984$, $p << 0.0001$. The black markers correspond to estimates of Modelski (2003) and Chandler (1987). The grey solid line has been generated by the following equation:

$$U_{world} = \frac{1040020618.573}{(2040 - t)^2}$$

The best-fit values of parameters C (1040020618.5) and t_0 (2040) have been calculated with the least squares method. For comparison, the best fit (R^2) obtained here for the exponential model is 0.747.

Turning to a more concrete case study, as suggested at the beginning of this section, the hyperbolic model is particularly effective for describing the long-term population dynamics of China, the country with the best-known demographic history. The Chinese population curve reflects not only a hyperbolic trend, but also cyclical and stochastic dynamics. These components of long-term population dynamics in China, as well as in other complex agrarian societies, have been discussed extensively (see, *e.g.*, Braudel 1973; Abel 1980; Usher 1989; Goldstone 1991; Chu and Lee 1994; Komlos and Nefedov 2002; Turchin 2003, 2005a, 2005b; Nefedov 2004; Korotayev 2006; Korotayev and Khaltourina 2006; Korotayev, Malkov *et al.* 2006b; Turchin and Korotayev 2006; Korotayev, Komarova *et al.* 2007; Grinin, Korotayev *et al.* 2008; Grinin, Malkov *et al.* 2009; Turchin and Nefedov 2009; van Kessel-Hagesteijn 2009; Korotayev, Khaltourina, Malkov *et al.* 2010; Korotayev, Khaltourina *et al.* 2010; Grinin and Korotayev 2012).

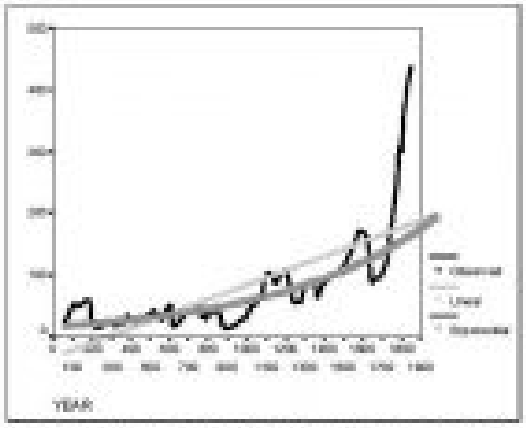


Fig. 11. Population dynamics of China (million people, following Korotayev, Malkov, et al. 2006b: 47–88), 57–1851 CE. Fit with Linear and Exponential Models

Note: Linear model: $R^2 = 0.469$. Exponential model: $R^2 = 0.600$.

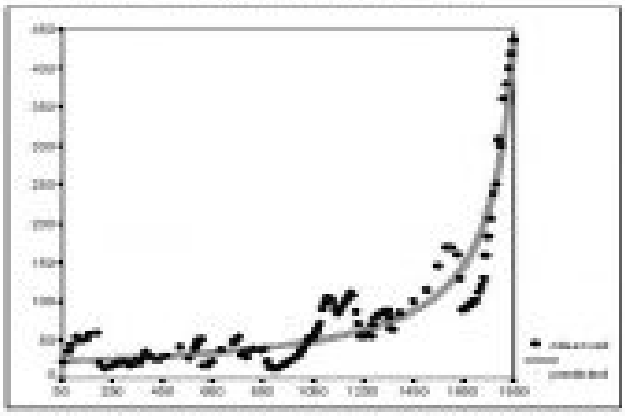


Fig. 12. Fit between a hyperbolic model and observed population dynamics of China (million people), 57–1851 CE

Note: $R^2 = 0.884$. The grey solid line has been generated by the following equation:

$$N_t = \frac{33451}{1915 - t}.$$

As we have observed with respect to world population dynamics, even before the start of its intensive modernization, the population dynamics of China were characterized by a pronounced hyperbolic trend (Figs 11 and 12).

The hyperbolic model describes traditional Chinese population dynamics *much* more accurately than either linear or exponential models.

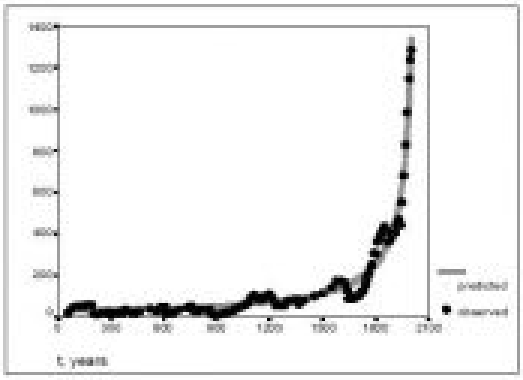


Fig. 13. Fit between a hyperbolic model and observed population dynamics of China (million people, following Korotayev, Malkov, *et al.* 2006b: 47–88), 57–2003 CE

Note: $R^2 = 0.968$. The grey solid line has been generated by the following equation:

$$N_t = \frac{63150}{2050 - t}.$$

The hyperbolic model describes the population dynamics of China in an especially accurate way if we take the modern period into account (Fig. 13).

It is curious that, as we noted above, the dynamics of marine biodiversity are strikingly similar to the population dynamics of China. The similarity probably derives from the fact that both curves are produced by the interference of the same three components (the general hyperbolic trend, as well as cyclical and stochastic dynamics). In fact, there is a lot of evidence that some aspects of biodiversity dynamics are stochastic (Raup *et al.* 1973; Sepkoski 1994; Markov 2001; Cornette and Lieberman 2004), while others are periodic (Raup and Sepkoski 1984; Rohde and Muller 2005). In any event, the hyperbolic model describes marine biodiversity (measured by number of genera) through the Phanerozoic much more accurately than an exponential model (Fig. 14).

When measured by number of species, the fit between the empirically observed marine biodiversity dynamics and the hyperbolic model becomes even better (Fig. 15).

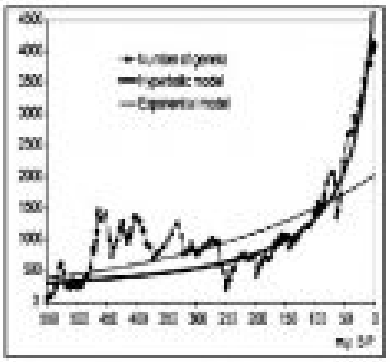


Fig. 14. Global change in marine biodiversity (number of genera, *N*) through the Phanerozoic (following Markov and Korotayev 2007)

Note: Exponential model: $R^2 = 0.463$. Hyperbolic model: $R^2 = 0.854$. The hyperbolic line has been generated by the following equation:

$$N_t = \frac{183.520}{57 - t}.$$

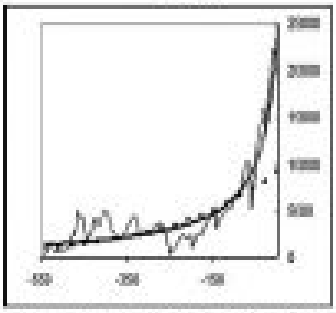


Fig. 15. Global change in marine biodiversity (number of species, *N*) through the Phanerozoic (following Markov and Korotayev 2008)

Note: Exponential model: $R^2 = 0.51$. Hyperbolic model: $R^2 = 0.91$. The hyperbolic line has been generated by the following equation:

$$N_t = \frac{8902874}{35 - t}.$$

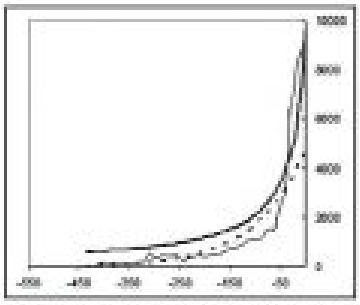


Fig. 16. Global change in continental biodiversity (number of genera, *N*) through the Phanerozoic (following Markov and Korotayev 2008)

Note: Exponential model: $R^2 = 0.86$. Hyperbolic model: $R^2 = 0.94$. The hyperbolic line has been generated by the following equation:

$$N_t = \frac{272095}{29 - t}.$$

Likewise, the hyperbolic model describes continental biodiversity in an especially accurate way (Fig. 16).

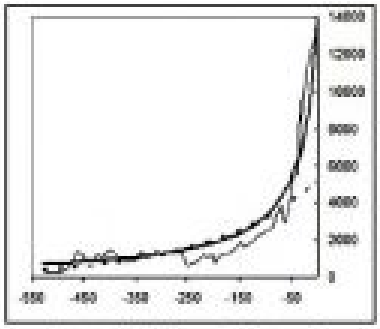


Fig. 17. Global change in total biodiversity (number of genera, *N*) through the Phanerozoic (following Markov and Korotayev 2008)

Note: Exponential model: $R^2 = 0.67$. Hyperbolic model: $R^2 = 0.95$. The hyperbolic line has been generated by the following equation:

$$N_t = \frac{434635}{30 - t}.$$

The hyperbolic dynamics are most prominent when both marine and continental biotas are considered together. This fact can be interpreted as a proof of the integrated nature of the biosphere. But why, throughout the Phanerozoic, did global biodiversity tend to follow a hyperbolic trend similar to that which we observed for the World System in general and China in particular?

As we have noted above, in sociological models of macrohistorical dynamics, the hyperbolic pattern of world population growth arises from non-linear second-order positive feedback (more or less identical with the mechanism of collective learning) between demographic growth and technological development. Based on analogy with these sociological models and diverse paleontological data, we suggest that the hyperbolic character of biodiversity growth can be similarly accounted for by non-linear second-order positive feedback between diversity growth and the complexity of community structure: more genera – higher alpha diversity – enhanced stability and 'buffering' of communities – lengthening of average life span of genera, accompanied by a decrease in the extinction rate – faster diversity growth – more genera – higher alpha diversity, and so on. Indeed, this begins to appear as a (rather imperfect) analogue of the collective learning mechanism active in social macroevolution.

The growth of genus richness throughout the Phanerozoic was mainly due to an increase in the average longevity of genera and a gradual accumulation of long-lived (stable) genera in the biota. This pattern reveals itself in a decrease in the extinction rate. Interestingly, in both biota and humanity, growth was facilitated by a decrease in mortality rather than by an increase in the birth rate. The longevity of newly arising genera was growing in a stepwise manner. The most short-lived genera appeared during the Cambrian; more long-lived genera

appeared in Ordovician to Permian; the next two stages correspond to the Mesozoic and Cenozoic (Markov 2001, 2002). We suggest that diversity growth can facilitate the increase in genus longevity via progressive stepwise changes in the structure of communities.

Most authors agree that three major biotic changes resulted in the fundamental reorganization of community structure during the Phanerozoic: Ordovician radiation, end-Permian extinction, and end-Cretaceous extinction (Bambach 1977; Sepkoski *et al.* 1981; Sepkoski 1988, 1992; Markov 2001; Bambach *et al.* 2002). Generally, after each major crisis, the communities became more complex, diverse, and stable. The stepwise increase of alpha diversity (*i.e.,* the average number of species or genera in a community) through the Phanerozoic was demonstrated by Bambach (1977) and Sepkoski (1988). Although Powell and Kowalewski (2002) have argued that the observed increase in alpha diversity might be an artifact caused by several specific biases that influenced the taxonomic richness of different parts of the fossil record, there is evidence that these biases largely compensated for one another so that the observed increase in alpha diversity was probably underestimated rather than overestimated (Bush and Bambach 2004).

Another important symptom of progressive development of communities is an increase in the evenness of species (or genus) abundance distribution. In primitive, pioneer, or suppressed communities, this distribution is strongly uneven: the community is overwhelmingly dominated by a few very abundant species. In more advanced, climax, or flourishing communities, this distribution is more even (Magurran 1988). The former type of community is generally more vulnerable. The evenness of species richness distribution in communities increased substantially during the Phanerozoic (Powell and Kowalewski 2002; Bush and Bambach 2004). It is most likely there was also an increase in habitat utilization, total biomass, and the rate of trophic flow in biota through the Phanerozoic (Powell and Kowalewski 2002).

The more complex the community, the more stable it is due to the development of effective interspecies interactions and homeostatic mechanisms based on the negative feedback principle. In a complex community, when the abundance of a species decreases, many factors arise that facilitate its recovery (*e.g.*, food resources rebound while predator populations decline). Even if the species becomes extinct, its vacant niche may ‘recruit’ another species, most probably a

related one that may acquire morphological similarity with its predecessor and thus will be assigned to the same genus by taxonomists. So a complex community can facilitate the stability (and longevity) of its components, such as niches, taxa and morphotypes. This effect reveals itself in the phenomenon of 'coordinated stasis'. The fossil record contains many examples in which particular communities persist for million years while the rates of extinction and taxonomic turnover are minimized (Brett *et al.* 1996, 2007).

Selective extinction leads to the accumulation of 'extinction-tolerant' taxa in the biota (Sepkoski 1991b). Although there is evidence that mass extinctions can be nonselective in some aspects (Jablonski 2005), they are obviously highly selective with respect to the ability of taxa to endure unpredictable environmental changes. This can be seen, for instance, in the selectivity of the end-Cretaceous mass extinction with respect to the time of the first occurrence of genera. In younger cohorts, the extinction level was higher than that of the older cohorts (see Markov and Korotayev 2007: fig. 2). The same pattern can be observed during the periods of 'background' extinction as well. This means that genera differ in their ability to survive extinction events, and that extinction-tolerant genera accumulate in each cohort over the course of time. Thus, taxa generally become more stable and long-lived through the course of evolution, apart from the effects of communities. The communities composed of more stable taxa would be, in turn, more stable themselves, thus creating positive feedback.

The stepwise change of dominant taxa plays a major role in biotic evolution. This pattern is maintained not only by the selectivity of extinction (discussed above), but also by the selectivity of the recovery after crises (Bambach *et al.* 2002). The taxonomic structure of the Phanerozoic biota was changing in a stepwise way, as demonstrated by the concept of three sequential 'evolutionary faunas' (Sepkoski 1992). There were also stepwise changes in the proportion of major groups of animals with different ecological and physiological parameters. There was stepwise growth in the proportion of motile genera to non-motile, 'physiologically buffered' genera to 'unbuffered', and predators
to prey (Bambach *et al.* 2002). All these trends should have facilitated the stability of communities. For example, the diversification of predators implies that they became more specialized. A specialized predator regulates its prey's abundance more effectively than a non-specialized predator.

There is also another possible mechanism of second-order positive feedback

between diversity and its growth rate. Recent research has demonstrated a shift in typical relative-abundance distributions in paleocommunities after the Paleozoic (Wagner *et al.* 2006). One possible interpretation of this shift is that community structure and the interactions between species in the communities became more complex. In post-Paleozoic communities, new species probably increased ecospace more efficiently, either by facilitating opportunities for additional species or by niche construction (Wagner *et al.* 2006; Solé *et al.* 2002; Laland *et al.* 1999). This possibility makes the mechanisms underlying the hyperbolic growth of biodiversity and human population even more similar, because the total ecospace of the biota is analogous to the 'carrying capacity of the Earth' in demography. As far as new species can increase ecospace and facilitate opportunities for additional species entering the community, they are analogous to the 'inventors' of the demographic models whose inventions increase the carrying capacity of the Earth.

Exponential and logistic models of biodiversity imply several possible ways in which the rates of origination and extinction may change through time (Sepkoski 1991a). For instance, exponential growth can be derived from constant per-taxon extinction and origination rates, the latter being higher than the former. However, actual paleontological data suggest that origination and extinction rates did not follow any distinct trend through the Phanerozoic, and their changes through time look very much like chaotic fluctuations (Cornette and Lieberman 2004). Therefore, it is more difficult to find a simple mathematical approximation for the origination and extinction rates than for the total diversity. In fact, the only critical requirement of the exponential model is that the difference between the origination and extinction through time should be proportional to the current diversity level:

$$(N_o - N_e)/\Delta t \approx kN, \qquad \text{(Eq. 12)}$$

where N_o and N_e are the numbers of genera with, respectively, first and last occurrences within the time interval Δt, and N is the mean diversity level during the interval. The same is true for the hyperbolic model. It does not predict the exact way in which origination and extinction should change, but it does predict that their difference should be roughly proportional to the square of the current diversity level:

$(N_o - N_e)/\Delta t \approx kN^2$. (Eq. 13)

In the demographic models discussed above, the hyperbolic growth of the world population was not decomposed into separate trends of birth and death rates. The main driving force of this growth was presumably an increase in the carrying capacity of the Earth. The way in which this capacity was realized – either by decreasing death rate or by increasing birth rate, or both – depended upon many factors and may varied from time to time.

The same is probably true for biodiversity. The overall shape of the diversity curve depends mostly on the differences in the mean rates of diversity growth in the Paleozoic (low), Mesozoic (moderate), and Cenozoic (high). The Mesozoic increase was mainly due to a lower extinction rate (compared to the Paleozoic), while the Cenozoic increase was largely due to a higher origination rate (compared to the Mesozoic) (see Markov and Korotayev 2007: 316, figs. 3a and b). This probably means that the acceleration of diversity growth during the last two eras was driven by different mechanisms of positive feedback between diversity and its growth rate. Generally, the increment rate ($(N_o - N_e)/\Delta t$) was changing in a more regular way than the origination rate $N_o/\Delta t$ and extinction rate $N_e/\Delta t$. The large-scale changes in the increment rate correlate better with N^2 than with N (see Markov and Korotayev 2007: 316, Figs 3c and d), thus supporting the hyperbolic rather than the exponential model.

Conclusion

In mathematical models of historical macrodynamics, a hyperbolic pattern of world population growth arises from non-linear second-order positive feedback between the demographic growth and technological development. Based on the analogy with macrosociological models and diverse paleontological data, we suggest that the hyperbolic character of biodiversity growth can be similarly accounted for by non-linear second-order positive feedback between the diversity growth and the complexity of community structure. This hints at the presence, within the biosphere, of a certain analogue to the collective learning mechanism. The feedback can work via two parallel mechanisms: (1) a decreasing extinction rate (more surviving taxa – higher alpha diversity – communities become more complex and stable – extinction rate decreases – more taxa, and so on), and (2) an increasing origination rate (new taxa – niche construction – newly formed niches occupied by the next 'generation' of taxa – new taxa, and so on). The latter

possibility makes the mechanisms underlying the hyperbolic growth of biodiversity and human population even more similar, because the total ecospace of the biota is analogous to the 'carrying capacity of the Earth' in demography. As far as new species can increase ecospace and facilitate opportunities for additional species entering the community, they are analogous to the 'inventors' of the demographic models whose inventions increase the carrying capacity of the Earth.

The hyperbolic growth of Phanerozoic biodiversity suggests that 'cooperative' interactions between taxa can play an important role in evolution, along with generally accepted competitive interactions. Due to this 'cooperation' (which may be roughly analogous to 'collective learning'), the evolution of biodiversity acquires some features of a self-accelerating process. The same is naturally true of cooperation/collective learning in global social evolution. This analysis suggests that we can trace rather similar macropatterns within both the biological and social phases of Big History. These macropatterns can be represented by relatively similar curves and described accurately with very simple mathematical models.

NOTES

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[1] We denote as *mega*evolution all the process of evolution throughout the whole of Big History, whereas we denote as *macro*evolution the process of evolution during one of its particular phases.

[2] To be exact, the equation proposed by von Foerster and his colleagues looked as follows: . However, as von Hoerner (1975) and Kapitza (1999) showed, it can be simplified as .

[3] The second characteristic (p, standing for 'probability') is a measure of the correlation's statistical significance. A bit counter-intuitively, the lower the value of p, the higher the statistical significance of the respective correlation. This is because p indicates the probability that the observed correlation could be accounted solely by chance. Thus, $p = 0.99$ indicates an extremely low statistical significance, as it means that there are 99 chances out of 100 that the observed correlation is the result of a coincidence, and, thus, we can be quite confident that

there is no systematic relationship (at least, of the kind that we study) between the two respective variables. On the other hand, $p = 1 \times 10^{-16}$ indicates an extremely high statistical significance for the correlation, as it means that there is only one chance out of 10,000,000,000,000,000 that the observed correlation is the result of pure coincidence (a correlation is usually considered statistically significant once $p < 0.05$).

[4] In fact, with slightly different parameters ($C = 164890.45$; $t_0 = 2014$) the fit (R^2) between the dynamics generated by von Foerster's equation and the macrovariation of world population for 1000–1970 CE as estimated by McEvedy and Jones (1978) and the U.S. Bureau of the Census (2013) reaches 0.9992 (99.92 per cent); for 500 BCE – 1970 CE this fit increases to 0.9993 (99.93 per cent) with the following parameters: $C = 171042.78$; $t_0 = 2016$.

[5] In addition to this, the absolute growth rate is proportional to the population itself. With a given relative growth rate, a larger population will increase more in absolute number than a smaller one.

[6] Note that 'the growth rate of technology' here means the relative growth rate (*i.e.*, the level to which technology will grow in a given unit of time in proportion to the level observed at the beginning of this period).

[7] Kremer did not test this hypothesis empirically in a direct way. Note, however, that our own empirical test of this hypothesis has supported it (see Korotayev, Malkov *et al.* 2006b: 141–146).

[8] Since literacy appeared, almost all of the Earth's literate population has lived within the World System; hence, the literate population of the Earth and the literate population of the World System have been almost perfectly synonymous.

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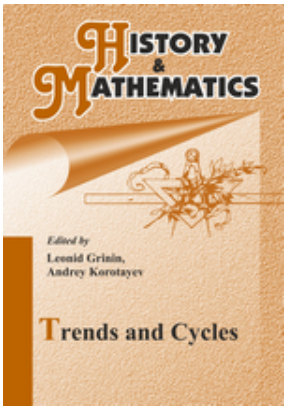
A Trap At The Escape From The Trap? Some Demographic Structural Factors Of Political

Instability In Modernizing Social Systems



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Abstract
The escape from the 'Malthusian trap' is shown to tend to generate in a rather systematic way quite serious political upheavals. Some demographic structural mechanisms that generate such upheavals have been analyzed, which has made it possible to develop a mathematical model of the respective processes.
The forecast of political instability in Sub-Saharan African countries in 2015–2050 produced on the basis of this model is presented.

Keywords: modernization, instability, Malthusian trap, mathematical modeling, youth bulge, urbanization, Africa, demographic dynamics, demographic transition, political dynamics, political demography. – *This research has been supported by the Russian Science Foundation (Project No 14-11-00634)*

Malthusian trap as a factor of political instability
What is that trap which we mention in the title of this article (and at whose escape we claim another trap to be detected)? It is the so-called 'Malthusian trap'.

The Malthusian trap[2] is a rather typical for pre-industrial societies situation when the growth of output (as it is accompanied by a faster demographic growth) does

not lead in the long-range perspective to the increase in per capita output and the improvement of living conditions of the majority of population that remains close to the bare survival level (see, *e.g.*, Malthus 1798, 1978 [1798]; Artzrouni and Komlos 1985; Steinmann and Komlos 1988; Komlos and Artzrouni 1990; Steinmann, Prskawetz, and Feichtinger 1998; Wood 1998; Kögel and Prskawetz 2001; Grinin, Korotayev, and Malkov 2008; Grinin and Korotayev 2009; Grinin *et al.* 2009; Grinin 2010).

In complex pre-industrial societies the Malthusian trap was one of the main generators of state breakdowns (see, *e.g.*, Korotayev and Khaltourina 2006; Korotayev, Malkov, and Khaltourina 2006b; Chu and Lee 1994; Nefedov 2004; Turchin 2003, 2005a, 2005b; Turchin and Korotayev 2006; Turchin and Nefedov 2009; Usher 1989; Grinin and Korotayev 2009; Grinin, Korotayev, and Malkov 2008; Grinin *et al.* 2009; Grinin 2007; Korotayev 2006; Korotayev, Komorova, and Khaltourina 2007; Kulpin 1990; Malkov 2002, 2003, 2004; S. Malkov and A. Malkov 2000; S. Malkov, Kovalyov, and A. Malkov 2000; Malkov *et al.* 2002; Malkov, Selunskaya, and Sergeyev 2005; Malkov and Sergeyev 2002, 2004a, 2004b; Mugruzin 1986, 1994; Nefedov 1999–2010; Nefedov and Turchin 2007; Turchin 2007; van Kessel-Hagesteijn 2009).

A typical example is provided by the last (Qing) of the 'secular' (see Korotayev, Malkov, and Khaltourina 2006b; Turchin and Nefedov 2009) cycles of Chinese political-demographic dynamics. In 1700–1850 China managed to achieve rather impressive economic results (due to, say, introduction of some New World crops [first of all, maize and sweet potatoes], development of new varieties of previously known cultivated plants, agricultural labor intensification, land reclamation, *etc.* [Ho 1955; 1959: 173–174, 180, 185–189; Lee 1982; Bray 1984: 452, 601; Perkins 1969: 39–40; Dikarev 1991: 69–70; Fairbank 1992: 169; Lavely and Wong 1998: 725–726; Lee and Wang 1999: 37–40; Mote 1999: 750, 942; Nefedov 2000a: 17; Myers and Wang 2002: 599, 634–636; Rowe 2002: 479; Zelin 2002: 216–218; van Kessel-Hagesteijn 2009]). As a result of these innovations the carrying capacity of land during this cycle was raised to a radically new level, which also resulted in a rather significant growth of the Chinese GDP.

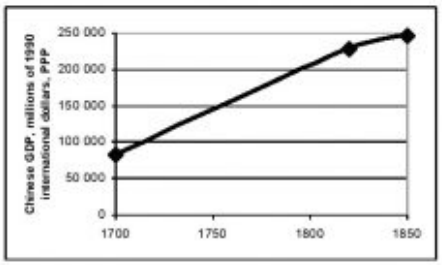


Fig. 1. Economic macrodynamics of China, 1700–1850 (GDP, millions of 1990 international dollars, purchasing power parities)
Data source: Maddison 2001, 2010.

Fig. 1. Economic macrodynamics of China, 1700–1850 (GDP, millions of 1990 international dollars, purchasing power parities) Data source: Maddison 2001, 2010.

Thus, according to Maddison's (2001, 2010) estimations, between 1700 and 1850 the GDP of China grew almost threefold (see Fig. 1).

However, the Chinese population grew during the same period of time more than fourfold (see Fig. 2).

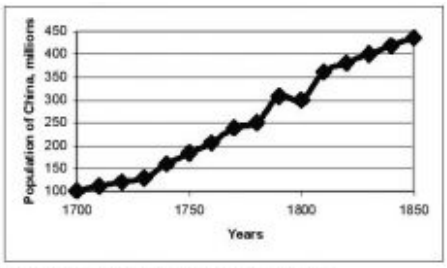


Fig. 2. Population of China, millions, 1700–1850
Note: estimates of Zhao and Xie (1988: 539–540).

Fig. 2. Population of China, millions, 1700–1850 Note: estimates of Zhao and Xie (1988: 539–540).

As a result, by 1850 we observe a rather significant decline of per capita GDP (see Fig. 3).

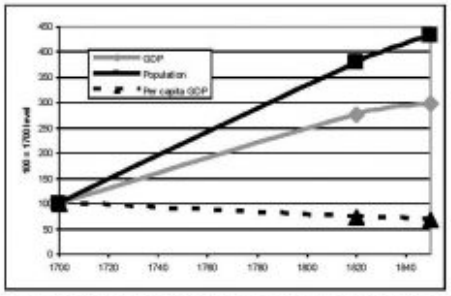


Fig. 3. Relative dynamics of GDP, population, and per capita GDP in Qing China, 1700–1850 (100 = 1700 level)

Fig. 3. Relative dynamics of GDP, population, and per capita GDP in Qing China, 1700–1850 (100 = 1700 level)

The decline in the level of life of the majority of Chinese (mainly resultant just from the point that the Chinese population growth rates exceeded the rates of economic growth) can be traced on the basis of a significant number of independent data series. For example, Fig. 4 reflects the dynamics of average real daily wages of unskilled workers in this country. As we see, quite predictably, as a result of population growth rates being higher than GDP growth rates, the average real daily wages (that were not high at all even at the beginning of the respective period [see Korotayev and Khaltourina 2006 for comparisons]) dropped to the level of bare physiological survival by the end of the period in question.

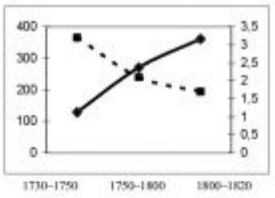


Fig. 4. Population and food consumption in China in the Qing period

Note: - - ■ - - = consumption (daily wages, liters of rice);
——+—— = population (millions).

Source: Adopted from Nefedov 2003: 5. The data on daily wages are from Chao 1986: 218–219. The data on population are from Zhao and Xie 1988: 541–542.

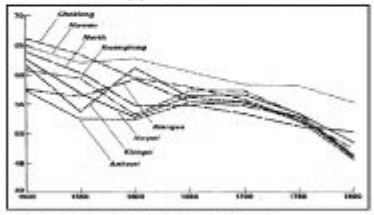


Fig. 5. Regional life expectancy from 1500 to 1800

Note: "The figures indicate the average age at death of the population already having reached the Chinese age of 15" (Heijdra 1998: 437); hence, the present diagram does not take into account those numerous representatives of respective populations who died before reaching this age. It is perfectly clear that, if this part of the population were taken into account, the values of the average age at death would be radically lower. However, the present diagram gives important information on the relative dynamics of this very important indicator.

Population growth rate being higher than the growth rate of GDP, Qing China experienced a catastrophic decline in the level of life of the majority of Chinese population, which is confirmed by the data of Chinese genealogies (*chia-p'u*) (see Fig. 5).

It worth stressing that in this case we are dealing with a really mass source (for example, Fig. 5 was compiled on the basis of several hundred thousand Chinese genealogies). It also appears necessary to take into account the point that representatives of really low class strata had rather poor chances to get into the abovementioned genealogies. Thus, the data in Fig. 5 reflects the dynamics of the level of life not of the real low class strata, but rather of the Qing 'middle classes',

whose members were represented in these genealogies on a really mass scale.

As we see, at the beginning of the Qing cycle the average age at death among the middle strata of the Chinese population was rather high – 55–60 years; however, by the end of the period in question the value of the respective indicator falls to explicitly low values (around 45 years), whereas it seems appropriate to emphasize that we are not dealing here with the lowest strata of the Chinese population. Another impressive feature is a striking synchronicity of the decline of the average age at death in various regions of China in the course of the Qing sociodemographic cycle.

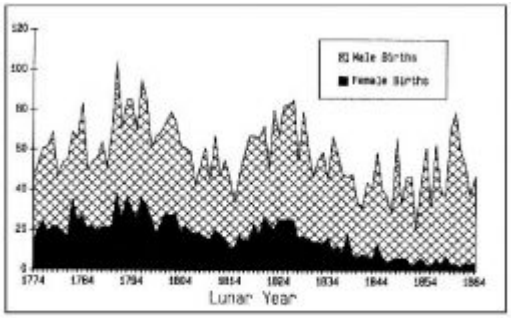


Fig. 6. Crude birth rates in Daoyi, 1774–1864 (per 1,000 married women aged 15–45)

Source: Lee, Campbell, and Tan 1992: 164, fig. 5.5.

The fact that the excess of demographic growth rates over GDP growth rates led in Qing China to a catastrophic decline in the level of life of the majority of population is confirmed by the data on dynamics of female infanticide (see Fig. 6).

Fig. 6 displays the results of processing of data taken from one of the Qing registration offices that registered births of both boys and girls. As we see, even in the beginning of the period covered by Fig. 6 the situation was far from problem-free – the office used to register just about 5 new-born girls per 10 new-born boys. However, by the late 1840s the situation became simply catastrophic – the office tended to register 1–2 new-born girls per 10 new-born boys.

It appears necessary to note that the historical economic research in this field has revealed for the Qing China the presence of rather strong and significant correlations between the levels of prices of basic food commodities and the levels of female infanticide (see, *e.g.*, Lee, Campbell, and Tan 1992: 158–175).
This, of course, suggests that the catastrophic growth of female infanticide was connected with the catastrophic decline of the living standard of the Chinese population majority.[3]

The catastrophic decline of the majority's level of life in China quite naturally led to the growth of dissatisfaction with the government, which in 1850–1870 produced a series of rebellions (the Taiping Rebellion was the largest among them [see, *e.g.*, Ilyushechkin 1967; Larin 1986; Nepomnin 2005: 395–444; Perkins 1969: 204; Kuhn 1978; Liu 1978 *etc.*]); this was apparently the bloodiest internal political collapse in the history of the humankind with the total number of dead being estimated as high as 118 (one hundred and eighteen!) million people (Huang 2002: 528). It worth noting that the majority of them died not as a result of direct violence, but because of diseases, famine, floods, *etc*. that took place in direct connection with the abovementioned events. The most destructive results were produced by the break of the dams by the Yellow River in 1853. As a result the great Chinese river changed its course (before these events it flew to the ocean south of the Shandung Peninsular, and afterwards it began to flow north of it), and a large part of densely populated Northern China was literally washed down. Numerous people died directly as a result of the flood, still more were left without sustenance, had to fled to the cities where the Qing government totally exhausted by the Taiping War had no resources to provide them with food. As a result, millions of undernourished people died of diseases and famine (see, *e.g.*, Kuhn 1978 for more details).

It should be emphasized that even the catastrophic change of the Yellow River course had evident Malthusian causes. The point is that in the preceding period the growing relative overpopulation of the Yellow River valley led to the increasing cultivation of the marginal lands upstream. This resulted in the acceleration of soil erosion and, consequently, the increasing silting of the Yellow River bottom; the bottom was rising more and more that increasingly raised the threat of floods. A whole system of counter-flood dams was built in order to counteract this threat – naturally, their height grew with the rise of the Yellow River bottom. As a result, by the beginning of the Taiping Rebellion the great Chinese river flew in its lower course well above the level of the North Chinese Plain, and in order to prevent its breaking the dams enormous (and constantly growing) resources were needed. After the Taiping rebels[4] captured the Chinese 'breadbasket' in the Lower Yangtze region, the revenues of the Qing budget shrank in the most catastrophic way; this was accompanied by an impetuous increase in military expenses that were necessary to counteract the deadly Taiping onslaught. As a result, the Qing government failed to secure the necessary (and very costly) support of the extremely complex counter-flood

system, and the catastrophic break of the dams by the Yellow River became inevitable (see Korotayev, Malkov, and Khaltourina 2006b: ch. 2 for more details).

Note that Malthus himself considered warfare (including, naturally, internal warfare) as one of the most important results of overpopulation (in addition to epidemics and famines). What is more, he regarded wars, epidemics, and famines (and all of these were observed in China in 1850–1870) as so-called 'positive checks' that checked overpopulation in pre-industrial systems (Malthus 1978 [1798]). Thus, in pre-industrial societies bloody political upheavals frequently turned out to be a result of the respective social systems being caught in the Malthusian trap.

By now the students of social systems entrapped in the Malthusian trap have a rather significant number of mathematical models of political-demographic dynamics of such social systems describing the development of bloody political upheavals at the phase of socio-demographic collapse of pre-industrial political-demographic cycles (see, *e.g.*, Korotayev and Khaltourina 2006; Korotayev, Malkov, and Khaltourina 2006b; Usher 1989; Chu and Lee 1994; Malkov 2009; Komlos and Nefedov 2002; Turchin 2003, 2005a, 2005b; Nefedov 2004; Turchin and Nefedov 2009; Turchin and Korotayev 2006 *etc*.).

Demographic transition and the increase in agricultural productivity due to major technological advances in the recent centuries (see, *e.g.*, Grinin 2006) allowed most states to escape the Malthusian trap. The first phase of the demographic transition is characterized by a decline in mortality due to improved nutrition, sanitation, advancement and spread of modern medical technologies, *etc*. This leads to the acceleration of population growth. In the second phase of demographic transition, the development of medicine in combination with other processes (especially with mass education among women) leads to a widespread use of family planning technologies and, as a result, to a decrease of population growth rates (see, *e.g.*, Chesnais 1992; Korotayev, Malkov, and Khaltourina 2006a).

However, these modernization processes started later in Sub-Saharan Africa than in the rest of the world; and even in the recent decades the Malthusian trap tended to produce state breakdowns in this region.

Table 1. Ethiopian economic-demographic dynamics, 1981–1991

Year	Economic growth 1: total GDP production		Demographic growth: population		Economic growth 2: per capita GDP		Per capita calorie intake
	international dollars 2005, PPP, blns	% of 1981 level	mlns	% of 1981 level	international dollars 2005	% of 1981 level	kcal per person per day
1981	21.76	100	35.8	100	607.85	100	1831
1986	22.50	103.4	42.1	117.6	534.24	87.9	1711
1991	24.47	112.5	49.7	138.7	492.85	81.1	1657

Sources: World Bank 2014; FAO 2014.

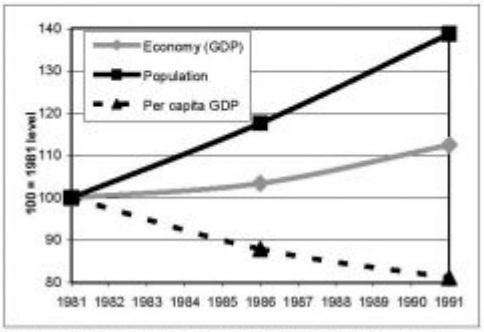


Fig. 7. Ethiopian economic-demographic dynamics, 1981–1991

For example, in the period preceding the fall of Mengistu Haile Mariam's regime, from 1981 to 1991, Ethiopia's GDP grew by 12.5 %, but during the same period the population grew by 40 %. As a result, GDP per capita fell from very low $608 to catastrophic $500. Another dramatic fall occurred in per capita calorie intake: 1831 kcal/day in 1981 was already very low, 1657 in 1991 was below physiological minimum (see Table 1).

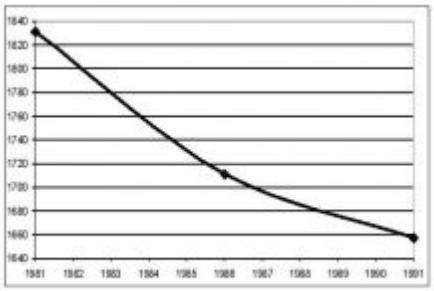


Fig. 8. Per capita food consumption, Ethiopia, 1981–1991, kcal/day

Such a low level of per capita food consumption means that a large part of a country's population is on the edge of serious starvation. In this situation, many inhabitants of this country might choose joining rebels (or bandits; in fact, as it is well known that rebels could be quite easily transformed into bandits, and *vice versa*). It can be quite a rational choice when continuation of usual ways of obtaining subsistence means an almost unavoidable hungry death, whereas joining rebels/bandits gives at least some realistic survival chances (see Korotayev and Khaltourina 2006 for more details). We do not say that this was the only cause of the fall of Mengistu Haile Mariam's regime, but we believe that this factor definitely contributed to this fall.

Some Features of Political-Demographic Dynamics of Modernizing Systems

Against this background it appears interesting to consider a few cases of major political upheavals in recent decades.

Albania – Sociopolitical Collapse of 1997

In 1997 Albania was swept by a wave of violent riots caused by the collapse of financial pyramids, as a result of which hundreds thousand Albanians lost all their savings. As is well known, many postsocialist European countries confronted this sort of problem (like the famous collapse of the MMM pyramid in Russia), but nowhere did this lead to a sociopolitical collapse comparable with the Albanian one:

By early March 1997, Albania was in chaos… The army and police had mostly deserted. Armories had been looted…, evacuation of foreign nationals and mass emigration of Albanians to Italy began. The government's authority… had evaporated. When Tirana fell into civil disorder in late March, the government resigned… Some 2,000 people were killed… Almost one million weapons were looted… Large parts of the country were… outside of the government's control (Jarvis 1999: 18).

The order in the country was only restored after the deployment of foreign (first of all, Italian) troops (*Ibid.:* 17). With a view to what we have already considered in the previous section, it appears rather seductive to suppose a certain 'Malthusian' component in the above-described events. Indeed, in the 1960s – 1990s Albania was the poorest European country with anomalously high (by European standards) birth and fertility rates (see, *e.g.*, Korotayev *et al.* 2010). Within such a context there seem to be all the possible grounds to expect the development of a classical Malthusian scenario: population growing faster than output – decline of per capita food consumption to the level of bare survival (or even below) – social explosion.

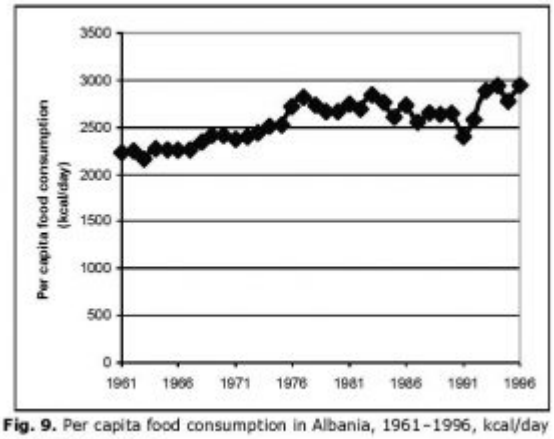


Fig. 9. Per capita food consumption in Albania, 1961–1996, kcal/day
Data source: FAO 2014.

Against this background it appears interesting to consider the actual dynamics of per capita food consumption in Albania in the three decades preceding the sociopolitical collapse of 1997 (see Fig. 9).

As we see, for the period in question the dynamics of this indicator in Albania turned out to be almost contrary to the ones predicted by the Malthusian scenario. Still in the early 1960s in Albania the problem of malnutrition was very serious and the average per capita food consumption was below the norm of 2300–2400 kcal/day recommended by the WHO (see, *e.g.,* Naiken 2002).

However, in the 1960s and 1970s Albania managed to achieve evident successes in the solution of the food problem; in the late 1960s – early 1970s in this country the per capita food consumption exceeded the norm recommended by the WHO –

and afterwards it has never dropped below it. In the late 1970s and early 1980s the growth rate of this indicator slowed down, and in 1983–1991 a certain trend towards its decline was observed, which, of course, reflects very serious economic difficulties that were experienced by Albania in the last years of the 'communist' period of its history (see, *e.g.*, Sandstrom and Sjöberg 1991). However, even in 1991 (the hardest year in Albania) per capita food consumption did not drop below the norm recommended by the WHO. On the other hand, after 1991 Albania managed to achieve new successes in solving the food problem, and in 1993–1996 per capita food consumption in Albania reached record values for the whole Albanian history; by 1997 it was closer to what would be more appropriately called 'overeating' rather than 'undernourishment' level.

In any case, we may maintain with a high degree of confidence that with respect to Albania in 1961–1997 it appear impossible to speak about anything like a drop of per capita food consumption to the level of bare survival as
a result of the population growing faster than output. It appears much more appropriate to say that these were precisely those years when Albania managed to escape quite successfully from the Malthusian trap.[5]

South Korea – The 1980 Kwangju Uprising

After the end of the Korean War the largest popular uprising in South Korea took place in 1980 in the city of Kwangju (with 300 thousand participants, about 2000 dead, 5 divisions of regular army taking part in the suppression of the rebellion, *etc*.). This uprising was accompanied by a series of popular riots in neighboring cities (Lewis 2002).

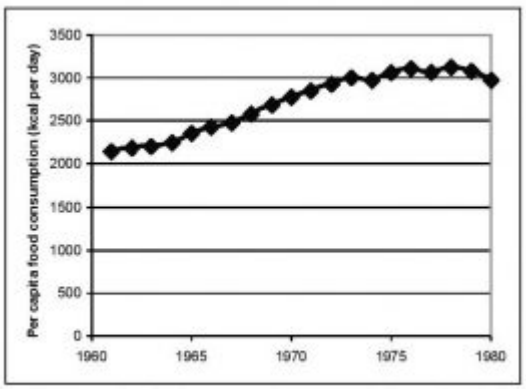


Fig. 10. Per capita food consumption in South Korea, 1961–1980, kcal/day

Against this background, the dynamics of per capita food consumption in South Korea in the two decades preceding the abovementioned popular rebellion looks rather noteworthy (see Fig. 10).

As we see, South Korea was another country that in the early 1960s encountered the undernourishment problem, the average per capita food consumption being

below the norm recommended by the WHO. On the other hand, this was another country that in the 1960s and the early 1970s managed to achieve very noticeable achievements in solving the food problem; note that these achievements were even more considerable than in Albania, it was already in the mid-1960s that the average per capita food consumption in this country exceeded the norm recommended by the WHO (and it has never gone below that level afterwards). After 1973 the growth rate of this indicator in South Korea decreased, and in the late 1970s its certain (though quite insignificant) decline was observed. It does not seem to be a coincidence that this occurred simultaneously with the start of the period of an especially rapid growth of the South Korean economy (the so-called 'Korean economic miracle') when an unusually high proportion of the South Korean GDP was used for the gross capital formation purposes (see, *e.g.*, Akaev 2010); hence, an unusually low GDP share was left for the consumption purposes. In the meantime, it appears necessary to stress that, notwithstanding some (incidentally, very small) decline of the per capita food consumption in the late 1970s, the value of this indicator remained at a very high (about 3000 kcal per day) level by the start of the abovementioned popular rebellion.

In any case, with respect to South Korea in 1961–1980 we again get across the case when it is impossible to note any fall of per capita food consumption to the level of bare survival as a result of the population growth rates exceeding the output growth rates. We rather get across one more case when a social system escaped rather successfully from the Malthusian trap just in the decades preceding a social explosion.

Egypt – 1977 'Bread Riots'

The largest political unrest in Egypt after 1952 took place in 1977 (the so-called 'Bread Riots'). The participants were chanting *Yā batl al-`ubūr! Fēn al-futūr?* 'Hero of the Crossing, where is our breakfast?' (addressing President Sadat).

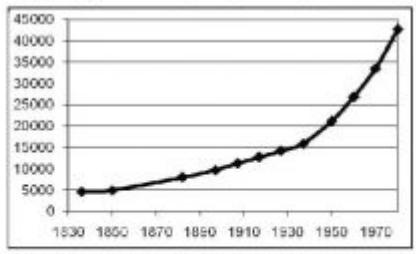


Fig. 11. Egyptian population dynamics, thousands of people, 1836–1989

Data sources: for 1950–2005: Maddison 2001, 2010; U.S. Bureau of the Census 2010; World Bank 2014; *for 1897–1950:* Craig 1917; Cleveland 1936: 7; Nămiş 1952; McCarthy 1976: 31–3; Vasilyev 1990: 205; *for 1800–1897:* Panzac's (1987) estimates.

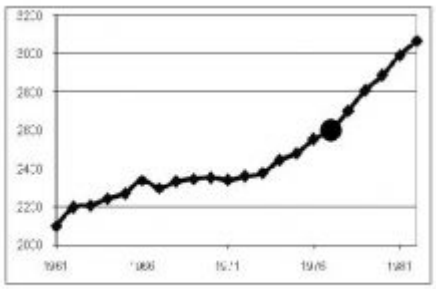


Fig. 12. Per capita food consumption in Egypt, 1961–1982, kcal/day

Source: FAO 2014.

The riots took place in all the large Egyptian cities, several hundred thousand people participated in them, not less than 800 fell victim (see, *e.g.*, Hirst 1977). Seemingly, we should deal here with nothing else than Malthusian scenario, as the protesters clearly complained about food insufficiency, while in the 1960s – 1970s the Egyptian population was growing exceedingly fast (see Fig. 11).

In this regard it seems reasonable to view the actual dynamics of per capita food consumption in Egypt in the 1960s and 1970s (see Fig. 12).

Table 2. Egyptian economic-demographic dynamics in the 'Sadat epoch' (1970–1982)

Year	Economic growth 1: GDP production		Demographic growth: population		Economic growth 2: GDP per capita production		Per capita food consumption
	Bln international dollars 1990, PPP	% from 1970 level	Millions of people	% from 1970 level	International dollars 1990	% from 1970 level	Kcal/person/day
1970	42.1	100.0	33.6	100.0	1 254	100.0	2355
1971	43.9	104.2	34.2	101.8	1 283	102.3	2341
1972	44.7	106.1	34.8	103.7	1 284	102.4	2360
1973	45.9	109.1	35.5	105.7	1 294	103.2	2376
1974	47.7	113.2	36.2	107.9	1 317	105.0	2443
1975	52.5	124.7	37.0	110.1	1 421	113.3	2483
1976	60.6	144.0	37.7	112.4	1 606	128.1	2555
1977	68.5	162.8	38.5	114.5	1 767	140.9	2600
1978	75.8	179.3	40.0	119.2	1 844	147.0	2705
1979	79.6	189.1	41.3	122.9	1 930	153.9	2811
1980	88.2	209.5	42.6	127.0	2 069	165.0	2887
1981	91.7	217.9	44.2	131.6	2 076	165.5	2992
1982	101.5	241.1	45.7	136.1	2 223	177.2	3067

Data source: Maddison 2001, 2010; FAO 2014.

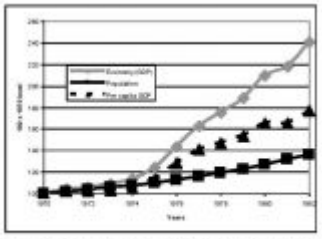


Fig. 13. Egyptian economic-demographic dynamics in the 'Sadat epoch' (1970–1982)

Evidently, Malthusian scenario does not work here. Indeed, in the early 1960s the problem of undernourishment was still quite acute for Egypt, and per capita consumption was lower than the WHO recommended norm of 2300–2400 kcal/person/day (Naiken 2002). In the mid-1960s Egypt reached this level, but could not exceed it before 1974. After 1973 per capita food consumption increased rapidly, getting over 3000 kcal/day in 1982 (next year after Sadat's death) and never after decreasing beyond this level. Thus, the problem of overeating became more relevant for Egypt than the one of undernourishment. This success should be attributed to the *Infitah* economic reforms launched by Sadat administration in 1974 (see, *e.g.*, Weinbaum 1985: 215–216). Indeed, though population grew by 36.1 % from 1970 to 1982, Egyptian GDP grew by 141.1 % during the same period, the major part of this growth taking place during *Infitah*. As a result, GDP per capita grew almost twofold, which correlated with the similarly rapid growth in per capita consumption (see Table 2 and Fig. 13).

Thus, ‘bread riots’ occurred in Egypt at that very time when the country was successfully escaping from the Malthusian trap.

Syria – The 1982 Hama Rebellion

In Syria after the end of the Second World War the largest popular rebellion took place in 1982 in Hama. The rebellion was suppressed with regular army units, aviation, artillery, and tanks. According to some estimates, the number of dead reached 40 thousand, including 1000 soldiers of regular army (see, *e.g.*, Fisk 1990; Friedman 1998; Wiedl 2006).

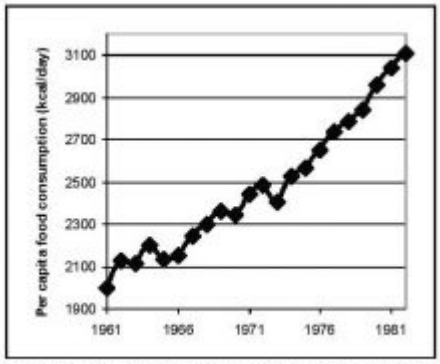


Fig. 14. Per capita food consumption in Syria, 1961–1982, kcal/day

Source: FAO 2014.

After the cases considered above the picture of dynamics of per capita food consumption in Syria in the two decades preceding the Hama rebellion should not look surprising. Yet, with respect to this country the ‘counter-Malthusian’ dynamics looks especially impressive – indeed, in the nine years preceding the rebellion the per capita food consumption in Syria was growing continuously and very rapidly (see Fig. 14).

In general, as we see, in the two decades preceding the largest popular rebellion in its post-war history Syria had escaped the Malthusian trap in a rather successful way, having moved within a historically very short period quite far from the level of explicit undernourishment of the early 1960s and reaching by 1982 a level that could be more accurately characterized as overeating.

Civil War in El Salvador

In 1980 a civil war began in El Salvador; it continued till 1992 and led to the death of 75 thousand inhabitants of this country – a colossal number for a country with total population of about 4.5 mln people at the moment of the civil war start (see, *e.g.*, Montgomery 1995).

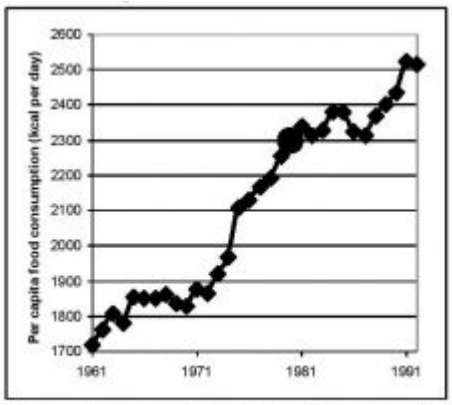


Fig. 15. Per capita food consumption in El Salvador, 1961–1992, kcal/day

Source: FAO 2014.

In the meantime, the per capita food consumption dynamics in El Salvador looked as follows (see Fig. 15):

We obviously see here a picture that is generally similar to the cases observed above; however, it has some noticeable nuances. As we see, still in the early 1960s the majority of the Salvadorian population confronted the most serious (in comparison with all the other cases considered above) undernourishment problems. The situation with food consumption somehow improved in this country in the 1960s. However, it improved in the most significant way just in the decade that preceded directly the outbreak of the Salvadorian civil war. It was just the year of the civil war start when per capita food consumption in this country reached the level recommended by the World Health Organization.

Civil War in Liberia

In 1989 a civil war started in Liberia which continued up to 2003. About 200**,**000 – 300,000 Liberians were killed (of the total population slightly more than 2 mln at the war start) (Frenkel 1999; Huband 1998; Williams 2006). General dynamics of per capita food consumption in Liberia during 3 decades preceding the civil war looked as follows (see Fig. 16):

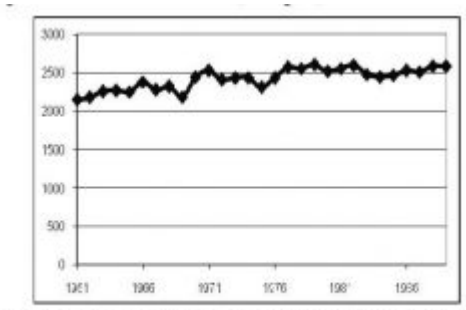


Fig. 16. Per capita food consumption, Liberia, 1961–1989, kcal/day

Source: FAO 2014.

Thus, in the 1960s – 1980s (before civil war) per capita food consumption tended to grow in Liberia. While in the early 1960s there was some undernourishment, in the 1980s per capita consumption was thoroughly higher than the recommended norm of 2300–2400 kcal/day. Besides, in the year of civil war start *Liberia occupied the FIRST place in Tropical Africa according to the level of per capita food consumption* (see Fig. 17).

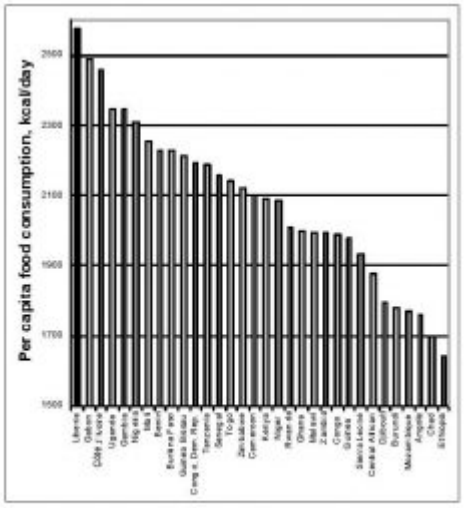


Fig. 17. Average per capita food consumption (kcal/day) in various countries of Tropical Africa in 1989 (*i.e.*, in the year of the Liberian civil war start)
Source: FAO 2014.

Liberian case is among the most tragic ones, as not only did the country 'stumble' at the escape from the Malthusian trap, but also fell back into the trap again (see Fig. 18).

Fig. 18. Per capita food consumption in Liberia, 1984–2005, kcal/day
Source: FAO 2014.

Thus, in 2005 per capita food consumption had not yet approached the pre-war level and was significantly lower than even the early 1960s level. After civil war started, an unfavorable mechanism of positive feedback formed in Liberia, as civil war destroyed economy, which reduced the per capita consumption, which increased the unrest and worsened the civil war. During the short breaks the renewed (even before economy restoration) rapid demographic growth did not allow for any remarkable improvement in living standards (nor in per capita consumption) or even led to its worsening, which resulted in new unrests and new stages of civil war. Currently Liberia is again trying to escape from the Malthusian trap, but there is no warranty against its getting into 'a trap at the escape from the Malthusian trap' once more.

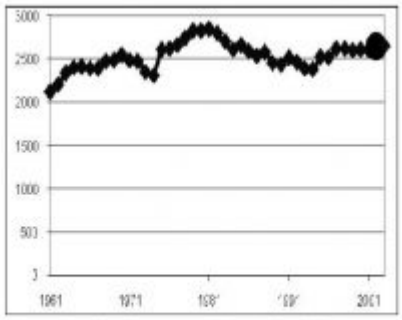


Fig. 19. Per capita food consumption, Côte d'Ivoire, 1961–2003, kcal/day

Source: FAO 2014.

Civil War in Côte d'Ivoire

One of the most recent civil wars in Africa occurred in Côte d'Ivoire in 2002 (Akokpari 2007). Per capita food consumption dynamics thereby looked as follows (see Fig. 19):

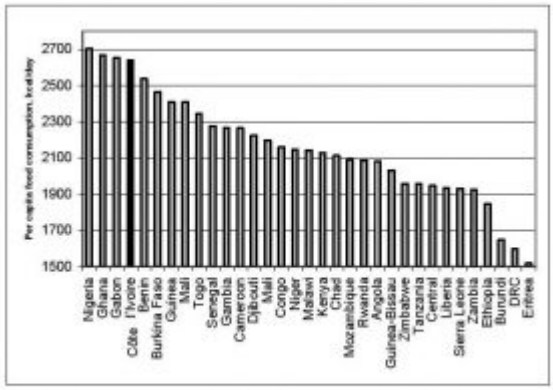


Fig. 20. Average per capita food consumption (kcal/day) in various countries of Tropical Africa in 2002 (*i.e.*, in the year of the civil war start in Côte d'Ivoire)

Source: FAO 2014.

Thus, undernourishment problem was solved in the 1960s, and at the civil war start per capita food consumption was stably higher than the WHO recommended norm. Besides, in the civil war start year Côte d'Ivoire rated among the top Tropical African countries according to per capita food consumption indicator (see Fig. 20).

Islamic Revolution in Iran

Against the background of the material considered above the dynamics of per capita food consumption in Iran in the years preceding the successful Islamic Revolution of 1979 in Iran should not look really surprising (see Fig. 21).

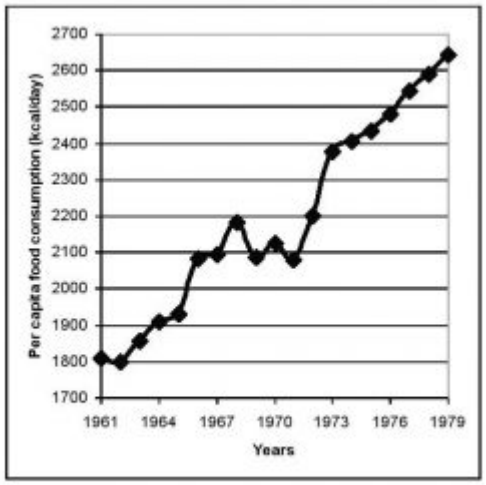


Fig. 21. Per capita food consumption in Iran, 1961–1979, kcal/day

Source: FAO 2014.

This diagram suggests that the system of socioeconomic reforms (the so-called

'White Revolution' [see, *e.g.*, Abrahamian 2008: 123–154]) started by the last Iranian Shah Mohammad Reza Pahlavi in 1963 brought conspicuous positive results. Indeed, the Iranian population grew very rapidly in the years preceding the Iranian Revolution. For example, between 1965 and 1979 it grew from 25 to almost 38 million (see, *e.g.*, Maddison 2001, 2010), that is by about 50 %. However, in the same period of time the agricultural output in Iran grew by more than 100 % (see Fig. 22).

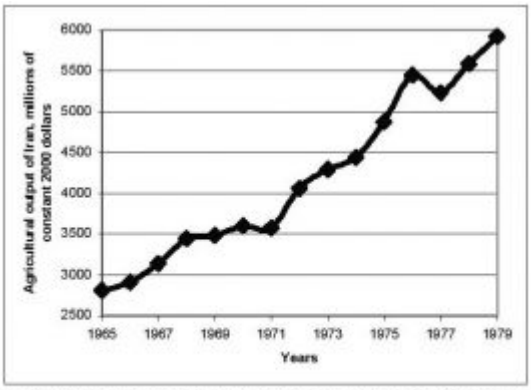


Fig. 22. Dynamics of agricultural output in Iran, 1965–1979 (in millions of constant 2000 dollars)
Source: World Bank 2014.

In the meantime Iranian GDP in this period grew by more than 150 %, as a result of which per capita GDP increased by 75 % (Maddison 2001; 2010). Hence, the salient positive trend of per capita food consumption dynamics in Iran reflects up to a rather high degree the real economic successes that were achieved by this country as Mohammad Reza Pahlavi's administration was implementing the system of socioeconomic reforms known as the 'White Revolution'.

Civil War in Algeria

Let us consider in some greater detail the structural-demographic dynamics of Algeria 1962–1991, that is in the period after independence and before the start of the civil war (1992–2002) which can be characterized as a failed Islamic revolution (Kepel 2004: 164–180, 247–266). Per capita consumption dynamics in Algeria during the two decades preceding the civil war looked as follows (see Fig. 23):

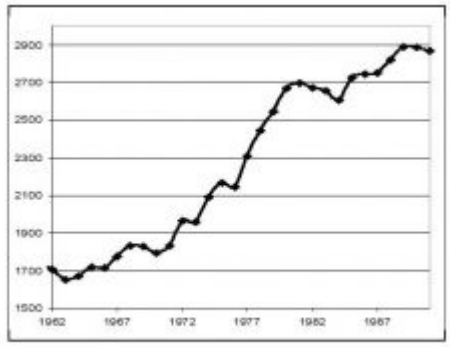


Fig. 23. Per capita food consumption, Algeria, 1962–1991, kcal/day
Sources: FAO 2014; Zinkina 2010: 260.

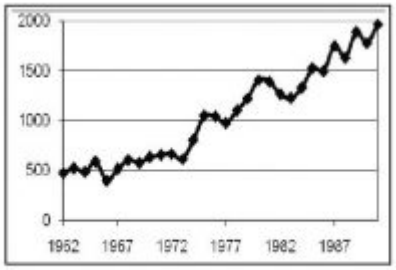


Fig. 24. Labor productivity in Algerian agriculture, 1962–1991 (constant 2000 dollars per agricultural worker)

Source: World Bank 2014.

Obviously, the dynamics observed is just contrary to the one that could be expected on the basis of the Malthusian trap assumption. Indeed, in the first years after independence the Algerian population was far below the WHO norm and greatly undernourished. Only in 1973 did it manage to go over the critical level of 1850 kcal/day. However, there was no unrest in this period. By the late 1970s Algeria exceeded the WHO 2300–2400 kcal/day recommended level and did not fall below this level any more. By the late 1980s it was more than 2800 kcal/day. This dynamics correlates very well with the rapid growth of agricultural labor productivity proving the significant success achieved by Algeria in the modernization of agriculture (see Fig. 24).

A Trap at the Escape from the Malthusian Trap: Empirical Data

During the three decades preceding the start of the civil war Algeria successfully came out of the Malthusian trap; in fact, as we shall see below, this very escape to a large extent generated the forces that played a crucial role in the genesis of the Algerian civil war.

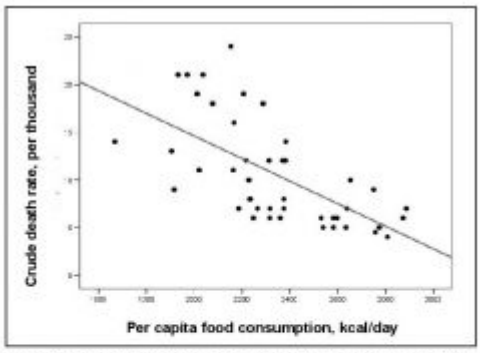


Fig. 25. Correlation between per capita food consumption and crude death rate (according to 1995 data for countries with consumption up to 2900 kcal/day)

Note: $r = -0.64$, $R^2 = 0.41$, $p << 0.0001$. Source: SPSS 2010.

Table 3. Regression analysis

	Non-standardized coefficient		Standardized coefficient	t	Statistical significance (p)
Model	B	Stat. error	β		
(Constant)	38	5.1		7.45	<< 0.0001
Per capita food consumption, kcal/day	−0.012	0.002	−0.639	−5.45	<< 0.0001

Dependent variable: Crude death rate (per 1000)

By definition, the escape from the Malthusian trap implies the solution of the famine problem, which in its turn implies a significant decrease in the death rates. Indeed, for countries with per capita consumption up to 2900 kcal/day there is a strong negative correlation observed between this indicator and the crude death rate (see Fig. 25 and Table 3).

As escape from the Malthusian trap usually occurs at the first stage of demographic transition, the results of regression analysis imply that this escape

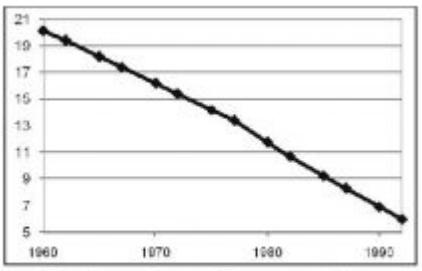


Fig. 26. Crude death rate (per 1000) dynamics in Algeria, 1960–1992
Source: World Bank 2014.

(usually accompanied by more than 1000 kcal/day growth in per capita consumption) must be accompanied by population growth rates increase by not less than one per cent, which implies a very significant acceleration. This can be seen in Algeria. The escape from the Malthusian trap was accompanied by a dramatic fall in death rate (see Fig. 26).

Thus, in three decades preceding the start of the civil war the Algerian death rates declined threefold! During the most of this period birth rate was stably high,

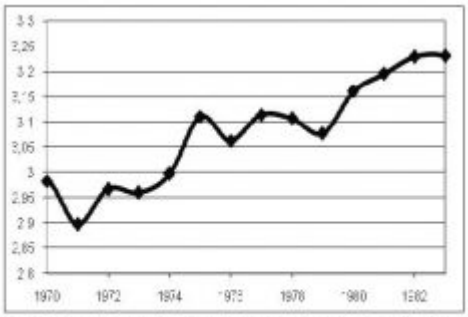


Fig. 27. Relative population growth rates, Algeria, 1970–1983, % a year
Source: Maddison 2001, 2010.

so population growth rates were increasing and st
to decline only in the mid-1980s, but in 1991 (civil war start) they were still very high (2.4 % or 600,000 a year) (see Figs 27 and 28).

Naturally, such an impetuous population growth would almost inevitably create serious structural strains in any social system. However, within the Algerian social system this was not the only generator of structural strains.

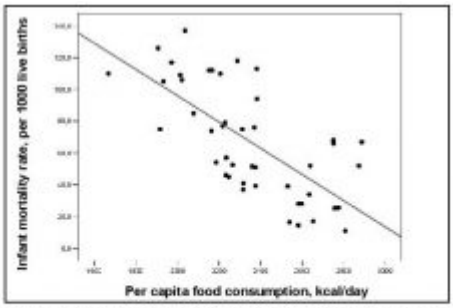


Fig. 29. Correlation between per capita food consumption and infant mortality rate (per 1000 live births) according to 1995 data, for countries with less than 2900 kcal/day
Note: $r = -0.69$, $R^2 = 0.475$, $p << 0.0001$ (for interval < 2700 kcal the value of r achieves −0.74).
Source: SPSS 2010.

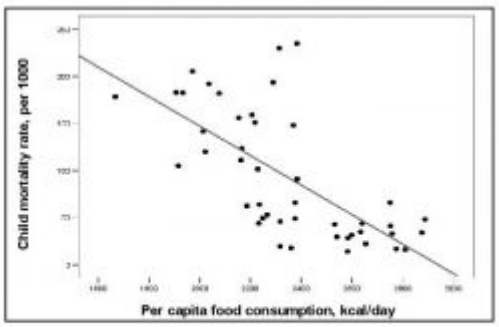


Fig. 30. Correlation between per capita food consumption and (under-five) child mortality rate (per 1000) according to 1995, data for countries with less than 2900 kcal/day)
Note: $r = -0.68$, $R^2 = 0.46$, $p << 0.0001$ (for interval < 3000 kcal value of r achieves −0.7).
Source: SPSS 2010.

Wit
hin socioeconomic systems escaping from the Malthusian trap per capita

consumption growth correlates in an especially strong way with the decrease of infant and child mortality (see Figs 29 and 30):

Predictably, Algerian escape from the Malthusian trap was also accompanied by a precipitous fall of infant and child mortality rates (Figs 31 and 32):

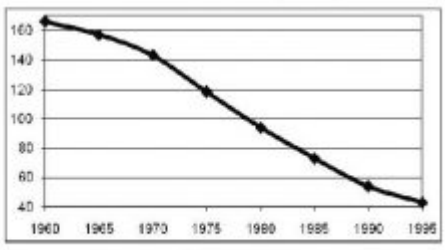


Fig. 31. Infant mortality, Algeria, 1960–1995, per 1000 live births
Source: World Bank 2014.

Thus, while crude death rate in Algeria in 1960–1995 decreased threefold, infant mortality declined almost fourfold during the same period, while child (under-five) mortality fell almost fivefold!

Thus, at the first phase of demographic transition (that tends to coincide with the escape from the Malthusian trap) death rate declines dramatically (Vishnevski 1976, 2005; Chesnais 1992; Korotayev, Malkov, and Khaltourina 2006a), the greatest decline occurring in infant and under-five mortality, while birth rates still remain high. Thus, out of six-seven children born by a woman, five-six children survive up to reproductive age, not two or three as earlier. This leads not only to the demographic explosion, but also to the formation of the 'youth bulge', as the generation of children turns out to be much larger in number than their parents' generation. Thus, in Algeria the share of youth cohort in the total population greatly increased at the escape from the Malthusian trap (see Fig. 33).

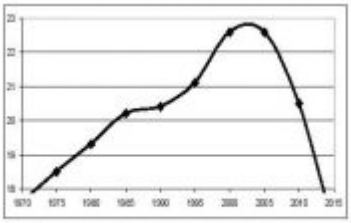


Fig. 33. Youth cohort (aged 15–24) in the population of Algeria, 1970–2005, with a forecast up to 2015, %
Source: UN Population Division 2010.

A number of researchers, first of all Goldstone (1991, 2002), regard the rapid growth of the youth share in population as a major factor of political instability.

For example, Goldstone maintains that 'the rapid growth of youth can undermine existing political coalitions, creating instability. Large youth cohorts are often drawn to new ideas and heterodox religions, challenging older forms of authority. In addition, because most young people have fewer responsibilities for families

and careers, they are relatively easily mobilized for social or political conflicts. Youth have played a prominent role in political violence throughout recorded history, and the existence of a 'youth bulge' (an unusually high proportion of youths aged 15–24 years relative to the total adult population) has historically been associated with times of political crisis. Most major revolutions … [including] most twentieth-century revolutions in developing countries – have occurred where exceptionally large youth bulges were present' (Goldstone 2002: 10–11; see also Goldstone 1991; Moller 1968; Mesquida and Weiner 1999; Heinsohn 2003; Fuller 2004).

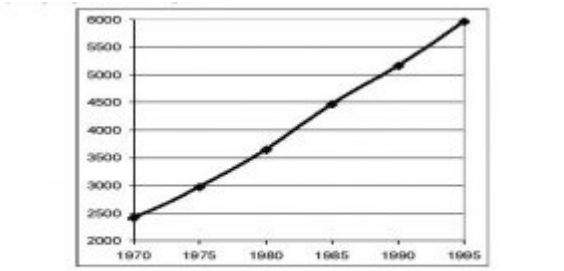


Fig. 34. Dynamics of young (aged 15–24) Algerian population, thousands, 1970–1995

Source: UN Population Division 2010.

Let us consider the 'youth bulge' factor in Algeria in more detail. This will allow specifying some other channels of this factor's impact upon the political instability genesis. First of all consider the dynamics of absolute number of young Algerians (see Fig. 34).

Thus, number of Algerian youths was growing explosively at the eve of the civil war, more than doubling within 20 years (1970–1990). In 1980–1995 it grew by 65 %. Accordingly, in order to prevent catastrophic unemployment, new workplaces had to be created at a proportionate rate, which is difficult even for a fast-growing economy. If an economy is not growing as fast, unemployment rockets up (in Algeria it reached 40 % in the late 1980s: Haldane 1989; Zinkina 2010: 261), especially among the youth (*i.e.*, among that very age cohort which is most inclined to aggression). Against such a background it usually becomes more and more difficult to prevent major political upheavals.

There is one more force generated by modernization in general (and the escape from the Malthusian trap, in particular) that can contribute to the genesis of political instability, namely urbanization (see, *e.g.*, Grinin and Korotayev 2009; Grinin 2010). Indeed, the start of escape from the Malthusian trap leads to a stable decline in death rates, stipulating the first phase of demographic transition. The escape itself is achieved through agricultural labor productivity growth (as was mentioned above, in Algeria it grew fivefold during the two decades preceding the civil war).

In general, the escape from the Malthusian trap stimulates urban population

growth in several ways. Death rate decline in conjunction with still high birth rates leads to a rapid increase of population growth rates, so excessive rural population appears. This population is pressed out of the rural areas, as labor productivity grows, and less workforce is required for agricultural work. This population may well be supplied with food resources as per capita food production and consumption increases at the escape from the Malthusian trap, so such escape strongly supports the rapid intensification of urbanization processes, allowing for the urbanization levels which could not be achieved in agrarian societies.

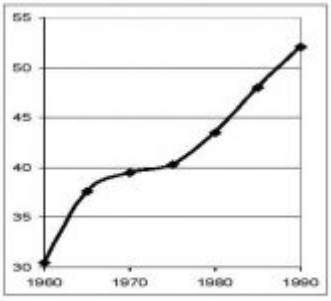


Fig. 35. Dynamics of urban population percentage in Algerian, 1970–1990

Source: UN Population Division 2010.

Let us consider this with respect to the Algerian case (see Fig. 35).

Thus, less than one-third of Algerians resided in cities at the eve of independence. At the eve of the civil war the urban population constituted more than a half of the whole population. This increase took place against the background of a very fast demographic growth. Thus, urban population was growing particularly fast in absolute numbers (see Fig. 36).

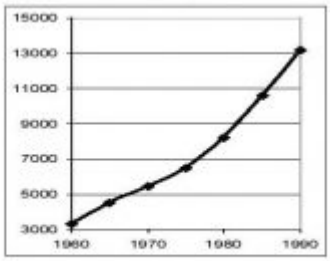


Fig. 36. Total urban population of Algeria, 1970–1990, thousands

Source: UN Population Division 2010.

Thus, during 30 years preceding the civil war start in Algeria the urban population grew fourfold, which evidently could serve as a major destabilizing factor.

The escape from the Malthusian trap engenders a rapid growth of urban population due to both natural increase and rural-urban migrations. This causes social tensions, as jobs and accommodation need to be supplied for the fast-growing mass of people. Besides, rural migrants usually have no skills appropriate for urban settings and can only find unqualified and low-paid jobs, which causes growing discontent among them.

The situation is exacerbated by the fact that most of the rural-urban migrants are usually young. The 'youth bulge' and intensive urbanization factors act together, making the number of young urban population rocket up.[6] For example, during 30 years of independence in Algeria its young population grew almost threefold, while its urban population increased fourfold, so the number of the urban youth increased by an order of magnitude (which was just a logical consequence of the country's escape from the Malthusian trap). Thus, not only did the most radically inclined part of population rocket up in numbers, but it also got concentrated in cities (that, we should not forget, are centers of political system), which is a serious danger for political stability, especially if economic decline occurs.

It appears quite useful to consider the action of the above-described factors at the 'grassroots' level. For this we find it appropriate to reproduce Kepel's description of the events in Algeria that preceded the October riots of 1988, which served as an omen of the forthcoming civil war:
…A population explosion had thrust the children of the fellahs (farmers) into the cities and their outskirts, where conditions were precarious… In 1989, 40 percent of Algeria's population of 24 million were under 15 years of age; the urban population was in excess of 50 percent of the total population… The official unemployment rate was 18.1 percent of the working population, though in reality joblessness was much higher; in 1995 it rose – again officially – to 28 percent. The young urban poor of Algeria were mocked as hittistes – from the Arab word hit, 'wall'. This jibe derived from the image of jobless young men with nothing to do all day but lean against a wall. The joke was that, in a socialist country where in theory everyone was supposed to have a job, the profession of a hittiste consisted in propping up walls that would otherwise collapse. The hittistes were assumed to be passive – unlike the Iranian ones, who were glorified by religious movements and hailed as the messengers of history and the Revelation.

At the time of the October 1988 riots, oil and gas represented 95 percent of the nation's exports and supplied more than 60 percent of the government's yearly budget… The Algerian state was a kind of popular democracy cum oil. The state used its oil revenues to buy social pacification… This balance of power, maintained by subsidies, socialism, repression, and official ideology, was ultimately dependent on the fragile economic equilibrium created by the high price of oil. In 1986, when oil prices collapsed, half of Algeria's budget was wiped out and the whole structure fell down in ruins. Worse, the population explosion

had created a demand for… urban infrastructure, housing, and employment that continued to increase… The construction industry in particular had failed spectacularly to keep pace with the housing demand; the result was the kind of slums and overcrowded urban conditions that invariably lead to social eruption.

It was in this deteriorating climate, punctuated by continual strikes, that riots broke out on October 4, 1988. Mobs of impoverished Algerian youths attacked such symbols of the state as buses, road signs, and Air Algeria agencies, along with any automobile that looked expensive… These days… marked the emergence of the young urban poor as a force to be reckoned with. The once ridiculed hittistes had shown that they could seize and hold power in the streets, shaking to its foundations a regime that had excluded them and whose legitimacy they scorned (Kepel 2006: 159–161).

A Trap at the Escape from the Malthusian Trap: Logical and Mathematical Models

Thus, the emergence of major sociopolitical upheavals at the escape from the Malthusian trap is not an abnormal, but a regular phenomenon. So, a special explanation is rather needed for exceptions, when social systems managed to avoid such shocks.

Why should such upheavals be treated as a regular phenomenon? The answer may be summarized as follows:

1) Start of the escape from the Malthusian trap tends to bring about a precipitous death rate decline and, consequently, an explosive acceleration of the population growth rates (which in itself can lead to a certain increase in sociopolitical tensions).

2) The start of the escape is accompanied by especially strong decreases in infant and under-five mortality, which raises the proportion of the youth in the overall population (and especially in the adult population) – the so-called 'youth bulge'.

3) This increases sharply the proportion of the part of population most inclined to radicalism.

4) The impetuous growth of the young population requires the creation of enormous numbers of new jobs, which is a serious economic problem, while the youth unemployment growth can have a particularly strong destabilizing effect, creating an 'army' of potential participants for various political upheavals, including civil wars, revolutions, and state breakdowns.

5) Escape from the Malthusian trap stimulates a vigorous growth of the urban

population. Besides, excessive population is pressed out from the countryside by the growth of agricultural labor productivity. Massive rural-urban migration almost inevitably creates a significant number of those dissatisfied with their current position, as initially the rural-urban migrants mostly can only get unskilled low-paid jobs and low-quality accommodation.

6) Escape from the Malthusian trap is achieved through the development of new economic sectors and decline of the old ones. Such structural changes cannot proceed painlessly, as old qualification of workers loses its value and, not having necessary new skills, these workers are obliged to take up low-qualified jobs, which makes them socially discontent.

7) The young people make up the majority of rural-urban migrants, so the 'youth bulge' and intensive urbanization factors act together, producing a particularly strong destabilizing effect. Not only does the most radically inclined part of population rocket up in numbers, but it also gets concentrated in major cities / political centers.

8) This can result in serious political destabilization even against the background of a rather stable economic growth (see Fig. 37). The probability of political destabilization naturally increases dramatically if an economic crisis occurs, or if the government loses its legitimacy due to any other causes (such as military defeats), though the recent 'Arab Spring' events have demonstrated once again in a rather salient way that even this is not really necessary (see, *e.g.*, Korotayev and Zinkina 2011).

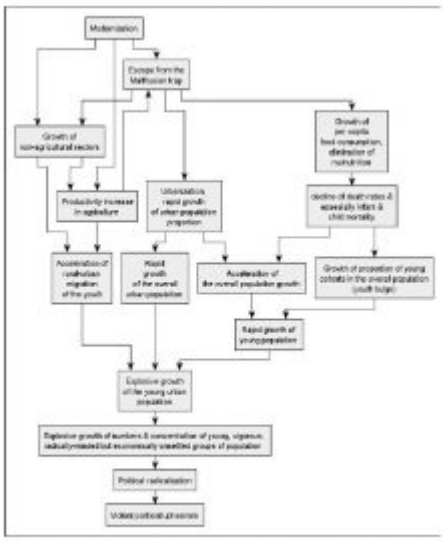


Fig. 37. 'A trap at the escape from the Malthusian trap'. A cognitive model

As regards mathematical models describing the formation of the 'youth bulge' (that, in combination with some other factors, can lead to major sociopolitical upheavals even against the background of an apparently rather successful escape from the Malthusian trap), they are rather well-developed and are widely used in demographic research.

We can regard a model by Ototsky (2008) as an example. It uses component method (or cohort analysis) to describe mathematically the dynamics of society

age structure. The method of components implies dividing the whole population into groups of people of one age, so-called 'year cohorts', which are divided into male and female ones for correct estimation of the population reproductive potential. For each cohort their own birth, death, and migration rates are determined. Birth year of people subsumed under the cohort is regarded as a serial number of this cohort. Number of males (or females) in a cohort is expressed in the following way:

$$Nm_t^i = Nm_{t-1}^i - kUm_{t-i} \cdot Nm_{t-1}^i + M_{t-i} \cdot kMmw, t > i, \quad \text{(Eq. 1)}$$

where Nm_t^i is a number of males in cohort i; kUm_t – age-specific death rate; M_t – age-specific net immigration; $kMmw_t$ – share of males in net immigration; i – cohort serial number (corresponds to the year of people in the cohort); t – year of calculation; t-i – age of people in cohort i.

Number of newborn boys (and girls) is calculated with the following equation:

$$Nm_t^i = kRmw \cdot \sum_{j=0}^{80} kR_j \cdot Nw_{t-i}^{i-j} + M_0 \cdot kMmw, \ t = i, \quad \text{(Eq. 2)}$$

where Nm_t^i is a number of newborn boys; Nw_t – number of women in age cohorts; kR^*_t – age-specific birth rates according to cohorts of mothers; i – cohort number (accords to birth year of people in the cohort), for newborns $i = t$; $kRmw_t$ – share of boys in the newborn.

Number of the newborn in an age group is calculated in the following way:

$$R^* = kR^* \sum_{k=l_i}^{n_i} Nw_k, \quad \text{(Eq. 3)}$$

where R^* is number of the newborn in mothers' age group; kR^* – age-specific birth rate of mothers' cohort; Nwk – number of women of age k; i – age group index (the maximum age in the group); l_i – the minimum age in age group i; n_i – the maximum age in age group i.

General number of the newborn by mother cohorts is calculated with the following equation:

$$N_i = \sum_{j=15}^{i} N^*_{ij}. \qquad \text{(Eq. 4)}$$

Distribution of age-specific death rates among yearly age cohorts of males and females is calculated through the interpolation of the integral of the number of dead according to age groups:

$$Um^*_i = kUm^*_i \sum_{k=l_i}^{n_i} Nm_k, \qquad \text{(Eq. 5)}$$

where Um^* is number of men who died within the age group; i – age group index (the maximum age in group); kUm^* – age-specific male death rate by age group; Nmk – number of males of age k; l_i – the minimum age in an age group; n_i – the maximum age in age group.

Integral of dead males by age cohorts:

$$Um_i = \sum_{j=0}^{i} Um^*_j. \qquad \text{(Eq. 6)}$$

The same way is used to calculate the number of dead females in age group (Uw^*_i) and integral number of dead females by cohorts (Uw_i).

Age-specific of male and female death rates by age cohorts are calculated as follows:

$$kUm_i = \frac{Um_i}{Nm_i}, \quad kUw_i = \frac{Uw_i}{Nw_i}. \qquad \text{(Eq. 7)}$$

Detailed statistical data are needed for making calculations with the model (1)–(7). If detailed data lack or approximate estimations suffice, the analytical McKendrick – von Foerster model can be used (McKendrick 1926, von Foerster 1959). According to it, equations for defining the number of people of age τ at a moment of time t are written in the following form:

$$\frac{\partial u(\tau,t)}{\partial t} + \frac{\partial u(\tau,t)}{\partial \tau} = -d(\tau,t)u(\tau,t),$$

$$u(0,t) = 0.5\int_{0}^{\infty} u(\tau,t)b(\tau,t)d\tau, \quad u(\tau,0) = g(\tau), \qquad \text{(Eq. 8)}$$

where $u(\tau,t)$ is the number of people of age τ at a moment of time t; $b(\tau,t)$ is the intensity of childbearing among females of age τ at a moment of time t; $d(\tau,t)$ is the age-specific death rate for people of age τ at moment of time t; $g(\tau)$ is the age structure of society at the starting moment of time (for simplicity it is implied that the difference between numbers of males and females is negligibly small, and the number of born boys is equal to that of girls, the death rate $d(\tau,t)$ is the same for males and females).

Model (8) is capable of describing the emergence of ‘youth bulge’ in a society escaping from the Malthusian trap. Assume that up to some moment of time t0 the society was demographically stable (its age structure did not change, see Fig. 38), while fertility rate was high (7 children per woman) and infant mortality was high, too.

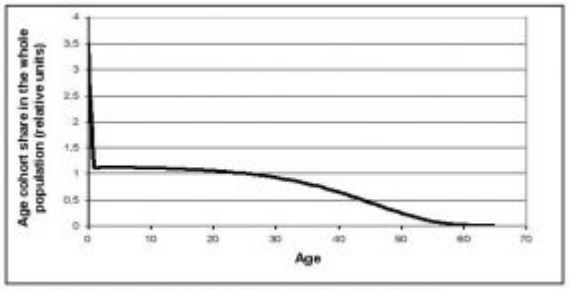


Fig. 38. Initial age structure of the society (simulation)

If at moment t*0* infant mortality starts declining and decreases fivefold in 30

years, then according to Eq. 8 society age structure will substantially change with the unchanged structure of birth rate (see Fig. 39, lines correspond to successive change of

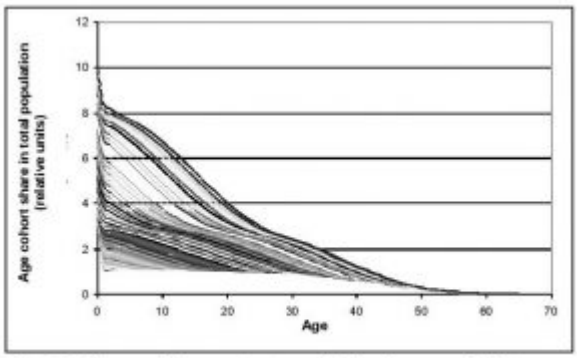


Fig. 39. Change of the age structure with the decrease of infant mortality (simulation)

Obviously, infant mortality decline leads to an increase in proportion of the youth within total population. Thereby a 'youth bulge' emerges (see Fig. 40 reflecting the change of percentage of population aged 15–24 in the overall population starting from t_0 + 20 years).

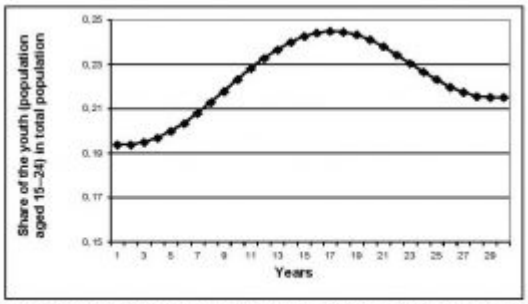


Fig. 40. Change of the youth (population aged 15–24) proportion in the total population with infant mortality decline (simulation)

Ob

viously, despite their simulation character the results of calculations correlate with the empirical data rather well (see Fig. 33 above).Fig. 40. Change of the youth (population aged 15–24) proportion in the total population with infant mortality decline (simulation)

The excessive young population not required in the rural areas moves to cities searching for better life, which affects the development of socioeconomic and political processes in the society. The result of these processes depends on particular conditions. In any case, it is a critical period in the life of any society escaping from the Malthusian trap.

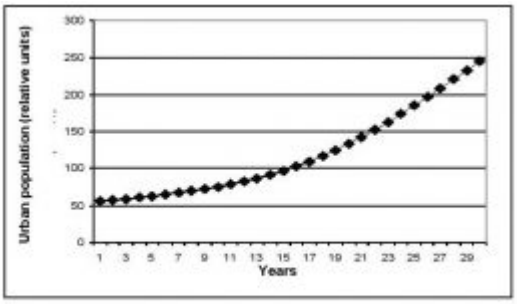


Fig. 41. Urban population growth under the impact of migration inflow from rural areas (simulation)

Figs 41 and 42 represent the results of calculations on urban population growth and urban population percentage increase with an assumption that the increasing demographic pressure in rural areas presses the excessive population (and especially the young population) to move to the urban areas with probability about

0.5 (calculations are presented for the same conditions as in Figs 38–40 starting from t_0 + 20 years).

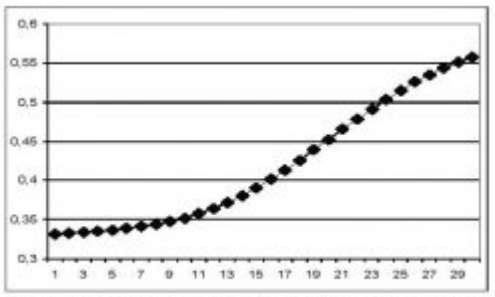


Fig. 42. Increase in proportion of urban population under the impact of intensifying rural-urban migration (simulation)

Naturally, mass rural-urban migration is possible only in conditions of general economic growth when some 'surplus' product appears which allows to feed the growing urban population. In order to account for this condition we can use the general dynamic urbanization equation developed in our earlier works (see, *e.g.*, Korotayev 2006):

$$\frac{du}{dt} = aSu(u_{\lim} - u), \qquad \text{(Eq. 8)}$$

where u is the proportion of urban population ('urbanization index'); S is per capita 'surplus'; a is a constant; $u_{\lim}$ is the maximum possible urban population proportion (which can be estimated as lying between 0.8–0.9 and in this context may be viewed as the 'saturation level'; in calculations presented below this value was taken as 0.9).

The sense of this equation is as follows: urbanization being low, the probability of a rural resident migrating to town is the higher, the greater urban population proportion. Indeed, the higher this proportion, the greater the probability of having some relative or acquaintance in town, who will be able to supply the rural migrant with the necessary information and initial support (an ordinary peasant will hardly decide to move 'into nowhere'). However, urban population growth rates slow down when approaching the saturation level.

Besides, both in our equation and in real life urbanization rates depend also on the level of economic development, which in our equation is calculated through the per capita surplus. Indeed, if rural areas do not produce surplus, urbanization

becomes impossible, while in order for it to start (and accelerate) significant economic growth is required. It also requires the labor productivity growth, for example, in agriculture, which would allow feeding the urban population, on the one hand, and creating a surplus of workforce in agriculture encouraging the rural residents to move to cities, on the other.

Uniting Eqs 1 and 8 into a system we obtain a mathematical description of the young urban population dynamics.

Correlation between Young Urban Population Growth Rates and Intensity of Internal Violent Conflicts: A Cross-National Test

Our cross-national test indicates that violent internal conflicts should be expected in cases when the young urban population grows by more than 30 % during 5 years; if this indicator exceeds 45 % it turns out very difficult for corresponding countries to avoid such upheavals (see Table 4 and Figs 43–45):

Table 4. Correlation between the maximum growth rates of young urban population (% per five-year periods) and internal violent conflicts' intensity, 1960–2005

		Internal violent conflict intensity		
		1 (low, < 500 violent deaths)	2 (medium and high, 500–100 000)	3 (very high > 100 000)
The maximum (for 1960–2005) young urban population growth rates, % per five-year period	0 (Very low, < 15 %)	8	1	0
		88.9 %	**11.1 %**	
	1 (Low, 15–20 %)	3	2	0
		60.0 %	**40.0 %**	
	2 (Medium, 20–30 %)	14	12	0
		53.8 %	**46.2 %**	
	3 (High, 30–45 %)	14	26	13
		26.4 %	**49.1 %**	**24.5 %**
	4 (Very high, > 45 %)	0	18	17
			52.9 %	**47.1 %**

Note: $\rho = 0.59$ ($p << 0.0001$); $\gamma = 0,74$ ($p << 0,0001$). Values of the young urban population growth rates have been calculated on the basis of the UN database (UN Population Division 2010). Data there are provided for data points separated by five-year periods; so, this stipulated our choice of five-year periods. For sources on internal conflict intensity see notes to Table 5. Only countries with not less than one million population in 1960 are accounted for in this Table, in Table 5, and in Figs 43–45.

Fig. 43. Percentage of countries with low (< 500 violent deaths) intensity of internal violent conflicts (for 1960–2005 period) in respective groups*Note*: $\rho = 0.59$ ($p << 0.0001$); $\gamma = 0,74$ ($p << 0,0001$). Values of the young urban population growth rates have been calculated on the basis of the UN database (UN Population Division 2010). Data there are provided for data points separated by five-year periods; so, this stipulated our choice of five-year periods. For sources on internal conflict intensity see notes to Table 5. Only countries with not less than one million population in 1960 are accounted for in this Table, in Table

5, and in
Figs 43–45.

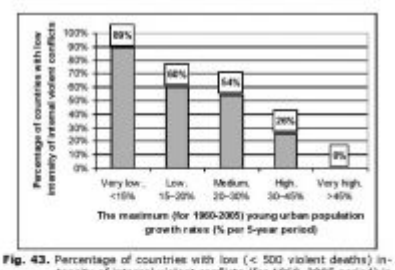


Fig. 43. Percentage of countries with low (< 500 violent deaths) intensity of internal violent conflicts (for 1960–2005 period) in respective groups

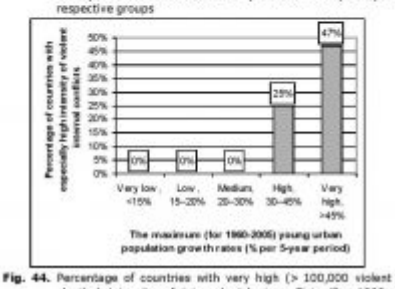
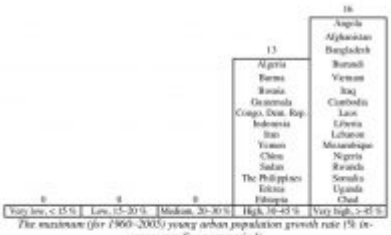


Fig. 44. Percentage of countries with very high (> 100,000 violent deaths) intensity of internal violent conflicts (for 1960–2005) in respective groups

The research reveals that for 1960–2005 period the probability of major internal violent political conflicts in countries with very low (less than 15 % increase per five years) young urban population growth rates was very low. For countries with intermediate values of these rates (20–30 % increase per five years) the probability of such conflicts was close to 50 %, that is one chance out of two. However, even for this group of countries there was not a single occurrence of a particularly violent internal political upheaval in the given period. In countries with high (30–45 % increase per five years) young urban population growth rates the probability of avoiding the major internal political upheavals falls down to a very low level (about one chance out of four). Besides, the probability of particularly violent civil wars becomes very high in these countries (also about one chance out of four).

However, particularly deep internal political problems were encountered in those countries in which the young urban population growth rates were very high (> 45 % increase per five years) in the period under consideration. Out of 34 countries of this group NOT A SINGLE ONE managed to avoid major political shocks. Besides, the risk of particularly violent civil war occurrence was very high for these countries (about one chance out of two).



The maximum (for 1960–2005) yearly urban population growth rate (% increase per five-year period)

Fig. 45. Distribution of countries with an especially high (> 100,000 violent deaths) intensity of violent internal conflicts (for 1960–2005 period) among respective groups

Table 5. Internal political conflicts of 1960–2005 that resulted in especially numerous (> 100,000) violent deaths

No	Country	Year of the beginning	Year of the end	Event	Violent deaths
1	2	3	4	5	6
1	**Algeria**	1992	2002	Islamist rebellion, civil war	~100,000
2	**Angola**	1975	2002	Civil war	~950,000
3	**Afghanistan**	1978	*	Afghan revolution, civil wars (complicated by foreign interventions)	~1,800,000
4	**Bangladesh**	1971	1971	War for independence from West Pakistan	~1,250,000
5	**Burma/ Myanmar**	Before 1960	*	Civil wars	~130,000
6	**Bosnia and Herzegovina**	1992	1995	The Bosnian civil war	~175,000
7	**Burundi**	1993	1993	Civil war, mass killings of Jutu and tutsi (mainly hutu were killed)	~200,000[*]
8	**Vietnam**	1965	1973	Civil war in South Vietnam with interventions on the part of the USA and North Vietnam	~1,700,000
9	**Guatemala**	1960	1996	Civil war	~200,000
10	**Congo, Dem. Rep. (Zaire)**	1960	1965	Congolese crisis	~100,000
		1998	2009	Civil wars	~5,800,000
11	**Indonesia**	1965	1966	Coup attempt, mass executions	~400,000
12	**Iraq**	1961	*	Kurd uprisings in the north, Shia insurrections in the south, political upheavals of the 2000s	~100,000
13	**Iran**	1978	1979	Islamic revolution	~100,000
14	**Yemen**	1962	1970	Revolution and civil war	~100,000
15	**Cambodia**	1970	1991	Civil wars and their consequences (complicated by foreign interventions)	~2,500,000
16	**China**	1966	1969	"Cultural revolution"	From 2,000,000 to 7,000,000
17	**Laos**	1960	1973	Civil war within the Second Indochina War	From 70,000 to 250,000
18	**Liberia**	1989	1997	Civil wars	~150,000
19	**Lebanon**	1975	1990	Civil war complicated by numerous cases of foreign intervention	~150,000
20	**Mozambique**	1975	1992	Civil war	~1,000,000
21	**Nigeria**	1966	1970	Coup, civil war of Biafra	From 600,000 to 1,000,000
22	**Rwanda**	1994	1994	Civil war, mass killings of the Tutsi	~937,000[**]
23	**Somalia**	1991	*	Civil war, state breakdown, chaos, anarchy	~400,000[*]
24	**Sudan**	1955	1972	Civil war	~500,000
		1983	*	Civil war	~1,900,000
		2003	*	Darfur conflict	From 70,000 to more than 180,000
25	**Uganda**	1979	1986	Civil wars	~500,000[**]
26	**The Philippines**	Since 1972	*	War against guerrillas	From 50,000 to 150,000
27	**Chad**	1965	1997	Civil wars	From 50,000 to 100,000
28	**Eritrea**	1962	1992	War for independence and internal conflicts	~1,400,000
29	**Ethiopia**	1962	1992	Civil wars	~1,400,000[†]

Note: [*] Events unfinished, violence continuing in some form.

Sources: Grinin and Korotayev 2009; Bercovitch and Jackson 1997; Clodfelter 1992; Crowder, Fage, and Oliver 1986; Lorraine 1995; Palmowski 1997; Project Ploughshares 2008; Rummel 1994; Small and Singer 1982; Totten 1997; Wallechinsky 1995; White 2010a; 2010b.

Forecasting the Dynamics of Sociopolitical Instability in the African Countries in 2020–2050

The results obtained in our research can well be used for predicting the risks of sociopolitical instability for the countries being on the verge of escaping from the Malthusian trap, in the process of escape, or having escaped from it recently.

Working out of such forecasts is currently made remarkably easier by the fact that UN Population Division has developed urbanization dynamics forecasts for all the African countries, as well as age structure dynamics forecasts up to 2050 (UN Population Division 2010). Synthesis of these predictions allowed us to make a synthetic forecast regarding the dynamics of structural-demographic instability for the African countries in this period.

It is noteworthy that in our prediction only 'positive results' are really significant (*i.e.* the results revealing the presence of high political instability risk in a certain country in a certain period). We are inclined to interpret such results as an evidence of a real risk of political instability in the given place at the given time (if, of course, respective governments do not undertake adequate measures in proper time). On the other hand, in our opinion, 'negative results' cannot be viewed as a guarantee of absence of political upheavals in the given country up to 2050 (as we do not claim that the reasons of violent political upheavals can be reduced to structural-demographic factors only).

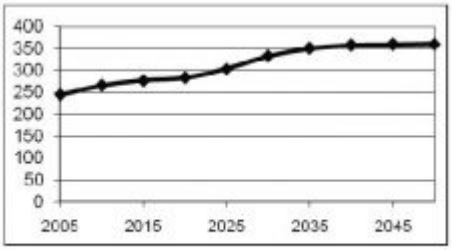


Fig. 46. Young urban population dynamics (thousands) in Botswana, forecast up to 2050

Our forecast has produced rather different results for different Subsaharan African countries.

No serious demographic structural risks of the type in questions are forecasted after 2015 for some Subsaharan countries

(especially in Southern Africa). Let us regard, for example, the forecast for Botswana (see Fig. 46):

No serious structural-demographic risks of this type are forecasted for many countries of Tropical Africa, for example, Gabon (see Fig. 47):

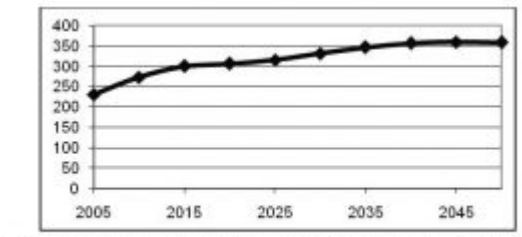


Fig. 47. Young urban population dynamics (thousands) in Gabon, forecast up to 2050

While in the Gabon case the young urban population growth curve quite clearly demonstrates the absence of major structural-demographic risks, for some other Tropical African countries it is necessary (in order to detect it) to carry out an analysis of time series generated by our forecast. A bright example here is represented by the Ghana case (see Fig. 48).

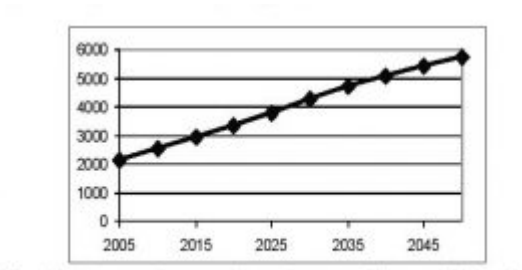


Fig. 48. Young urban population dynamics (thousands) in Ghana, forecast up to 2050

Indeed, in application to Ghana the forecasted situation may seem truly threatening, as by 2050 the young urban population there is likely to grow almost threefold (*i.e.*, 200 %; while in the cases considered above this growth did not exceed 50 %).

However, a simple analysis of the corresponding time series shows that the situation is not so threatening. Indeed, the forecasted dynamics of relative growth rates of the young urban population has the following shape (Fig. 49).

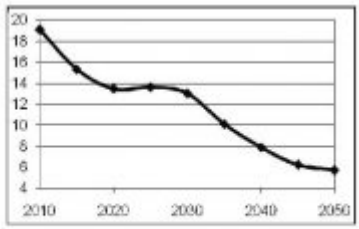


Fig. 49. Forecasted dynamics of relative growth rates of the young urban population in Ghana up to 2050, % per five-year periods

Thus, in the following decade urban youth relative growth rates are forecasted to be decreasing in Ghana up to a quite safe level of less than 14 % during five years; in the 2020s these rates are going to stabilize (at the same rather safe

level), while after 2030 they will decline further on. A similar dynamics is demonstrated by the absolute growth rates of the young urban population (see Fig. 50).

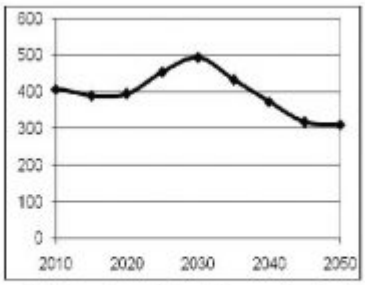


Fig. 50. Forecasted dynamics of absolute growth rates (in thousands) of the young urban population in Ghana up to 2050, per five-year periods

Thus, no increase in absolute growth rates of the young urban population is forecasted in Ghana for the next decade. According to the same forecast, a certain increase in these rates is expected in the 2020s, but it will be very moderate (25 % during ten years). After 2030 the absolute growth rates are forecasted to start declining, and by the 2040s they are expected to fall below the current level.

However, the forecast indicates the presence of high structural-demo-graphic risks for a wide range of Tropical African countries (see Table 6 below for a full list). Fortunately, in no case the urban youth growth rates are forecasted to exceed the critical level of 45 % per five years (let us remember that in the recent decades not a single country which crossed this level managed to avoid major internal sociopolitical conflicts, while in half of the cases particularly violent internal political upheavals occurred). Along with that, a number of tropical African countries are forecasted to get into a very dangerous zone of 30–45 % (let us remember that in the recent decades only a quarter of countries found in this zone managed to avoid major internal political conflicts, while in a quarter of cases particularly violent internal political upheavals were observed).

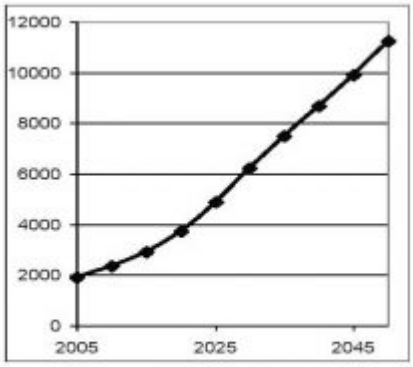


Fig. 51. Young urban population dynamics in Tanzania up to 2050, thousands

Tanzania is among the countries of high structural-demographic risk.

The general dynamics of the urban population in this country is forecasted as follows (see Fig. 51):

Thus, in 2005–2050 an almost six-fold increase in the young urban population is forecasted for Tanzania, while in the 2020s the relative growth rates of this indicator will exceed the critical level of 30 % per five years.

However, the most serious structural-demographic risks are predicted for Niger (see Fig. 52):

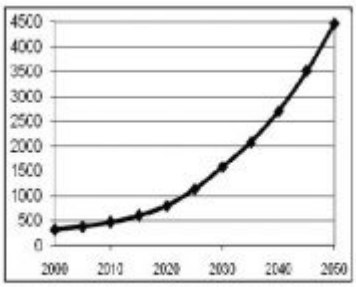


Fig. 52. Young urban population dynamics in Niger up to 2050, thousands

Thus, in 2000–2050 the young urban population of Niger will increase by an order of magnitude, while in the second half of the 2010s the relative growth rates of this indicator will exceed the critical level of 30 % per five years, while in the early 2020s they will exceed an even more dangerous level of 40 % during five years. These rates will decrease to relatively safe levels only in the late 2040s (see Fig. 53).

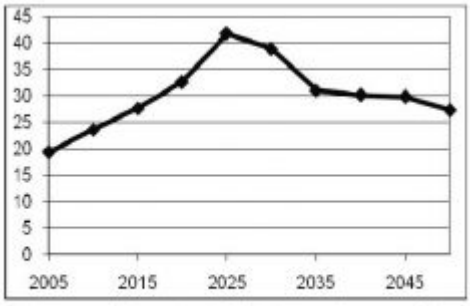


Fig. 53. Forecasted dynamics of relative growth rates of the young urban population in Niger up to 2050, % per five-year periods

Besides, in Niger an increase by an order of magnitude (in comparison to 2000 level) in the absolute growth rates of the young urban population is forecasted by 2030 (see Fig. 54).

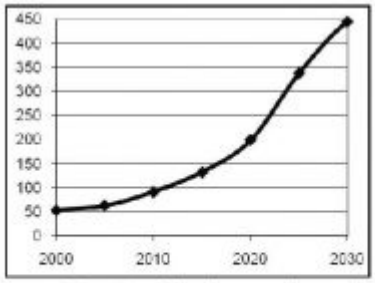


Fig. 54. Forecasted dynamics of absolute growth rates (in thousands) of the young urban population in Niger up to 2050, per five-year periods

In conclusion, let us present a summary forecast of structural-demographic risks of political destabilization in the Subsaharan African countries up to 2050 (see Table 6).

Country	*Years of maximum urban youth growth rates*	Urban youth growth rates (% in five years) in those years	*Period of particularly high structural-demographic risks of political destabilization*	*Structural-demographic risk level*
Niger	2021–2025	41.8	2021–2030	Very high
Malawi	2016–2020	39	2015–2025	High

Country	*Years of maximum urban youth growth rates*	Urban youth growth rates (% in five years) in those years	*Period of particularly high structural-demographic risks of political destabilization*	*Structural-demographic risk level*
Burkina Faso	2021–2025	38.7	2021–2030	High
Uganda	2021–2025	33.1	2021–2030	High
Eritrea	2021–2025	32.5	2021–2030	High
Tanzania	2021–2025	30.6	2021–2030	High
Kenya	2021–2025	30.2	2021–2030	High
Rwanda	2021–2025	29.6	2021–2030	Medium
Chad	2016–2020	28.5	2016–2025	Medium
Burundi	2026–2030	28.1	2026–2035	Medium
Congo, Dem. Rep.	2016–2020	27.7	2016–2025	Medium
Mozambique	2021–2025	27.4	2021–2030	Medium
Somalia	2016–2020	27.4	2016–2025	Medium
Ethiopia	2016–2020	26.7	2016–2025	Medium
Gambia	2016–2020	26.5	2016–2025	Medium
Sierra Leone	2016–2020	25.4	2016–2025	Medium
Madagascar	2016–2020	25.2	2016–2020	Medium

Table 6

NOTES

* This research has been supported by the Russian Science Foundation (Project No 14-11-00634).

[1] This is a modified and extended version of the article originally published in *Cliodynamics* (A Trap at the Escape from the Trap? Demographic-Structural

Factors of Political Instability in Modern Africa and West Asia. *Cliodynamics* 2(2) (2011): 1–28. URL: http://escholarship.org/uc/item/ 79t737gt).

[2] Using the terminology of non-linear dynamics one can also denote it as *the low-level equilibrium attractor* (cf. Nelson 1956).

[3] This was already noticed, for example, by Mann: 'The … decline in population growth during the nineteenth century owed much to a rise in female infanticide, itself a direct response to declining economic opportunity' (Mann 2002: 451).

[4] Note that the colossal sweep of their rebellion was determined up to a very significant degree just by Malthusian factors.

[5] Naturally, the 1997 sociopolitical collapse led to a certain decline in the average per capita food consumption (below 2700 kcal per day), which was still above the level recommended by the WHO; whereas later the growth of this indicator resumed (FAO 2014).

[6] Note that, as these are young males (rather than females) that tend to migrate from the rural to urban areas, we have an especially explosive growth of young *male* urban population, which has a particularly destabilizing effect.

[7] General number of deaths in Ethiopia and Eritrea in 1962–1992.

[8] **مشكلة السكان فى مصر، دراسة اجتماعية اقتصادية / تأليف صلاح الدين نامق.** القاهرة: مكتبة النهضة المصرية، 1952.

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The Belizean Garifuna ~ Organization Of Identity In An Ethnic Community In Central America

If the world had any ends, British Honduras would certainly be one of them. It is not on the way from anywhere to anywhere else' (Aldous Huxley 1984:21).

When I had to do fieldwork in the Caribbean region for my final research several years ago, someone from the department of cultural Anthropology in Utrecht in the Netherlands asked me why I didn't go to Belize. My answer to his question was at that time quite significant: *'Belize??'* I had no idea where it was and could not picture it at all.

Libraries that I visited in the Netherlands hardly provided any solace. Most of the books on Central America hardly mentioned Belize. Booth and Walker describe the position of the country as follows in *'Understanding Central-America'*: *'Though Belize is technically Central America, that English-speaking microstate has a history that is fairly distinct from that of the other states in the region. At present this tiny republic, which only became formally independent from Great-Britain in 1981, does not figure significantly in the 'Central American' problem'* (1993:3).

Multi-Ethnic Belize

The fact that Belize receives little attention in literature on Central America underlines the peripheral position of the country in this region. Some authors qualify it as part of the Caribbean world; others primarily see Belize as a member of the British Commonwealth. Besides that it is also seen as part of the Central American context. The Formation of a colonial Society (1977) by the English sociologist Nigel O. Bolland was the first scientific work on Belize that I was able to acquire. The Belize Guide (1989) by Paul Glassman provided me with a tourist

orientated view of this ‘wonderland of strange people and things’ (Glassman 1989:1). Collecting sustaining literature was and remains a tiresome adventure. Slowly but surely my list of literature expanded.
My knowledge of the region was limited. Reactions from others also confirmed that Belize is a country with a slight reputation. For example, I still remember being corrected by someone from a travel agency. After asking the gentleman if a direct flight to Belize existed, he answered somewhat pityingly: ‘Sir, you must mean Benin´. In my circle of friends, Belize also turned out to be unheard of. The neighboring countries Guatemala and Mexico are better known. An important reason for this is that the media informs people of the most important happenings in these countries. This information is often clarified using maps of the area on which Guatemala and Mexico, but also Belize, are marked. Nonetheless, time and time again Belize turns out to be a country that does not appeal to the imagination.
The comments I heard from tourists coming in from Mexico or Guatemala are notable. ´This is a culture shock´, ´where are the Indians´, ´this doesn´t look at all like Central America´, ´it´s surprising how well you can get by with English here, that was not like that at all in Mexico´. Many of the tourists that come from Mexico quickly go through Belize city on their way to one of the islands off the coast of Belize where they relax for a few days before going to Guatemala. Most of the tourists coming into Belize from Tikal (Guatemala) spend a night in San Ignacio, comment on the fact that everything is so expensive, and quickly travel on to Chetumal (Mexico) the next day.
Belize is a country that lies hidden between two countries with a certain reputation. I do not really think that it is an exaggeration to state that Belize is something of a fictitious end of the world, as formulated by Huxley. In order to obtain an impression of the country, in which this research took place, the next section gives a general idea of the topographic and climatic characteristics. Besides that, the compilation of the population, the constitutional and political situation, the economic position, the religious context and the multi-lingual structure of the country are discussed successively. Furthermore, it is essential to provide an outline of the historic context in which the various ethnic groups in Belize have taken in their place. In other words: How has this country come to be so multi-ethnic?

Belize, A Central American Country on the Periphery
On 21 September 1981, the former British Honduras becomes independent. This

date is the formal end of a process of independence that took seventeen years. In 1964, British Honduras of the time received the right to an internal self-government and in 1973 the name of the country was changed to Belize. With an area of 22,965 km2, Belize is the second smallest country in Central America. El Salvador is smaller (21,393 km2), but has considerably more inhabitants with it's population of 5.889,000. According to the census of 1991, Belize has just 189,392 (Central Statistical Office 1992). This comes down to eight inhabitants per square kilometer, whereas El Salvador has 275 inhabitants per square kilometer. With that, the two countries are each other's opposites in Central America, Belize is the most sparsely populated and El Salvador the most densely.

Belize

Geography

Belize borders on Mexico in the north, on Guatemala in the west and the south, and on the east the country borders on the Caribbean Sea. The area along the coast consists mostly of marshland with dense mangrove forests, mouths of rivers, lagoons and, every now and again, a sandy beach. Countless small and large rivers, that have played a crucial part in the infrastructure throughout the centuries, run through the country. Much of the wood chopped in the inland found and finds its way towards its destination at the coast via these waterways. It can rain abundantly in Belize in the months May to November, especially in the south, and then the waterways swell up to become rapid rivers.

Climate

The climatic conditions in Belize vary from tropical in the south to subtropical in the north. The climate is warm and the temperature varies between twenty-seven and forty degrees Celsius. It was especially the humidity, with an average of 85%

in the southern part of the country that drew heavily on the physical condition of this researcher. The country officially has two seasons. The dry season, that lasts from November to June, and the wet season from June to November. During the wet season, tropical depressions regularly develop in the Caribbean region that reveal themselves as hurricanes. For this reason, this season is also called the hurricane season. This destructive force of nature has hit Belize several times in this century. The hurricanes of 1931, 1955 and 1961 have not failed to leave behind a trail of disaster.

The season in which it is relatively dryer than the rest of the year takes up a few months in the north (February to May), while in the south it only lasts several weeks (Dobson 1973:4). In fact, there is no telling what the weather will do in Belize. A Belizean friend of mine says the following on this matter: '*We have two seasons here, a dry and a wet season; they generally take place on one and the same day*'.

Topography
Belize can be split up into four topographically different areas, the north, the center, the south and the barrier reef off the coast. The river, Rio Hondo, forms the border with Mexico. The northern part of the country is low-lying, quite flat and is dotted with small rivers and lakes. This area is characterized by extensive farming (sugar beet among others).

The central part of Belize has a more hilly appearance. This region was once the border of the rainforest that used to reach further to the south. Lately, the landscape has changed so dramatically through the reclamation of the rainforest, that it has become a separate topographic area. The reclaimed terrain is used as grassland for cattle farms. The newly available ground is also planted with orange and grapefruit trees.

The south is the most uncultivated area in the country. Along the coast, there is a strip of low-lying land through which the Southern Highway runs. In this area small-scaled, intensive farming takes place. Further inland the difference in altitude is larger. This is the terrain of the rainforests, the Mountain Pine Ride and the Maya Mountains with the Victoria Peak as highest point (1120 meters). In the south of Belize the Sarstoon River forms the border with Guatemala.

The fourth topographic region is formed by the barrier reef off the Belizean coast.

This is a long-drawn-out area of coral reefs. These coral reefs come up above the water in many places and form chains of ‘exotic’ islands that, in Belize, are called ‘cayes’ and are the largest attraction for tourists.

The Population

The country has a multi-ethnic population. According to the 1991 census, it is demographically compiled as follows: Mestizos (43.6%), Belizean Creoles (29.8%), Garinagu (6.6%), Kekchi Maya’s (4.3%), Mopan Maya’s (3.7%), all other Maya’s (3.1%), East Indians (3.5%), Mennonites (3.1%) and a remainder consisting of Lebanese and Syrians, often called Lebanese in popular speech (0.1%), Chinese (0.4%), ‘Whites’ (0.8%) and others (1.0%). Besides the 189,392 inhabitants, the country shelters approximately 26.000 refugees from Guatemala, Honduras and El Salvador (Central Statistical Office 1992). It is assumed that the number of refugees is higher in reality, because large areas of Belize are practically uninhabited, so they are difficult to check. Besides that, large landowners like to make use of refugees: they are cheap workers and can be tied to them for a longer time through the debt-peonage system. It doesn’t bother the large landowners if the refugees stay in the country legally or illegally, as long as they are cheap. Among the population, there are many prejudices against these Spanish speakers, who are dimply called ‘aliens’ by the Belizeans.

Form of Government and Political System

Until 1981, obtaining independence was an important national point of discussion. Those for and against independence fought each other with social-economic and political arguments. The fear for a possible military invasion by Guatemala unleashed several collective sentiments. The Belizeans felt threatened. Through this a national sense of unity arose despite different political, social-economic and ethnic backgrounds. Based on this, the Belizeans reacted against the colonial power, the British Kingdom, and the neighboring Guatemala.

After achieving independence in 1981, Belize remained a member of the British Commonwealth. Like most English-speaking Caribbean countries, it is a constitutional monarchy. Formally, the head of state is the British queen; she is represented by a governor-general who, by constitution, must be Belizean by nationality. In practice, this form of government comes down to the fact Belize is sovereign and that the relationship with the British Kingdom is one of ceremonial traditions. Belize has a polity according to the Westminster model. The executive power is in the hands of the governor-general, the Prime Minister and the

cabinet. The National Assembly and a bicameral institute consisting of the Senate and the House of Representatives hold the legislative power. The Senate consists of eight appointed members. Five senators are appointed by the Prime Minister, two by the head of the opposition party and one by the governor-general. The House of Representatives has 28 representatives that are chosen directly. Furthermore, Belize has an independent judicial power.

In Belize a multi-party system is operative, based on the typical British electoral system. This means that since the independence, two parties have dominated. The People's United Party (PUP) and the United Democratic Party (UDP). The PUP is a center-left orientated party that is lead by the charismatic George Price. This party has always had strong ties with the union movement, which was the first to resist the British colonial dominion. The UDP of the current Prime Minister follows a center-right political course. This party was founded by the conservative 'slightly-colored Creole' establishment with strong pro-British sentiments. The UDP stands for a policy in which free enterprise is stimulated and the free market policy is at the forefront. The first general elections in Belize were held in 1954. The second followed three years later. Between 1957 and 1969 the population voted one every four years. Since 1969 the representative body of the people is chosen every five years.

The political parties in Belize strive for national unification. However, the census clearly shows that Belize is a multi-ethnic society. The internal problems that arise because of this are latently present in Belize, but up until now they do not seem to have a determining role in the political and social-economic sphere.

Economy

Belize is situated in the economic arena of the third world (Clegern 1988:11-4). In spite of this, the economic position is quite favorable in comparison to countries like El Salvador, Guatemala, Honduras and Nicaragua; a reason for many Belizeans to assume that refugees are more likely to have economic rather than political motivations. After the PUP had stipulated that Belize would receive both internal and external self-rule during the negotiations on independence in 1980, the country had to deal with many economic setbacks once it had acquired independence. In this period Belize's export was consisted mainly of products

from the agricultural industry, such as sugar, molasses, citrus fruits and bananas. Due to the high oil prices, low sugar prices and declining world market, the country was on the verge of bankruptcy in 1981 (Barry 1992:39).

Today, Belize is almost completely dependent on the economic situation in the United States. A large part of the farming products is exported there. The Belizean tourist industry primarily focuses on the North American market. Furthermore, many Belizeans are partially dependent on the money that is sent to them by family members who have migrated. Due to the fact that the Belizean dollar is linked to the US dollar, an economic setback in the United States hits Belize hard. This makes Belize very fragile economically. Furthermore, the country has a large national debt to the IMF because of its near bankruptcy in 1981. In an attempt to protect employees, the government has introduced a minimum wage of 1.25 Belizean dollars per hour. In 1990 the average annual income per person was 1600 Belizean dollars (Barry 1992:48).

The census of 1991 estimated the supply of labor to be 65.000 people of which 20% was unemployed at the time (Central Statistical Office 1992). These numbers give, in my opinion, an inaccurate picture of the actual situation. A large group of employees in Belize is dependent on the many service and government institutions in the country. Furthermore, much of the labor supply works in the seasonal labor. This means that many employees have to work as day laborers during certain periods per year so they are not certain of a fixed income. The difference between rich and poor that is continually becoming more visible and the unrest that is caused by a chronic shortage of employment are causing much dissatisfaction.

Religions

Belize is a multi-religious society. The census of 1991 distinguishes fourteen different religious movements. The Catholic Church is by the far the best-represented in Belize with 57.7%. Compared to its neighbors, Mexico (92%) and Guatemala (95%), this number is low. The Catholic faith was not introduced in Belize by the Spanish, but by the immigrants from Mexico. North American Jesuits developed a hardy church infrastructure in Belize (Barry 1992;113). Besides Catholicism, the Anglican Church (6.9%), the Pentecostal church (6.3%), Methodists (4.2%), Adventists (4.1%), Mennonites (4%), Hindus (2.5%), Nazarenes (2.5%), Jehovah's Witnesses (1.4%) and 4.3% other religious movements' (Baptists, Bahai, Mormons, Moslems and the Salvation Army) are

active in Belize. Six percent of the population state that they have no religion (Central Statistical Office 1992).

Languages

English is the official language in Belize, but several other languages are also spoken. Almost every ethnic group has its own language. English is the lingua franca of the country (Troy Lopez 1991:18). This language is often associated with the colonial past and with the Belizean elite. Even though English is the official language; a large part of the population speaks Belizean-Creole or Spanish. According to the census of 1991, 54.3% of the population speaks English well, 45.7% speaks it poorly or not at all. The census also shows that 43.8% of the population speaks Spanish well while 56.2% speaks it poorly or not at all (Central Statistical Office 1992).

The Belizean-Creole is the everyday-language for the Creoles in Belize. Especially the Afro-Belizean group of the population in the Stann Creek District and the densely populated Belize District use this language. The second everyday-language, Spanish, is on the rise and is spoken in large parts of Corozal, Orange Walk, Cayo and Toledo. Spanish is the language of Belizean Mestizos that do not live in Belize District ore have not grown up there. Percentages on other languages that are spoken by the various ethnic groups in Belize are not reported in the census. They are languages such as Mopan, Kekchi, Low German and various kinds of Chinese. The Belizean Garinagu primarily live in the Stann Creek District and the Toledo District. This ethnic group has its own language, Garifuna. In the cities and villages where the Garinagu live, Garifuna is spoken. In Dangriga Creole-English is spoken alongside Garifuna. The senior Garinagu complain that the young Garinagu no longer have any knowledge of their language and that they are involved with a language that, in their eyes, is not a real language. By contrast, in the Garifuna villages, Garifuna is still the primary language. The children first learn Garifuna at home and then later are taught English at primary school. In the rural areas of the Toledo District, Mopan and Kekchi Maya are spoken. The Mennonites, who have their farming areas in the Cayo and Orange Walk District, communicate in Low German.

The Garinagu's Religious System

'If a single factor can be cited for the weakening of traditional institutions of family, church, and community, it is that they have been divested of many of the functions that once justified their existence and bound individuals to them.'

‘It is Monday August 20, 1990, the dugu is in full swing, various woman are in trance, the three drummers are following the movements of the buyai, in a sweat. The spirits of the forefathers, the gubida, are present. It is their feast. Past and present are united.’

This passage from my diary describes a moment from a Garinagu ancestral ritual. Within the religious system of the Garinagu society rituals in which forefathers ‘participate’ are extremely important. A principal role during these rituals is taken in by the shaman. The Garinagu call this person buyai. A Garifuna shaman can be either a man or a woman. Shamanism is an essential part of the Garinagu’s religious system. As medium, the buyai makes sure that the ancestors come into contact with their offspring and vice versa during rituals. In this introduction, I will describe just one of these rituals, the dugu.

The dugu can be very intense and time-consuming. Executed in full splendor, it is the most expensive ancestral ritual performed by the Garinagu (Kerns 1989:173). During the dugu-ritual, the adugurahani, the participants call upon ancestors who have been dead for more than ten years. A dugu is performed because something troubling has happened within the family. According to the Garinagu’s religious system, such an incident van be an omen of misfortune, quite likely caused by the ancestors. The dugu serves as a ritual of reconciliation between the ancestors and their surviving relatives.

From my diary: ‘In the summer of 1989, a drama occurred in one of the Garifuna villages in Belize. A boy of about eight was playing in sea when he unsuspectingly stepped on a sting-ray. The sharp needle in the sting-rays tail pierced into an artery. In spite of ferocious attempts to save the boy’s life, he died.

All sorts of rumors quickly spread. The biological mother of the boy had immigrated to the United States a few years before the incident. The family members, who had taken the boy’s upbringing upon them, saw his death as a sign. The suspicion developed that one of the ancestors was not happy with the behavior of the biological mother. She supposedly paid too little attention to the well-being of her family. But, according to the rumors, it was especially her lack of respect for her ancestors that weighed heavily. The buyai from a nearby village was requested to make a diagnosis.’

First, the buyai checks to see if there is any witchery involved and also if it is

possible that a drastic occurrence is a signal from an ancestor. Sickness or, as in the case of the boy, death can be caused by an 'obeah man of woman' (Gonzalez 1989:283).

In such a situation the buyai acts as a medium between the family and their ancestors. During a ceremony, the buyai uses special spirits, the hiuruha. A hiuruha is an ancestor who was a buyai himself during his time on earth, and now, thanks to a special bond with a living buyai, he is asked for advice.

The Performance of the Dugu

In the case mentioned above a short ceremony, the araíraguni, showed that there was a causal relationship between the mother's assumed neglect of her ancestors and the boy's death. Contact between the buyai and the ancestors quickly indicated that a gubida (ancestor) was pushing for a dugu and that witchery was out of the question.

During the araíraguni, the gubida also indicates which specific wishes must be kept in mind during the performance of the dugu and to what the participants must comply. The ancestor also determines the date and length of the dugu. By determining the latter, the ancestor also determines what the financial consequences are for the family. After all, the costs of the ritual rise along with the length, which can vary from one to three and sometimes even four lumangari. A lumangari stands for one day and the following night in which all sorts of ritual acts are executed. A lumangari lasts 24 hours.

If the araíraguni-ceremony has proved that an ancestor has requested a dugu, preparations for the ritual begin. For a large dugu, they can take up to a year. Members of the family must be informed that there is a dugu coming up. Those living in foreign countries must be told long enough beforehand, especially those living in the United States. They are often seen as family members with money, contrary to those from Honduras. In order to give enough people living in foreign countries the chance of come, the dugus are generally held in July, August or September.

Money, which is spent on poultry, pigs, rum and cassava, a buyai who is respected by all, drummers and the number of family members present determine the status of the dugu. Much of everything provides a high status, and little means it is an insignificant, small dugu with a low status.

Aside from informing the family, all sorts of other things are also taken care of during the preparations. The choice for both the buyai and the drummers must be clear. Arrangements are also made for the financial and/or material reimbursement for these people. The temple, dubuyaba, must be readied. The offers must be attained an/or prepared. The participants of a dugu-ritual usually begin with the preparations on Thursday afternoon. They bring the ereba (cassava bread), hiu (cassava beer), binu (rum) and many other attributes to the temple. The majority of these have a ritual function during the dugu. Four days later, on Monday morning the core ritual begins. It ends on the following Wednesday.

From my diary: 'It is Thursday afternoon, August 16. At about 15 o'clock many people head for the dugu temple. An informant tells me that there will be drumming this afternoon. There are many people present outside of the temple. They are bringing all sorts of attributes into the temple, which are carefully stored, or in the case of the poultry, tied under the benches.

At about 16.30, the drummers begin to play. The rhythm is infectious. The sound is synchronous to the rhythm of the drummer's harts. People dance and sing. The participants dance individually and shuffle forward. Interrupted by short pauses, the singing and dancing continues until 18.00. After that the activities in the temple stop. Early the next morning the fishermen go to the coral reefs along the coast. These islands are called cayes here. It is going to be an early start tomorrow morning.'

On Friday morning at about six o'clock, the next phase of the dugu starts. From this point on all of the participants stroll in to the temple. It all seems to be very relaxed. Friendly greetings take place and the latest news is exchanged. Some of them have spent the night in the temple. The buyai is busy sprinkling the inside of the temple with white rum. This facilitates the manifestation of the ancestors. It lets them know they are welcome.

The Drumming Begins

At about six-thirty, the drumming begins. The participants form a circle around the goods that are stored in the center of the temple. The buyai stands in the middle of the circle, sprinkling rum and blowing smoke over the goods, among which two outboard motors, a few paddles, plastic jerry cans with water and fuel, food, fishing attributes and a few baskets. These items are set aside for the boats leaving for the cayes sometime during the morning.

From my diary: 'About thirty women and four men shuffle along in the circle in a very relaxed manner. First, the circle moves anti-clockwise. After a while the direction changes. While the participants move along to the beat of the drum, they sing and make jokes.

A woman standing outside of the circle falls into a trance. She pulls a man out of the circle that then dances with her. Many participants have a white ribbon in their hand with which they wave. I ask a few of the people standing nearby what the ribbon is for. The answers are evasive or they do not know. Later, someone tells me that the white ribbons calm the ancestors down.

The woman in trance and the man assisting her are now dancing inside the circle. The buyai takes two rattles, sisira, and begins to shake them. She stands in front of the drummers who stand up and follow her outside. Every participant takes something from the pile of attributes, which are to go along to the islands. The procession follows the buyai. The woman in trance dances and jumps in between everyone. At the beach, she shortly clamps herself to the buyai. The buyai walks over to the two boats and blows smoke from her cigar, the búe, over them. Next, she sprinkles rum over the boats and throws cassava beer out of a gourd over them.

A short commotion: there is not enough fuel for the outboard motors of both boats. Discussions follow. In the meantime, the drummers imperturbably provide the beat, until all of a sudden they stop.
Someone yells 'let's go' and the boats are pushed out to sea. Those staying behind wave good-bye to the men and women going along for the journey. After a short time of silence, the drummers begin to play again. Those remaining go back to the temple. In the temple, a circle of dancers forms again and after a while another woman goes into a trance. The ancestors are present. Every time one of the

women in trance comes close to leaving the temple, a great hilarity arises among the spectators. Especially the youth leave quickly if the threat becomes too great. The buyai stands in front of the drummers like a sort of conductor; she is extremely impressive.'

Those travelling to the coral islands have been appointed by the ancestors during the araíraguni. The group, which consists of a number of men and women, is led by a captain, the arünei. The participants of the trip are called adugaha. This word means: she or he who is to catch seafood for the dugu. The feminine participants go along to catch crabs. The men are for fish and shellfish (Macklin 1972:109). One of the participants of the fishing expedition was a fisherman who lived with his family near the thatched roof cabin in which I resided during my research. He told me that 'this whole dugu business is no concern of mine'. In spite of this he found it a great honor to go along as arünei, captain.

During the journey, the fishermen are accompanied by a gubida. This ancestor makes sure that the fishermen return and that their baskets are filled with seafood (Macklin 1972:110). The crew of the fishing expedition from the case described above, left on Friday morning and returned to the village on Sunday afternoon. They used to be much more dependent on the weather. The trip to the reefs and islands was done by peddling and/or sailing. Today, the journey takes much less time due to the outboard motors. On Sunday afternoon, the buyai, the drummers and the participants gather together in the temple. The final preparations are made.

On Monday morning, the ritual in the temple begins with drumming, singing and dancing. The circle-dance is performed again. Some participants are dressed in orange. They belong to the next of kin of the ancestor who requested the dugu. The orange clothing is treated with an organic yellow-red dye. This dye comes from the fruit of the Bixa orellana and is called gusewe by the Garinagu. The buyai sprinkles in the temple. Elsewhere in the village, the fishermen and women who went to the islands push their boats into the water and head about a kilometer out to sea. They go up and down the coast a few times as if they are waiting for the right moment to moor. The boats are so decorated that they could be used for sailing. There are orange cloths hanging in the masts. In the meantime, the participants leave the temple. The buyai leads, followed by the drummers, the family members and finally the other participants.
Besides the participants of the dugu, there are remarkably many interested

spectators present at the beach. The crowd on the beach cheers, sings and waves to the fishing boats. After the boats have been pulled up onto the beach, the baskets with fish, crab and shells are brought into the temple.

From my diary: 'The temple is filled with participants. More and more people are holding a small bottle filled with rum in their hand. The bottle is closed by a white piece of paper. On this, messages have been written which are directed to an ancestor. During the ritual, these messages are offered to the ancestors. The bottles with their individual messages are gathered together at an especially reserved place in the temple. Others are holding a hen or a chicken. The poultry will be offered later. I get the impression that the participants are waiting for something. All of a sudden the buyai comes out from the back part of the temple. This part is separated from the rest by a wall and an opening with a cloth hanging in front of it. It is called the guli and functions as a sacred area. The buyai sprinkles rum on the walls and every now and again also on some of the participants. Some of the younger participants are clearly not enjoying this ritual act. After the sprinkling, the buyai blows smoke over all sorts of attributes. The drums, garawoun, are also 'smoked on'. An informant tells me that the smoke from the cigar protects the participants from bad spirits. According to another informant, the buyai looks to see if everything is okay, or as he formulated it: 'She checks it out'.

The mali or the amalihani, one of the ritual dances during the dugu is about to start. During this dance, in which sacred songs are sung, the ancestor comes through the floor and transforms him or herself into the body of one of the participants. When the mali begins, the three drummers are standing in the back of the temple in front of the guli. They stand next to each other facing the exit of the guli. One of the informants tells me that the buyai plunges her rattles in rum before stepping out of the guli. She does this to stimulate the transformation. After the buyai has left the guli, she stands in front of the drummers and sings out the name of the ancestor for whom this mali is meant. The drummers begin to beat out a rhythm. The participants are behind the buyai. They have a ribbon in their hand with which they wave forwards and backwards. A song is sung.

The Buyai slowly walks Forwards

The buyai slowly walks forwards and, in a way, forces the drummers to move backwards. The moment the drummers and the buyai are in the center of the temple, the buyai bends forward and positions the rattles just above the floor. The

drummers follow her movements. All is quiet in the temple; you can only hear the beat of the drums.

Two of the three drummers point their instrument towards the drummer on the left. The beat is held just above the floor as if the four actors have made a pact. It seems as if they want to get something to come out of the floor. The four then repeat this act, but now this ritual act is projected on the space around the right drummer. The buyai accompanies the motions with her rattles; she is the conductor. During the actions the heads of the participants face downwards. Slowly the buyai stands up straight, followed by the drummers. There is a somewhat elderly man standing near the drummers and the buyai. During the ritual he stands there sweating and pouring drops of lemon juice into his throat. He turns out to be the head drummer. He das lost his voice, which makes things quite difficult, because he is the one who must announce the sacred songs. In spite of his handicap, he shouts out a sentence, which leads to the singing of a song by the participants.

During the mali, the buyai leads the drummers and the participants to positions in the temple that correspond with the four points of the compass. This ritual dance is repeated eight times every twenty-four hours during the dugu. Besides that, independent of the length of the dugu, one mali has to be dedicated to the temple. There is great excitement when someone is possessed by an ancestor during the mali. Even an outsider can feel the excitement.'
The rest of the day consists of ritual dancing alternated with time for resting. Some participants spend their rest-time in one of the hammocks, which are available in the temple. Others spend time with family members that they have not seen for some time or prepare food that will be eaten at a later stage.
In the evening, it is quite a lot busier than during the day. Many visitors have their usual business to deal with during the day, so that they can only participate actively in the evening.

During the dugu-ritual, much poultry is ritually slaughtered in the temple. The first session is on the day of the ceremonial welcome of the fishermen and women. In the evening, the poultry that are offered are collected. A stone is placed somewhere in the middle of the temple. Two drummers busy themselves with the birds. With a wide swing, the poultry's heads are smashed on the stone one by one. It is almost logical that the rule of quantity determining the status of the dugu also counts for this ritual slaughtering.

A large part of the next day focuses on all sorts of offers. The members of the family organizing the dugu offer food cassava beer and rum to the ancestor who initiated the dugu. This day also offers a good opportunity to individual participants to treat other ancestors to food and drink. After a day of offering, there is much drumming and dancing in the evening and at night. Poultry are also ritually slaughtered on this day.

On the last day the ancestors are very present. In the above case, exhaustion was clearly getting to some of the participants. At this dugu, some of them brought more offers before sunrise on their own initiative. The mali is performed a few more times, and the buyai prepares a funsu. This is a cocktail made from eggs and rum.

Each person in the temple takes a small calabash of funsu to the gule, a small room at the back of the temple. Privately addressing a few words to the ancestors, each drinks the funsu, then returns to the main room' (Kerns 1989:164).

After this there is more drumming
From my diary: 'It seems as if the ancestors wish to liven up the feast by their presence just one more time. Many of the participants have been possessed by an ancestor or are dancing to the beat of the drums. During the day, more and more people disappear from the temple. The buyai and the next of kin of the ancestor, for whom the dugu was meant, stay behind. A number of closing rituals must still be performed. This means that a few of those involved are still present in the temple a few days after the dugu.'

The dugu is one of the rituals that honor ancestors that, together with a number of other rituals, forms the religious system of the Garinagu society. The notes from my diary cited above clearly portray that certain parts of the religious system are characteristic for the faith of Garinagu. In spite of these characteristic aspects, most of the Garinagu are 'just plain' Catholics. In this case, we can speak of syncretism.

Religion is a part of the cultural complex of an ethnic group. A religious climate provides much information on the position of ethnic groups. Religion is a social gauge, which shows if ethnic groups are permitted to express their own identity. Furthermore, the religious system can be an instrument used by ethnic groups to consolidate and/or strengthen their social position. Religious rituals also

strengthen community and relational ties. People use rituals to make it known that they accept the common social and moral order of the group. This happens at the expense of one's individual status. Douglas writes that rituals:
'are either being used by one individual to coerce another in a particular social situation or by all members to express a common vision of society' (1991:71).

In practice, it turns out that the deeper religious meaning of the rituals is more valuable to some participants than to others. Nonetheless, the rituals can be defined as social acts that are important to the ethnic group and the ethnic identity.

The Conception of the Soul
In the following section, the religious system of the Garinagu is described. After explaining the role of the Catholic Church within the Garifuna community, an overview of the pantheon is given. Next is a discourse on the conception of the soul and spirit held by the Garinagu. What happens when someone dies and what is the spirit of an ancestor? After this discussion, the specialists on this material have their say. Finally, I discuss a few rites de passage in the form of burial rituals and a number of other rituals that take place once a Garifuna has died. These last rituals are called 'the cult of the dead' by Foster (1987) and give a clear idea of the philosophy of life held by the Garinagu. In closing, section 4.3 is a reflection using the term collective fantasies.

The central question will be to what extent the present religious system of the Garinagu is a socially relevant cultural characteristic on which the identity of this ethnic group is based.

The Religious system
The Garinagu's religious system has developed from a synthesis of various faiths. The most important of these are those of the Island Caribs, influences of African origin and Catholicism (Foster 1987). Even though there are elements during the various rituals honoring ancestors, such as the dugu, which symbolize the Catholic faith, there is a clear distance between the Catholic Church on the one hand, and the rituals in which ancestors appear on the other hand. Of old, Catholicism has played an important part in the process of Christianization of the Garinagu. Gonzalez (1988:82) writes that the French missionaries had converted about ten percent of the Black Caribs to Catholicism before they were deported from St. Vincent (1797). She adds that it is quite probable that the choice of these

Black Caribs to let themselves be baptized was partly 'a diplomatic move' (1988:34).

In about 1800, the Garinagu landed in countries in Central America in which the Catholic missionaries had been converting for more than three centuries. During his travels through Central America in 1839, Stephens determined that most of the Garinagu in Punta Gorda in the south of Belize were Catholic:
'like most of the other Indians of Central America, [they] received the doctrines of Christianity as presented to them by the priests and monks of Spain, and are, in all things, strict observers of the forms prescribed' (1969:29).

It is quite likely that with his last phrase ('strict observers of the forms'), Stephens subtly indicates his views of Catholicism. This does not make his prickling statement any less true, because it is quite possible that the Garinagu saw Catholicism as the religion of the colonial rulers. In spite of this, the liturgy of the Catholic Church was accepted as the formal religious system, while they informally held on to their cosmological ideas.

Today, 66.7% of the population of the Stann Creek District is Catholic. Just 5.3% indicate that they do not belong to a religious group (Central Statistical Office 1992). Besides the Catholic Church, the Anglican Church (6.5%) and a number of Protestant denominations are active in the Stann Creek District. These are doctrines such as the Pentecostal Church (4.5%), Methodists (4.5%), Adventists (2.9%), Baptists (2.2%) and Nazarenes (1.4%). In spite of the rise of these Protestant groups, Catholicism is still the most important official religious movement in Stann Creek District and the rest of the country.

In this context, the religious compilation of the Garifuna society in Stann Creek District is unremarkably consistent with the general picture of this region and the other districts in Belize. Foster (1984:11) notes that the participation in the Catholic rituals, including marriage, ties the Garinagu to the rest of society: it provides them with a sense of respect. These ideas guarantee the peaceful co-existence and create conditions for the Garinagu in which they can give their religion a specific content.

Most Garinagu seem like liberal Catholics with a balanced view on the function of the Church (see Foster 1984:11). In Dangriga and Hopkins, Catholic priests are treated with respect. This is also the case for representatives of other Christian

institutions, including the old woman of the Jehovah's Witnesses who promotes the Watchtower in Dangriga.
Priests are primarily seen as people who are professionals in performing rituals related to God. It is better to have such a person as a friend than as an enemy. Besides performing all sorts of religious rituals, priests also take on the part of advisor or ombudsman in social issues. On the other hand, issues that have more to do with internal relations in the family and/or the ethnic group are generally discussed with one's own traditional specialists, such as the buyai or people with a certain status within the group.

There is a certain distance between the Catholic Church and the Garinagu. This is not enforced by the church, but by the Garinagu. As long as the church manages affairs useful to the Garifuna community a peaceful co-existence will continue to exist. The church is more a sort of strategic instrument then representative of an ideology. Foster describes this attitude towards the Catholic Church which is held by many Garinagu as follows: 'religion is a matter of ritual obligation for the majority rather than a set of ideas to which they dedicate themselves' (1984:11). The various Catholic holidays, such as All Saints' Day, All Souls' Day, Good Friday, Christmas et cetera, are celebrated with much devotion in Central America and Mexico. On the contrary, the Garinagu in Belize only celebrate Christmas with the usual festivities. The Catholic Churches in Dangriga and Hopkins are less conspicuous and much more sober than those in the neighboring countries of Mexico and Guatemala. The influence of the Anglican Church is expressed in the Belizean architecture.

Many of my informants in Dangriga and Hopkins put the influence of the Catholic Church in Belize into perspective. It is in no way comparable to the important social position that this Church takes in in the neighboring countries of Guatemala and Mexico and the rest of the countries in Central America. In Dangriga it was rumored that an important Belizean Catholic priest, very respected in the Central-American region, had gotten on the wrong track as far as his celibacy was concerned. A man in Dangriga commented the following on this: 'Yeah man, life is a bitch and those guys are only human'. When questioned which social function the Church took in, an informant answered: 'Well, usually they are good for something'. The answer that most put the Catholic Church into perspective was made by an old lady who confidentially told me during an interview that 'death is not a decision of the Church, it's in the hand of God'. This

last comment concisely represents the relations. The Church is just an instrument; God has the power. What idea do the Garinagu have of God and are they familiar with supernatural phenomena?

The Pantheon
The Garinagu's religious system, conform Christian doctrine, is based on the idea of one almighty God who they call Bungiu (derived from the French Bon Dieu). Most Garinagu assume that God is the Creator, next to God, the Virgin Mother and the Holy Child (Jesus) are also called upon in prayers and asked for help. Jesus is seen as the Son of God and of Virgin Mary. According to a buyai in Dangriga, God was the first forefather on earth (Foster 1984:11). The concept of one almighty God is clear and simple. Furthermore, God is on the top of the hierarchy of the Garifuna pantheon. Comments like: 'It's in God's hands' and 'With God's blessing' characterize the resigned attitude of some believers in this truly intangible and powerful abstract phenomenon of the pantheon.

The monotheistic principle suggests that the Catholic dogma is completely accepted within the religious system of the Garinagu. However, the reality is different. The Catholic Church believes that people end up in heaven or hell after they die. The Garinagu do not have such a dualistic idea of heaven and hell as is preached in the Catholic Church. Foster notes the following on this:
'However, though 'Hell' is rendered as mafiogati (place of devils), the concept of hell is quite foreign to the Garinagu, who believe that 'what you do here, you pay for here'. For Garinagu, all souls, with the possible exception of murderers, travel to Sairi, the afterworld of luxuriant manioc gardens, at death' (1984:11).

Man, at any rate the Garinagu, will not end up in hell after they die. One pays for sinful behavior during their earthly existence. In other words: there are supernatural powers on earth that influence the well-being of man and, in a sense, represent the component of hell on earth.

This way of thinking has quite a few consequences. The Garinagu have an almighty determining God and a heaven, the Sairi, where the soul goes after death. Next to the Bungiu, the pantheon has a category in which all dangerous and teasing supernatural beings are gathered together. At the head of this category is Satan or Lucifer (Foster 1984:12). Satan of Lucifer is called Uinani by the Garinagu (Foster 1984:12; Taylor 1951:104). Mafiogati is a place where these dangerous and teasing supernatural beings can reside. These beings are for

instance able to make someone sick by taking the human body and its soul into its possession. They are also able to kill a person. Possession of a human body by a supernatural power is of a different order to the ancestors who possess the bodies of offspring, as in the introduction. The latter form has a therapeutic function, there where the 'bad' supernatural powers usually have a destructive function. This means that the Garifuna will have to take into account that life on earth can be hell. In the Garifuna pantheon, the supernatural beings on earth are represented by evil spirits. In spite of the name spirits, there is an essential difference between the evil spirits and the spirits of ancestors. Contrary to the spirits of ancestors, the first category has never been human. If is probable that they used to be gods who, with the rise of the monotheistic Catholicism, were given another position in the pantheon. Later in this section, it will become clear that the buyai, the ritual leader from the introduction, is, among others, a specialist in this material.

Not only the ancestral rituals, like the dugu, are an example of syncretism, but the Garifuna pantheon is also founded on this principle. This led to a hierarchical framework with one God at the top and under that three different complex categories of spirits in the religious system of the Garinagu. The most important category of spirits can be traced back to the supernatural world of the Island Caribs and/or Caribs on the mainland of South America. The other category of spirits consists of metaphysical phenomena that have been taken over from pantheons of other ethnic groups in Belize. The third category consists of spirits of ancestors.

The Spirits of the Island Caribs

Mafia is the Garifuna name for devil. The word is derived from the term Mapoya or Mapoia. This was a forest spirit or sylvan deity within the pantheon of the Island Caribs. Taylor (1951:103-4) notes that Mafia is both singular and plural. This means that there are more devils that reside in different places (Taylor 1951:104). Mafia are especially dangerous for pregnant or menstruating women. They appear in women's dreams and try to seduce them (Taylor 1951:103). It is dangerous for men to have sexual contact with women who are possessed by Mafia. Foster (1984:12-3) states that the symbolism of the Mafia represents relations between men and women. The strength of the woman is expressed in her ability to reproduce. Her warmth symbolized by sexual stimulation (the seduction), giving birth to a child, breast milk, but also menstruation appeals to

Mafia in their capacity as cold-blooded reptiles. The essence is that women are more difficult to check in some situations than men are. An insecure man will be the loser in such a situation and accept bad influences, which leads to calamities. For example, a woman getting too close to a newborn baby during her menstruation could lead to bleeding of the navel of the child (Foster 1984:12). A 'strong' man will make sure that this does not happen, because the 'bad' smell of menstruation blood indicates that a Mafia may be nearby.

The Uguriu is a greatly feared spirit. This being is also characterized as Beelzebub or as prince of the devil (Foster 1984:12-3). The term Uguriu is derived from the Island Carib word keleou, which means devourer. Uguriu is even more dangerous to man than Mafia. Analogue to Mafia, Uguriu has the power to take on the appearance of a reptile, for example, a snake, an iguana or a lizard (Foster 1984:13; Taylor 1951:105). Beelzebub is also capable of manifesting itself in other forms. Then he appears as a sea-crab, a dog, a chicken, an armadillo or a human.

Taylor (1951:105) focuses on the destructive influences that this devourer has in the house of its victims. This creature will devour the first-born of a family, and if the victims do not take measures, the same will happen to the rest of the children. Luckily, Uguriu can be manipulated, he just loves cassava beer and cassava bread. By placing these two products in a corner of the room at night, devouring of the children can be prevented. Uguriu can also possess a woman and let her dance as if she were crazy. Possession of a family's house by this malicious spirit has many consequences for their fate. Because Uguriu is mainly linked to the house, it can mean that a family has to leave its shelter. In order to avoid this calamity, the residents of a house can take precautions. The best remedy is to bury three sea urchins in the ground within three steps of the threshold. This will keep the spirit out of the house. Taylor describes the Uguriu as a dangerous guest. Foster (1984:13) on the other hand, places Uguriu in the framework of the male-female relationship, as he did with Mafia. Women are also the potential victims of this spirit.

When Uguriu possesses a woman's body, she is the 'hostess'. It is also possible that Uguriu will devour her from inside and kill her. The sexual partners of these women can be infected and they await an awful death also coming from within (Foster 1984:13). This is contrary to the method used by Mafia, who will eventually attack a man in order to chase him away, but will never possess him.
Not unimportant is that one of the assumptions about Uguriu is that he was

introduced by people from outside the ethnic group. Garifunawomen who carry Uguriu along with them are distrusted by their ethnic group. Their sexual partners, supposedly, too often belong to other ethnic groups (Foster 1984:13).

The Island Caribs believed that the world had an owner. This was symbolized by the night and was called Lakuelle Oubao (Foster 1984:12). The language of the Garifuna has the term Labureme Ubóu, which stands for 'midnight, owner of world' (E. Roy Cayetano 1993:148). Umeun is invisible to mankind and among children she causes hives, against which she has a terrible aversion (Taylor 1951:106).

A well-known appearance of a spirit in the Garifuna community is Agayuma. This is a river spirit. Foster (1984:12) writes that the word Agayuma is not a typical Island Carib word. Nonetheless, the Caribs on the South-American mainland have the word Akoyumo or Okoyumo, which means creek spirit. This spirit reveals itself as a woman and seduces men. The consequences of meeting Agayuma can be fatal. If the victim does not call upon a buyai for help, this person's dreams will be an indication of his coming death.

Several spirits that were still mentioned several decades ago in the pantheon of the Garinagu have now disappeared. The first of these is Dibinaua. This was a sea spirit that primarily kept to the deep waters of the sea. Taylor (1951:106) comments that the concept of the Dibinaua was only expressed vaguely by his informants. Thirty years later, Forster (1984) does not mention this sea spirit. The People's Garifuna Dictionary (E. Roy Cayetano 1993) does not contain the word Dibinaua. Besides Dibinaua, Taylor (1951:104) speaks of a forest spirit called Iauararugu. Taylor describes this phenomenon as 'a large shaggy man' (1951:104). Iauararugu is also not mentioned by Foster (1984) or The People's Garifuna Dictionary (E. Roy Cayetano 1993).

The 'Belizean' Spirits

Besides these 'Island Carib' spirits, there are also spirits who originate from the Creole, Maya or Mestizo tradition. An example of such a spirit is La Sucia, 'a very large woman with long, golden hair' (Craig 1991:40). La Sucia comes from the Spanish word 'sucio', which means dirty, rude, indecent and infectious. According to tradition, she has, among others, been seen in Hopkins. Craig gives the following description of this spiritual phenomenon:

La Sucia is relatively harmless, but can be mischievous enough to frighten those with whom she comes in contact. Sometimes she will, like many of the other enchantresses, take the form of a man's sweetheart in order to attract him. [Stories also exist about a La Llorana and Xtabai. The former primarily appears in the Orange Walk District, while the latter is more often associated with the Maya.] At times she will await victims on deserted roads; on moonlit nights, she baths by the riverside, lying in wait for some man, usually a drunk to pass by.
When she perceives a potential victim, she opens her gown, exposing her breasts, and laughs at the man. As he approaches her, she seductively draws him farther away from the road then suddenly disappears. The man who is tempted follows La Sucia, usually losing his way and falling asleep in exhaustion. Invariably he wakes up to find that he has been sleeping on a grave in the cemetery, and often he remains confused, suffering from fever and delusions about the bewitching woman in his encounter (Craig 1991:27-32).

Another 'Belizean' spirit is Duendu. He is a ninety centimeter long gnome. He wears a hat with a wide rim, has a mean face and a beard. Duendu is usually described as a vigorous old man who floats just above the ground when he walks. A whistling noise can be heard when Duendu is around (Craig 1991:27-32).
Various descriptions and stories exist on this gnome. One of these is that his feet are back-to-front. Duendu is the guardian angel of the animals and people in the forest. For instance, he helps people who are lost and when they are wounded he heals them. Duendu punishes hunters who kill more animals than they need. He also guards a treasure. Nonetheless, there are also countless stories in which Duendu is portrayed as a dangerous villain and a notorious tease. In the Stann Creek district, it is told that Duendu has no thumbs. As soon as he sees human thumbs he tries to pull them off. If you happen to meet this dwarf you should bury your thumbs in the palm of your hand. Duendu can also make children invisible and only a shaman can break the curse.
Burning candles and the Bible keep Duendu away. When confronted by him, making a cross is enough to scare him away.

Sometimes a bright light moving in circles appears at sea in the dark of the night. This phenomenon has a natural explanation, but nonetheless, is often explained as a supernatural phenomenon. The light, which sometimes develops into a ball of fire, can come dangerously close to the fishermen's canoes. A fishing boot is sucked in by the picking up of the strong wind, and then sails around in circles,

out of control. This hinder can be avoided by pointing two crossed knives in the direction of this phenomenon (Craig 1991:17, Taylor 1951:106). The Garinagu call this Faia Landia. It is supposedly a ghost ship still floating around along the coast of Belize. On this ship are the spirits of the first buccaneers who established themselves on the cayes near Belize City (Foster 1984:14). These freebooters, especially British in this region, are called Baymen in Belize. Today, they are often seen as founders of the British based Belize.

About the Soul, the Spirit, Death, Ancestors and Ghosts

According to Taylor (1951:102), the world soul is a term derived from Christianity. As far as I am concerned, this statement is of vital importance. It indicates that the Garifuna ideas on the existence of man are based on a combination of concepts. On the one hand, their ideas about mankind have developed along the lines of the Catholic Church. On the other hand, it will be shown that the elements of the portrayal of mankind as held on St. Vincent, are still very much alive. The Garifuna word for soul is áluma. This word is derived from the Spanish term for soul, namely 'alma'. What makes the term soul so confusing is that it is grafted on the portrayal of man held by the Catholic Church whereas it is simply a part of the point of departure held by the Garinagu. Both concepts are similar in that they see the other aspect of mankind to be the body. In Garifuna, this is called úgubu. The Garifuna soul is called iuani. This means spirit of the heart and is derived from the Island Carib word 'iouanni' (Foster 1984:14). The essential difference between the term soul as used by the Catholic Church and the term spirit used by the Garinagu, lies in the tie to life on earth. Spirits, also those from the pantheon, are a fundamental part of life. Instead of a soul, the body contains a number of spirits that belong to the individual. One of those is the spirit of the heart, which is located in the heart organ.

This contains the rhythm of life, vitality, but also courage, indomitability and emotions. As long as one lives on earth, the iuani is bound to one's body. Besides a spirit of the heart, everyone also has a spirit called afurugu (Foster 1984:12; Taylor 1951:102). This 'spirit-duo' can be seen as the double of one's self-concept, but then in the form of a spirit. Afurugu appears in other people's dreams. In other words: when I dream about someone, I am visited by his or her afurugu. Furthermore, a fever is seen as a sign that the afurugu is too loaded down (Taylor 1951:102). When a person all of a sudden gets the feeling that they have to go home because something is going on, they are inspired by afurugu (Taylor

1951:102). Afurugu is often compared to a personal guardian angel (Foster 1984:12).

In practice, the Garinagu do not deny the existence of the 'Catholic 'soul. A Garifuna will generally tell an outsider that the spirit of the heart and the soul are one and the same. When someone dies, the spirit of the heart (the soul) leaves the body to make the long journey to Sairi (Foster 1984:14). After this journey, the transformation from spirit of the heart to spirit to spirit of an ancestor is completed. Life, symbolized by the heartbeat, is replaced by the supernatural powers of the spirits of ancestors. Sairi, the world of the ancestors, is at the end of a long path. After the spirit of the heart has crossed a river, he or she is in front of the port to the hereafter Taylor (1951:107) notes that the spirits of the heart standing in front of the port before it is their time are chased away by a barking white dog. They have to go back to life. When the spirit of the deceased has passed through the port, he or she arrives in a lush garden filled with cassava plants and banana trees. Spirits of ancestors await the new arrival and welcome him or her with food and drink (Taylor 1951:107). Afurugu on the other hand, falls into a state of insecurity nine days after his or her 'owner's' death (Taylor 1951:107). This constellation is because úgubu has been buried and iuani has joined the ancestor spirits in Sairi. Without its fountain of life, Afurugu flits through the dreams of loved ones still on earth for a while before passing into oblivion.

According to the Garinagu, the spirits of ancestors have two powers. The gubida and the ahari. These powers, which were together in the spirit of the heart, separate after arriving in Sairi. The spirits are not part of a closed system, so that these ancestral powers can continually present themselves to surviving relatives. The gubida is the negative power bound to earth, death and the grave (Foster 1981:3 and 1984:14). The gubida is impatient, dangerous and wishes confirmation by relatives through ritual acts. The ahari on the other hand, represents the positive power, the good. This ancestral influence is associated with creatures in the air like birds and butterflies. This ancestor spirit an also appear in dreams. Ahari warns and protects relatives (Foster 1981:3). Contrary to the gubida, the ahari is not demanding. A special ancestral spirit is hiuruha. Foster (1984:12) compares this spirit of a buyai to a Catholic saint. The term hiuruha is derived from the word ioulouca. This was the spirit of the rainbow in the pantheon of the Island Caribs. This ancestral spirit also resides in Sairi, but contrary to the

ancestor spirits of ‘regular people’; it can be called upon by the buyai at any time. Today, a buyai normally can choose out of four or five hiuruhas. According to Taylor (1951:110), this number used to be much higher. This reduction could, on the one hand, point to the fact that knowledge of the various hiuruhas from the past is declining. On the other hand, it could be an effect of the rise of doctors, which has reduced the amount of work for buyais and made them focus more on psychic problems.

The last group of spirits of ancestors is the ufie, úfiaü or pantu, the Garifuna words for ghost. Because The Garinagu do have the concept of heaven, Sairi, but not of hell, some of the spirits of ancestors remain bound to earth. The Garinagu assume that man has to pay for his sinful thoughts and behavior during his stay on earth. ‘What you do here, you pay for here’ (Foster 1983:11). The consequence of this idea of life is that some lawbreakers are doomed to remain on earth. According to Foster (1984:11), murderers belong to this category. Their spirit of the heart will never make the journey to Sairi. Roaming over earth they present themselves in the form of ghosts. The annoying thing about these sinners is that they can take revenge on people they know or can be set to killing by someone who has the power over this category of ancestor spirits. Ufie betrays his presence by the smell of candle-grease (Taylor 1951:103). Thanks to this signal, a potential victim can bring himself into safety and, helped by a specialist, take countermeasures.

The conceptions of soul, spirit, death, ancestors and ghosts are an aspect of ethnicity that is based on the same, not so easily demonstrated grounds as the pantheon. Nonetheless, like the pantheon, it plays an important part in the imagery of the individual. Furthermore, for an ethnic group, these concepts are at the base of the collective ideas about life and death. They also make it clear to outsiders in which way an ethnic group interprets philosophical questions. The explanation contributes to the concretizing of abstractions and the support that they provide in situations in which the ethnic group is under pressure. This has to do with the fact that the explanation is of importance in regard to things like spirituality, dealing with grief and spiritual needs. In practice, it is especially these concepts, which are not so much in the limelight, that represent the instinctive and spiritual side of ethnicity.

Buyai’s, Obeahmen and Women and the World of Magic

In the summer of 1992, I was visited in Belize by a number of friends from

Holland. I took them along to Hopkins. While my landlord, who was slowly becoming my best friend, a Garifuna from Dangriga, was using a machete to break open some coconuts, I heard an awful scream coming from the house which was about fifty meters away. Three women were standing at a distance and unmistakably swearing at us. What had upset these women so much?

There was a latrine close to the place where we were waiting for the refreshing content of the coconut offered to us by my friend. In Hopkins, a latrine usually is a hole in the sand with a fence around it. One of my Dutch friends thought the construction was so interesting that she took a photo of it. Something she should not have done. As was the case, there was a chicken skull hanging above the entrance to the latrine. It was hung there for the protection of the user of the latrine. After all, the user is in a vulnerable position. Dangerous spirits could attack at that moment. Therefore, the toilet must be protected against the influences of black magic or bad spirits. It is said that taking a picture of the specially prepared chicken skull causes its protective power to vanish.

Foster (1984) uses an example to describe how magic can be incorporated in the mutual relationships between family members. The example is about the power of a love potion, the wayaru (tempting powder). Women serve this to entice men. According to his source, men do not need this magical means, though some men use special prayers to win a woman over. The main characters in Foster's example are a young man, his wife and his sister. All three of them lived in the United States, and the sister had gone back to Belize 'seeking to obeah her brother's wife, who had given him wayaru, as a result of which he no longer communicated with his kin and was unable to have sex with anyone except his wife' (Foster 1984:14).
In these two examples, obeah (magic) is involved. The Garifuna asking for help can consult a buyai or an obeahman or woman for such things. The term obeah deserves further explanation. This magic power is experienced by the receiver as supernatural and can serve as a protection against all sorts of dangers.

It can also be used to hurt someone. In the strict sense of the word, a buyai and obeahmen and women use the power of magic. Or in other words obeah. This makes it even more remarkable that the Garinagu find that the obeah is not one of the skills of the buyai. Gonzalez (1989) categorized the work of a buyai and of obeahmen and women. The result of this is the following comparison:
The buyai can diagnose, heal, identify wrongdoers, perform love magic, trace lost

items, can cause sickness and death, is always helped by a buyai spirit (hiuruha), executes public ceremonies, pleases evil spirits of death and of nature. The status of a buyai is ascribed (Gonzalez 1989:284). With the latter, Gonzalez points to the assumption that a buyai was born with his or her gift, but that he or she is not visited by spirits until the ninth year of age because the body is too weak before that time (Gonzalez 1989:288).

The obeahman or woman can make a diagnosis, heal, identify wrongdoers, perform love magic (better than the buyai), cause sickness or death, can use spirits, does not execute public ceremonies, acts with people 'rather than non-human causative agents' (Gonzalez 1989:285). The status of an obeahman or woman is acquired, with this she means that the power of magic can be learnt (Gonzalez 1989:285).

Furthermore, a buyai comes from the ethnic group, while an obeahman or woman can be a Creole, a Mestizo or someone from another ethnic group. In spite of the similarities in the above comparison, the magic acts of the buyai are qualified differently by the Garinagu than the capabilities of the obeahman or woman.

The difference in qualification is based on the goal set and on the ethnic descent. The acts of a buyai focus on directing the contact between forefathers and relatives on earth. The buyai also executes rituals meant to heal the Garifuna clients or to protect them from dangerous supernatural powers. The obeahman or woman is not an intermediate between ancestors and relatives. This person also performs ceremonies that can protect the person asking for help from supernatural powers. On the contrary, the obeahman or woman can also bring bad luck upon someone when someone else requests this. This distribution of tasks does not mean that a buyai will per definition refrain from specializing in obeah and practicing it, but it simply does not occur as often. The essential difference is that the role of the buyai lies in internal ethnic issues such as the contact between ancestors and surviving relatives whereas the obeahman or woman represents the dangers from outside the ethnic group. These can for instance be caused by a non-Garifuna putting a curse upon a Garifuna with the help of an obeahman or woman. In other words: the work of a buyai is a specific cultural and socially relevant characteristic of the Garinagu. The obeahmen or women are not specifically tied to one certain ethnic group. Therefore the work of this specialist lies more in the diffuse boundary area of the various ethnic groups, which is why it is not characterized as a cultural characteristic exclusive to the

Garifuna society.

The buyai is a 'gatekeeper' within the ethnic group. This is a person who, on the one hand, knows all of the ins and outs of the heritage of the ethnic group and guards it. On the other hand, he or she propagates it in order to guarantee the continuity of the cultural aspects, which characterize the group, both inside and outside of the group. This also provides the ethnic group with recognizable forms with which they can express themselves. The buyai is an example of a 'gatekeeper' who is specialized in rituals. As a medium, the buyai maintains the relationship between the ancestors and surviving relatives. This shaman also protects clients within the ethnic group from disaster. The fact that the buyai has a central role in the traditional Garifuna rituals also means that he or she plays an important part in the term ethnicity. As this term is only concerned with the individual, but also with the image created of the group by the outside. In Belize a Garifuna is, among other, characterized by their shamanism. In practice, it does not make much difference if someone believes in the buyai or not. The characteristic is the more important here. For example, in Belmopan it was pointed out to me that Dangriga is the cultural center of the Garifuna culture, because the most influential buyai lived there.

Rituals after Death

Alongside their weekly services, the formal religious institutions also offer traditional Catholic or Protestant memorial services and burials. That what is done during these ceremonies is categorized under burial rituals in this discussion. These rites de passage follow the basic idea of funeral ceremonies held in other places in Latin America and the Caribbean. Along with these rites de passage the Garinagu have an informal system in which the ancestors have a central role. Foster (1987) typifies the concept that characterizes this system as 'cult of the dead'. The rituals performed during cult of the dead have a therapeutic value. These ancestor rituals held a number of years after death contain a pattern that can be traced back to the traditional religious system of this ethnic group and are initiated by the buyai.

The Burial Rituals

Today, death in Dangriga is usually communicated by the cable television network. Before its arrival, the radio played a central part in this sort of thing. The mouth-to-mouth circuit in Hopkins and Dangriga also guarantees a rapid spread of knowledge of a tragic incident. When someone dies, the family keeps

wake over the body. During this show of respect, acquaintances of the deceased and/or surviving relatives gather around the house where the body lies in state. The coffin with the neatly dressed bodily remains is placed on a table in the prettiest room of the house. At the head, the base and halfway down the coffin there are candleholders with a burning candle in them on both sides of the coffin. Another table serves as an altar on which there is a jug of holy water and pictures of various saints. There is always someone present in the room where the deceased lies in state up until the funeral. Visitors can literally say goodbye to the body of the dead person. Literally, because the Garinagu assume that the spirit of the ancestor can return to the world of the relatives at any time. The dugu, as described in the introduction, is an example of that. Outside people drink and eat.

Several women sing songs. If there is a musician among those present at the vigil, then the songs are accompanied by the guitar and/or the drum. Other people chat or murmur prayers. During a vigil in Dangriga at which I was present, some men consumed quite a lot of rum. As the evening went on, some of these gentlemen became quite boisterous. Not everyone appreciated this and it led to a long discussion on their behavior and the continuous decline of respect for the spirits of ancestors.
If the wake begins in the evening, it continues throughout the night until the morning. The focus of this day is the burial, the ábunahani. Family members and friends follow the procession to the church and the graveyard.

In Dangriga I witnessed such corteges. A number of processions were led by a jazz band. During one of the parades, the band played ‘ When the saints go marching in’. Gonzalez (1988:79) suspects that this innovation of the funeral ceremony comes from Garinagu from Honduras. Workers on contract from Honduras, who worked in New Orleans for a while, supposedly introduced this type of funeral ceremony into their communities. As the contact between the Garinagu from Honduras and Belize is almost boundary-less by the strong family ties, the jazz component of the funeral procession could have been passed on by family ties. On the other hand, the influence of the United States is so strong in Dangriga, that this renewal could have come straight from New Orleans.

Dangriga’s cemetery lies in the north of the city. There is nothing about this cemetery that indicates that the Garinagu have a specific burial culture. The cemetery in Hopkins gives one the same idea. This one lies somewhere out of the way, hidden between the foliage. Both do not give you the impression that the

cemetery has an important role in the burial culture of the Garinagu. Just as in Dangriga, this field of deceased lies to the north of the city. Hopkins cemetery is small, sober and unremarkable. It even seemed quite sinister to me. My first impression was that this place was rarely visited. A number of wooden crosses marked where the deceased were buried. The amount of graves still recognizable was very low considering there were some 800 people living in the village. When counting the gravestones, I only got as far as seven. Both to the left and the right of the path, the crosses were placed so clearly that you could see in which direction the coffin lay. Presuming that the cross is placed at the head, the heads were facing to the west and the feet east. This positioning implies that when set upright, the coffin would be 'facing' the sea.

The Garinagu believe that the soul of the deceased 'stands up' three days after the funeral and roams around until the proper respects are paid. It remained unclear during my research if the positioning of the coffin had anything to do with the resurgence of the soul. The Garinagu do not find the cemetery all that important. The ancestor's soul simply requires more attention and care than the place of burial. Besides, the spirits of the ancestor leave their bodily cocoon and are freed from their physical restrictions.

The following burial ritual always takes place within two or three weeks after death. This consists of the novena, arisaruni in Garifuna and the nine-night wake or, as the Garinagu call it, the beluria. This wake is the end of a period in which the soul has roamed before arriving in the hereafter of lush cassava gardens.
The novena for the deceased usually begins after sunset on the first or second Friday after the funeral and continues for the rest of the evening. According to Catholic tradition, they pray for the peace of the soul during the novena. The Garinagu also pray and sing for the departure of the deceased from the world of the living (Kerns 1989:154). The novena is conducted in the house where the nine-night wake will be held in the evening and night of the next day. Kerns notes that the some twelve women, who pray and sing during the novena, do not necessarily have to be family of the deceased (1989:154).

The arisaru, the leader of the novena, can be a man or a woman. He or she must have a good knowledge of Spanish, because 'many people say that Spanish is more ''effective'' than English for novenas' (Kerns 1989:154). In the room where the novena is held, there is a table that serves as an altar. A picture of Jesus Christ, candleholders, a cross with a canopy, flowers and white streamers made of

crepe paper make this table come alter look solemn.

Contrary to this sacred intimacy of the novena, the beluria is a dazzling public ritual. Several elderly women gather in het house where the novena took place the evening before. They pray and sing again for the well-being of the soul of the deceased. These prayers and songs are repeated near midnight and during sunrise (Kerns 1989:155). The number of people outside grows. A small gift for the family organizing the beluria symbolizes respect for the deceased. Practice shows that a beluria visited by many people often also has a number of scroungers, because the nine-night wake is open to everyone. Nonetheless, the sphere is generally relaxed. Respect for the deceased usually weighs heavier than banal arguments during this type of ritual.

Musicians accompany the various traditional Garifuna styles of dancing. Storytellers entertain the public with anecdotes and fables about, for instance, anansi. There is also quite some gambling, drinking and eating of Garifuna dishes during a beluria. These are consumed around midnight.

In order to give an idea of the commotion that a beluria can cause, I will describe something that happened during such a ritual during my stay in Dangriga and Hopkins in the summer of 1990.
In July of that year, there was a nine-night wake in Hopkins. The Saturday of the beluria, inhabitants of Dangriga tried all sorts of things to get themselves to Hopkins. They were primarily people who had no direct relationship to the family of the deceased. The usual connection between Dangriga and Hopkins was and is still maintained by Mr. Castillo. He owns a truck with which he shuttles between Dangriga and Hopkins four times a week, on Monday, Wednesday, Friday and Saturday. The body of the truck has wooden benches that serve as seats. This vehicle can transport some twenty-five to forty people. ‘Cas’ Castillo drives to Hopkins early in the morning, picks up passengers headed for Dangriga and then drives back to Hopkins between 10 and 11 o’clock. After lunch, he drives back to Dangriga at about 14 o’clock.

On the day of the beluria, this connection could not or hardly be used by partygoers from Dangriga. Castillo’s truck was full with things for the ritual. The rest of the space was taken in by people from Hopkins who were helping to organize the beluria. During the day, a harrowing shortage of cheap transport to Hopkins arose. At the end of the afternoon, the unease among those from

Dangriga wishing to go to the beluria grew. People who always maintained that they did not want to have anything to do with rituals honoring ancestors were feverishly searching for transport on this Saturday evening. Owners of cars and boats were continually asked if they were going to Hopkins. Those who were had long given the available seats away to family and good friends. Those car and boat owners who were not going were quite willing to travel to Hopkins, but for a fare much higher than usual.

Cries of 'motherfucker' and 'fuck you' flew through the cool night air of this Saturday much more frequently than usual. A man who had drunk quite a bit already got on his bike. He left Dangriga with much a –do, knowing that he had to ride forty kilometers over bad roads before seeing the lights of Hopkins. A journey of more than two hours through the pitch black night. Those remaining in Dangriga did not give this lonely cyclist much chance of reaching the village. Others started walking and hoped to catch a ride.
The rush on this beluria was so big that on the Sunday and Monday after the festivities it turned out that there was a shortage of food in the village. As is the case for the dugu, the amount of participants during the nine-night wake is an indication of the status of the deceased and their family.

What was so special about this beluria that various people began a quite impossible journey just to be present during the nine-night wake in Hopkins? The beluria is a ritual that takes place in various areas in the Caribbean, among others in Suriname. This means that the ritual is not a characteristic of the Garinagu. A successful, busy beluria is a confirmation of mutual ethnic solidarity. This burial ritual is also an open invitation for outsiders to be a part of an ethnic event. Apparently, the nine-night wake is festive for those not directly related to the deceased. A layman may think that he or she is witnessing a fair, while at the same time, the family is mourning. The nine-night wake is a good example of a ritual that is not originally typically Garifuna, but when executed it is full of ethnic characteristics.

After the beluria, comes the taguru ludu, the end of the period of mourning. This ritual is performed a year after someone's death. First there is a mass in the church dedicated to the deceased. After the mass, those present gather together at the house of the family member acting as host or hostess and eat together.

The Therapeutic Rituals

By causing a disaster, the gubida can make it known among its relatives, that they need to give him or her some ritual attention. The buyai is the medium and the person who indicates what is wished by the ancestor, the gubida component, and which ritual must be performed. The outsider can witness the consequences of this signal during the various rituals that honor the ancestors. In the introduction the dugu, one of the three therapeutic rituals, was discussed. In this section, the washing or cleansing and eating ritual are discussed.

Within five years an ancestor can request an amuiadahani. This washing or cleansing rituals performed by a small group of people. Gonzalez (1988:84) writes that in the past, the family dug a hole in the earthen floor in the house or the kitchen for the execution of this ritual. Since then, the houses have changed so much that it is no longer possible to perform the amuiadahani in the house. Most houses are on stilts or have a cement floor. The result is that today the family performs this ritual in the kitchen, which is usually separated from the living quarters in Hopkins, in the garden, at the beach or in a washtub.

Before the ritual begins, a mass is dedicated to the deceased ancestor. Next, cassava bread, alcohol and some lean clothes are offered to the spirit of the deceased in the place where the ritual will be held. The amuiadahani ceremony takes place before sunrise and is attended by several relatives and invited guests. As I have never been to an amuiadahani ceremony, a description of this given by Kerns follows:

'The ceremony itself is simple and brief. Each of the people present, beginning with the closest relatives of the deceased – parent of grown child – throws a bucket of water into the pit. They do so in pairs, one person standing at the head of the pit and holding a bucket of the strained cassava water, sibida, and the other standing at the foot with a bucket of ordinary water. Throwing the water into the pit, each person addresses the spirit by appropriate kin term and says Iníha dúna lun bágawan. 'Here is water for your bath.' After everyone has taken a turn the pit is covered. No trace of it remains in the sand aside from a slight dampness, which soon disappears under the heat of the morning sun' (Kern 1989:159).

After the execution of the ritual act, the participants gather in the former living quarters of the deceased and sing songs to the ancestor together.

After the washing or cleansing ritual, there are still two others in the series of therapeutic rituals, the chugu and the dugu.

The chugu is an eating ritual. During this ritual there is no drumming or dancing and the participants do not fall into trances. Compared to the dugu, described in the introduction, the chugu ritual is shorter, a day, and the costs are also much lower. The buyai functions as a medium in both the dugu and the chugu. Just as is the case for the dugu, an ancestor who passed away at least ten to fifteen years ago requests the ritual.

Contrary to the dugu, in which a special temple is at the center of the ritual acts, the chugu is performed in the house of the person approached by the ancestor. The participants of the chugu bring food and drinks along. Taylor (1951:115) comments that the food must be cooked without salt. The meal served stands on a number of tables in the living room during the whole day. People from the community who are not directly involved via blood relations can place self-made dishes in the living-room for their own ancestors (Kern 1989:161). At the end of the day, the food is taken away after the buyai has checked if the wishes of the ancestor have been met. If not, the ritual must be repeated. This 'punishment', that rarely occurs, also counts for the dugu. The food intended for the ancestors disappears. It is taboo for those still living, except for the elderly to eat it. Kerns (1989:161) writes that they are allowed to eat this food because food that has already been tasted by the ancestors does not make them sick.

To what extent people of the Garifuna community pay attention to this taboo depends on the individual ideas of the participants. In other words: whether or not the eating rules are consequently followed in practice is not clear. That ritual rules can not simply be ignored was apparent from an incident I witnessed during the dugu in the introduction.

From my diary: 'On Tuesday August 21, 1990, the dugu was focused on all sorts of offers. Outside the temple, there were tables where participants of the dugu had put their food. They had spent the day preparing the meal. A part of the food was for those ancestors 'present', which means that it was taboo for the participants, except for the elderly. They ate in the early evening. There was a peasant sphere and the participants were mostly busy talking to each other. Every now and then giggling young children tried to pick something edible from the table.

At about 21 o'clock, the drums began to play again. The introductory dances were performed until the buyai announced a mali for an ancestor. During this mali a young woman of about fourteen, who, quite notably, was outside of the temple, fell into a trance. While she made jolting movements with her eyes half-closed; she was led into the middle of the temple.

Her high screams alternated by jabber in a very low voice, made the whole thing a bit frightening. People in trance express themselves in many different ways. It is usually women who go through this supersensory experience. The passage of thought is that an ancestor reveals itself to its relatives using the body of a participant. The person who undergoes this transformation 'loses' him or herself during this period. Because ancestors have different characters, just as when they lived, some people are happy during a trance and tell funny anecdotes. Others modestly dance around, but there are also troublemakers.
The young woman above presented an ancestor who turned out to be fitful and obstinate in her 'borrowed' body. When I asked around, I found out that this woman had never been in trance before and was quite skeptical of rituals honoring ancestors. How is it possible that she fell into such a heavy trance? That was logical: she had eaten food intended for the ancestors. 'That piece of chicken was already tasted by one of the ancestors.'

This incident illustrates in a refined manner how the system of honoring ancestors is an intrinsic element of the socially relevant cultural characteristics of the Garinagu. It is the ethnic answer to psycho-social problems and tensions within the group. These therapeutic rituals also make the presence of the ancestors tangible. Furthermore, this system strengthens the ethnic identity by emphasizing the exclusivity of descent and the importance of ancestors. When someone known for their skepticism towards belief in ancestors, for instance, falls into a trance, this incident is immediately used as evidence for the truth of the system of honoring ancestors. This accentuates the link between historic consciousness, daily reality and ethnicity.

The Collective Fantasies. A Fourth Reflection
The Christian doctrine is the point of departure for the religious system of the Garinagu, this means that it is monotheistic. The faith in the Christian God can, among others, be seen as a strategic step that in some senses has made integration in the Central-American societies easier. By accepting Catholicism, the Garinagu do not distinguish themselves from other ethnic groups in the

region, as far as faith is concerned.

In spite of this strategic motive, the Garinagu do not experience this faith as something forced upon them. In the two centuries in which Catholicism found its way into the Garifuna community, it has been accepted and become an intrinsic point of departure. The Christian liturgy is a fundamental part of the religious system of this ethnic group. Christening a child, for example, and the whole ceremony that accompanies this, is seen by the Garinagu as an important moment in the life of an individual. Christening assures that the soul or the spirit of the heart can make the journey to Sairi after death. Furthermore, the christened child is appointed a godfather, the padrino. Within the Garifuna community, being a godfather is an honor. The godfather is often someone who, from a distance, takes care that his godchild fares well. He protects his godchild, as God protects those who are christened. In the eyes of the pious Garinagu, those who have not been christened miss this protection. After their death, they will be bound to earth and roam as ufie or pantu (Foster 1989:14). In this sense, the ritual of christening can be seen as an initiation ritual in which those christened joined the group of devoted people.

Alongside this Christian doctrine, not bound to a certain ethnicity, the Garinagu experience specific collective fantasies within their group. Thoden van Velzen & Van Wetering describe collective fantasies as:
‘a symbolic system noted for its visionary images: for a ‘philosophy’ that ranges over and beyond the sphere of practical action; for specific day-dreams and nightmares; and in general for imaginations that seem unfamiliar’ (1988:7-8).

An ethnic group’s collective fantasies speak of the way in which the members of the group deal with conscious and unconscious fears. Collective fantasies also clarify the way in which some irrational common values and norms are guaranteed and which ideas are at the base of this. Certain aspects of a pantheon provide insight into the collective fantasies of an ethnic group.

The collective fantasies of the Garinagu are expressed most clearly in the concept of the Island Carib spirits and the ancestors. The infringement of these spirits on the daily well being of a Garifuna is much more fundamental than that of God or the Belizean spirits. The concept of the Island Carib spirits capitalized on the idea that danger, translated into fear, can be avoided by following certain rules within the ethnic group.

In Uguriu, the danger of having sexual relations with people from outside the ethnic group is symbolized. Uguriu implicitly strengthens the rules of endogamous behavior. Furthermore, a number is Island Carib spirits are able to possess the human body. This makes them extremely dangerous and able to threaten the group from within. The island Carib spirits threaten the Garifuna community. The ancestors, on the other hand, refuse to leave their relatives alone, because they represent one's irrational conscious. They are not threatening because they have the best at heart for their surviving relatives, in spite of the terrible measures they sometimes take. Fears, conscious or not, also play a central part in this issue. However, they are of a different order. The 'Island Carib' spirits leer at their victims. Everyone is potential prey and their goal is destruction. Spirits of ancestors differ in that they appeal to the historic consciousness of the group and the internal loyalty of the related group. The ancestor spirits fight for the conservation of the group. The therapeutic importance of rituals honoring ancestors lies on the one hand in the reduction of fear for death, countering family fetes and strengthening the mutual loyalty. On the other hand, it is about enhancing consciousness of one's ethnic identity and as Foster (1987) argues, the right to an own geographic zone.

The buyai is the internal specialist in both matters. He or she can use his or her hiriuhas for intervening in fears summoned by the collective fantasies, getting them under control and directing them. This gives the buyai quite a free reign. She or he plays a central part in the social control within the group.
The buyai can draw heavily on the 'good' name and the financial capacities of families. The costs of the therapeutic rituals, especially the dugu, are high and dissatisfied family members can fall into a trance during the dugu and wash any dirty linen in public.

In my opinion, the concept of the 'Belizean' spirits is based on interethnic contact. A spirit like La Sucia makes it possible for, for instance, a Creole and a Garifuna to speak of spirits without insulting each other's group's pantheon. That what is common is the point of departure here. As the Garinagu already have a wide range of 'Island Carib' spirits, the adoption of spirits like La Sucia, Duendu and Faia Landia, can be translated as a way f sharing fears for supernatural powers with members of other ethnic groups. Many of these anecdotes on 'Belizean' spirits van quite likely be traced back to the period in which Belize was still primarily economically dependent on logging. In the encampments of the loggers,

the representatives of different ethnic groups met for long periods of time. In such situations, it would have been easier to reach consensus on La Sucia than on the concept of Mafia. This consensus can be used to open up the channels of communication between two ethnic groups.

In summary, the Garifuna pantheon consists of four concepts, the monotheistic idea of God, the 'Island Carib' spirits, the 'Belizean' spirits and the spirits of ancestors. The monotheistic idea of God conform the Christian doctrine, primarily says something of the power of the Catholic Church in the region. Ethnic minorities, as the Garinagu, had a social motive for conforming to this faith. 'Being Catholic' had and still has the advantage that you can not be discriminated for your religion. This means that 'being Catholic' is not so much a socially relevant characteristic of this ethnic group, but more a guarantee for peaceful co-existence with the rest of society concerning religion.
On the contrary, the 'Island Carib' spirits and the ancestor spirits are socially relevant characteristics of the Garinagu. These two concepts are the keys to the philosophy of life held by this group. Behind the scenes, both the 'Island Carib' spirits and the ancestor spirits represent the norms and values of this group.

Finally, the 'Belizean' spirits are not socially relevant characteristics of the group. They belong more to the national socially relevant characteristics. This concept does prove that the Garifuna pantheon is subject to change. Adopting spirits from other Belizean ethnic groups and the disappearance of spirits associated with the sea and tropical rainforests had led to a decline in the importance of typical Garifuna spirits. The latter is caused by a reduction in the number of people economically dependent on fishing or logging. Working for the government, in agriculture and paid work on plantations are more attractive alternatives. These changes and the increasing integration of the different ethnic groups in society, leaves the 'Island Carib' spirits as nominees to slowly but surely disappear.

In Belize there are many anecdotes about people who have come into contact with spirits. Nonetheless, these subjects turn out to be difficult to discuss during interviews. I did notice that openness on this subject was dependent on age. An elderly person was more likely to responds than a younger informant was. This topic is also very good for bantering comments from outsiders and people from other ethnic groups. Still, the world of spirits in Belize has a character that is not ethnically bound. Agayuma may be a Garifuna word for river spirit, but other ethnic groups have spiritual phenomena equivalent to it.

In spite of the fact that some concepts, like God, La Sucia, Duendu en Faia Landia, have a character unbound to a certain ethnicity, talking about 'Island Carib' spirits with an outsider is practically a taboo. The Garinagu have two conceptual frameworks. One is based on the subtle internal assumptions of faith. The other, used during contact with outsiders, is based on the generally accepted religious ideas. Internally, the Garinagu are more likely to speak of iuani, while externally they will use the term soul. The concept of the soul is related to heaven and hell. Someone who sells his or her soul to the devil will go to hell. This concept is only partly true for the Garinagu who do have a heaven as proposed by the Catholic Church, but not a hell. This creates an internal conceptual framework that is not necessarily the same as explanations given to outsiders.

One's death can serve as the start of several visible burial and therapeutic rituals, with the emphasis on 'can'. Whether a family participates in these ancestor rituals is dependent on a number of factors.
First, faith plays an important part. During my research in the field, it turned out that members of the Catholic Church have more affinity with the cult of the dead than the Protestants. The therapeutic rituals are especially seen as superstition by the latter. In some conversations it was commented that these rituals are initiated by the devil. These informants even seemed to have a certain fear of these rituals. In Spite of this rejection, there are enough examples of Protestants participating one of the therapeutic rituals.

Besides religion, socio-economic factors can be a reason for refraining from rituals honoring ancestors. Someone with a high socio-economic status will not easily let himself be tempted to be active during these rituals. The choice of participating in a dugu or not is, among others, determined by one's social position. The consideration of the chairman of the National Garifuna Council for example, will be different to that of a Garifuna with a high position in government. Because the chairman of the National Garifuna Council has a function in which his involvement with the socially relevant cultural characteristics of his ethnic group is at the center, this person will not trivialize honoring ancestors. The former 'grassroots' chairman of the Council, Pablo Lambey, was clear in his participation of the dugu.

On the other hand, Garinagu with public positions centered on the nation building perspective will place more emphasis on the multi-ethnic nature of Belize than on the socially relevant cultural characteristics which distinguish their ethnic group

from other ethnic groups. However, this does not mean that they deny their ethnic background and describe the rituals honoring ancestors as a dubious sort of superstition. They have strategic motives for their attitude, which are a result of the situation which they are in. It is especially the negative ideas that other ethnic groups have about rituals like the dugu that forces these people to act cautiously.

One's sex is also an important factor determining participation in rituals that honor ancestors. Kerns notes that women are much more active participants at the dugus than men are (Kerns 1989). This idea was confirmed during my research. Men are present, but only on the sidelines, and besides those most directly involved, most are ambivalent on the importance of a dugu.

During my research, conversations about belief in ancestors also turned out to be quite tedious. There were one or two people who were open about the fact that they believed in ancestors. Others told me that they did not want to have anything to do with it at first, but that certain events finally made them believe. Some of those questioned let me know that they did not get involved in the rituals. Most of the informants did not wish to express their opinion on the matter. Luckily, they always knew someone who did believe in ancestors. People in Dangriga were more hesitant to share their opinion than those in Hopkins were. The longer I remained in the area and showed that I was honestly interested in their culture, the easier and more open these conversations became. However, a certain reluctance continued to exist. This reluctance had to do with the we-they distinction.

Burial rituals, like the wake, the novena, the beluria and the requiem mass are originally not typically Garifuna. The influence of the Catholic Church is easy to recognize during these rituals. Therapeutic rituals such as the dugu however, are characteristic for the Garinagu. Up until well into the sixties, these rituals were condemned by religious establishments, and especially the Catholic Church, as devil worship, vulgar and heathen (Foster 1984:11 and 1986:8; Kerns 1989:35). Furthermore, until half-way through this century, the Garinagu were described as barbarian and uncivilized on every possible occasion (Forster 1986:8 and 13).

It is understandable that a Garifuna will speak more openly of the Catholic element and the Caribbean aspect of the religious system than of a part that has been ridiculed by the they-group in various ways and has even been condemned

as reputable by the Church (Cominskey 1966:27; Foster 1984:11 and 1986:8; Stephens 1969:28). The individual informant is cautious in his statements about believing in the 'existence' of ancestors. However, it is no problem for an outsider to attend a dugu. It can be done when the family organizing the dugu invites the person. The ancestor requesting the dugu must approve of this through the buyai. It is also possible to be a spectator of the ritual. The various openings, such as the two windows on both sides of the temple and the various entrances, make it possible to get a good idea of what happens during this ritual. In practice, most of the spectators are Garinagu from the neighborhood that are not directly involved. It struck me that there were hardly any people from other ethnic groups in Belize watching the dugus at which I was present. This could be caused by the negative ideas surrounding shamanism and the cult of the dead reigning among most of the other ethnic groups Belize.

During the dugu, it seems as if the participants push their own opinion aside and let the collective interests prevail. This underlines the social relevancy of the dugu. The intrinsic value of this ritual honoring ancestors is that it shows how important the communality of the Garinagu is. This communality is based on the relationship between past and present and is also an expression of the collective identity of the ethnic group.

The discrepancy that can arise between the answers of individuals and the collective expression during, for example, rituals, remains a difficult aspect in research on socially relevant cultural characteristics. No one is secretive in regard to the wake and the nine-night wake or the beluria. The idea of respect for the deceased and his close family takes in a central place at the wake. By going to a wake, one shows respect for the deceased, even if they do not belong to the same ethnic group. The beluria is open to all and 'outsiders' are all but declared crazy if they do not attend this 'festive' ritual.

The hospitality and the openness of the beluria are different during the dugu. A representative of the they-group is tolerated during this ritual. The elderly and the buyais are generally more open and less suspicious than the young and middle-aged participants and spectators are. During my research, I was a spectator at five dugus. Two in Hopkins and three in Dangriga. Both in Hopkins and in Dangriga, it was forbidden to take photos or record it on video. In his book Heart Drum, Foster (1986) has four action photos of a dugu. How he managed this is unknown to me, but as far as I know the four photos are unique. The

accessibility of the dugus was greater in Hopkins than in Dangriga. It is my experience that I was less at ease in Dangriga than in Hopkins. For example, in this village I was never badgered during a dugu. In Dangriga, where the temple is in 'backa town', people were much more suspicious of the curious baranagüre, the Garifuna word for a white person from overseas. This statement is based on my own subjective observations. However, it remains striking how open the participants of dugus in Hopkins, especially the elderly, were when I asked them for information. These informants usually proudly responded to the question with a wide smile on their face. On the contrary, the participants in Dangriga were closed and not very interested in providing information on the dugu. For inquiries regarding the content, they referred me to the buyai.

In Hopkins, I generally went to the temple alone. People in Hopkins even asked if you were coming to the temple in the evening to attend the ritual. In Dangriga, various Garifuna inhabitants advised me not to go to the temple in 'backa town' alone. It was too dangerous for a baranagüre alone, especially at night. A sketch from my diary illustrates a situation in which I did not feel at all comfortable as a spectator of a dugu in Dangriga.
'On Wednesday morning at about 7 o'clock, the temple was one again quite full of participants. During this last day, a few ritual dances were performed, among which the spectacular mali. The sphere seemed quite tense to me. How different it was to the dugu I was allowed to watch in Hopkins a few weeks ago. I noticed that a few people from Hopkins were present in the temple. The mother of an informant from Hopkins greeted me with a friendly smile.

On this last day, several people were in trance. The buyai had difficulty moving through the crowd. The drummers, among whom the daughter of the executing buyai, still seemed to be quite fit. This female drummer was a remarkable appearance. At the least, her presence meant that drummers performing during a dugu do not have to be male. Most striking was that there was a man actively participating in the mali, and at the same time he was in trance. He primarily occupied himself with several women in trance. I do not know exactly what he was doing, but he tugged on these women no matter what their age. And as if that was not enough, he argued with everyone who came near him and also swore at them. The buyai and the drummers left him alone. The ancestor who revealed himself through this man must have had a dire character and/or have been extremely disappointed in his offspring. Just when I came to the conclusion that I

found him quite aggressive, he set his sights on me. He took a gulp from the bottle in his hand, stumbled to the open window through which I was watching and spat the white rum from his mouth straight into my face. Three elderly women sitting on a bench near the window of the temple looked at me somewhat pityingly. Their only comment was: Hey you, white man, why don't you take a step back?'. I had thought of that myself by then.'

The difference in attitude has to do with the position taken in by the village of Hopkins and the city of Dangriga in the region. There are primarily Garinagu living in Hopkins. It is their ethnic 'territory '.

Belize

The inhabitants do not have to worry about the moral ideas held by other groups. In Dangriga, there is a Garifuna majority, but the other ethnic groups have a much more important role in daily life than in Hopkins. This leads to the fact one must pay more attention to factors like discrimination, moralism and mutual ethnic prejudices. Result is that people are more cautious in providing information on specific subjects like the dugu when they come into contact with members of other groups.

Nonetheless, the dugu is a 'visible' ritual. Information on the execution or coming of a dugu is openly given in Dangriga. This is not the case for the amuiadahani, the washing or cleansing ritual. This ritual is more intimate, and only the most directly involved are present. The amuiadahani is performed before the start of the rhythm of daily life. In spite of the fact that individual informants may deny their participation of the ritual, the general idea of the dugu can be discussed.

However, the amuiadahani can not, unless the person who is talking is known as 'grassroots'.

A contradiction is intertwined in the religious system of the Garinagu, namely mourning versus the 'keeping alive' of the spirits of the ancestors. It is striking that all of the rituals in which the influence of another religious system dominates – the wake, the funeral, the novena, the nine-nights wake and the end of the period of mourning – have mourning and the controlling of emotions as point of departure. In other words: learn to live with the fact that the deceased is no longer with us and make sure that they do not come back. The total opposite of this is the fact that every ritual with the traditional Garifuna faith as point of departure underlines the importance of the wishes of the ancestors. They have to be washed. The ancestors have to eat and be offered a feast in which they are present and can dance along using another's body.

Furthermore, the Garinagu sing directly to their ancestors during such rituals. This in contrast to the Christian rituals in which God is asked to grant the deceased, with whom they no longer have any direct contact, absolution. Therefore it is not so strange that these two fundamentally different doctrines clashed for a long time. Up until the sixties, the Christian establishments wanted to have nothing to do with the cult of dead. At the beginning of the seventies, a female buyai decided to provoke the Catholic Church, who shielded the largest group of Garinagu alive. Pablo 'Paps' Lambey's version of the incident is as follows:
'There was a time in the sixties or seventies when the Catholic Church literally attacked our religion, our dugu. In the church, out the church, anywhere they attacked it. So, there was a day, a Sunday, our buyai went to church. The blue eyed padre from up there saw her and he decided that he would use a ceremony against the dugu. And then he attacked the buyai personally from his pulpit. And the buyai got up to abandon the church. When she got by the door she turned around and told the padre: 'Thou shall not be a false witness against their neighbor' and she walked out.

After that, I don't know what went on. I know they were invited, the Catholic priest, the nuns and everybody to our temple, our dubuyaba to prove what they were talking about. And when they go there the buyai was already prepared. So she decided, okay, let's do a mali. And then the drums started rolling and then she opened the curtains of the sanctuary and she do her thing, whatever she did. That is not of my business, even if I wanted to know, I did not know.

That padre went into his pocket and hallowed his whatever he put around his

neck, that shale looking thing, and he went and kneeled by her side. And when he come out there he and all the nuns were dancing on the tune of that damned drum. So it was from that time on, it went on to a point that we took our drums into the church.

That was only the Catholic Church then, now we take our drums into any church. We take our drums anywhere, because the drums of my fathers is our strength. The drums of my fathers, the food of my fathers those are the things that has kept us going'.

This historic moment contributed to the public continuance of one of the socially relevant cultural characteristics, the legal existence of rituals honoring ancestors in Dangriga. It is imaginable that this maneuver by the buyai has effected other areas in Belize where the Garinagu wish to legally use rituals in which contact with their ancestors is expressed. Instead of threatening religious devaluation, in which the traditional religious characteristics completely disappear to backstage or slowly but surely loose their right to exist, it is a case of upgrading. The consequence is that an intrinsic cultural characteristic of the Garinagu is not assimilated by Christian establishments, but that syncretism arises. Through this, the collective ethnic identity and, in this context, especially the religious aspect of the Garifuna culture is still self-determined.

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Event-Empowering Cities Under the New Administration

The NYUSPS Schack Institute of Real Estate Urban Lab's formal kick-off event,

“Empowering Cities Under the New Administration,” was held on February 2, 2017 and featured *Richard Florida; Jonathan Haidt, Thomas Cooley* Professor of Ethical Leadership at the NYU Stern School of Business; and *Benjamin Barber*, founder and president of the Global Parliament of Mayors. The panelists debated the challenges cities face in engaging with the new administration and how they can support urban innovation in the context of a more complex political environment.

Go to: http://www.sps.nyu.edu/empowering-cities-under-the-new-administration.html