

Biological Aspects of the Historical Urban Development of Jochi Ulus (Latter Half of the 13-14th Centuries)

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Abstract: This study deals with the issues of both influence of the Horde cities on the environment and changes in the structure of such cities. Based on these results, the researchers have concluded that intensive economic activity of the population and authorities of the Jochi Ulus had predetermined a collapse of the Golden Horde in the latter half of the 14th century. The researchers of this study believe that the characteristic feature of the economic and political center of the political formation of the Lower Volga region was a quite unstable ecosystem. An intermittent rainfall and transgression of the Caspian Sea are those several features that characterize the nature and climate of the region. Large wooded areas of ravine and floodplain forests made it possible to wait out adverse climatic periods quite comfortably until active urbanization started under the reign of Uzbek Khan. However, the massive deforestation of these areas directly led to a change in the migration routes of steppe rodents first and then the emergence of a new form of plague. The latter caused a mass migration of the population followed by the destruction of the Golden Horde main cities.

Key words: Jochi Ulus, major climatic axis of Eurasia, conflict zones, "quasi-gates" in the global economic system, the Great Silk Road, the climatic optimum, ravine and floodplain forests, the Crimea, Rus, Khorezm, Lower Volga region, Karakorum, Sarai-Berke, Tokhta khan monetary reform, central regions of Jochi Ulus, Venice, Genua, urban policies of Uzbek khan, environmental disaster, the Eurasian fault, mass migration of steppe rodent, plague epidemic

INTRODUCTION

In the second half of the 13th century, Mongol khans succeeded to unite vast territories of the Western Eurasia steppes with the help of a strongman. The Jochi family became a ruler of an immense territory that stretched from the River Danube in the West to the River Irtysh in the East from Derbent and Khorezm in the South to the Kama region and the Chulym region in the North. According to Arab geographers, the total length of the "kingdom of Khorezm and Desht-i Kipchak" was 800 farsang and the width was 600 farsang (Tizengauzen, 1884). Despite such enormous size and originally centralized power of the Horde Khans, the unification of territories of into Ulus Jochi into a single state system took about 70-80 years.

Under these circumstances, it was necessary to establish both a viable state system and centers for governing the state.

CAUSES AND BACKGROUNDS FOR URBANIZATION IN THE GOLDEN HORDE

Historians give several reasons justifying the long duration of this process. Natural and climatic environment is considered one of the most important reasons. The researchers of Jochi Ulus (Gumilev, Aleksin and Kulpin) concluded that the territories of Desht-i-Kipchak, located in between the 48° and 52° latitude North are constantly exposed to temperature extremes (Mordkovich *et al.*, 1997). In addition, one of the major problems of the steppe

is an unstable precipitation. About 80% of uneven precipitation falls out in summer. Whereafter, there may be a long period of drought.

All these natural and climatic features have contributed to the formation of a unique poorly wooded landscape and as a result, a specific seasonal agriculture. It should be also noted that the effective implementation of the latter was possible only in a narrow strip of land, stretching from the town of Kyzyl to Sekeshfekhervar named in the scientific community as the major climatic axis of Eurasia. This axis serves as a wind divide on the mainland, separating more settled areas with a temperate climate in the North from the nomadic areas with a continental climate in the South (Kulpin, 2004). We should note here the greater dependence of the Southern areas on climatic changes and water recourses (Ivanov and Lukovskaia, 1997).

The number of ungulates plays one of important roles for a steppe. According to our domestic researcher S.A. Balandin, an anthropogenic disturbance of natural population of ungulates can disrupt the fragile natural homeostasis of a steppe and lead to irreversible consequences. Even despite the great recreational opportunities of the steppe biome in restoring the original form of the steppe, this particular characteristic occurred to be an environmental weak spot of the steppe civilization of the Golden Horde that could lead to its collapse (Ivanov and Lukovskaia, 1997).

Historians give another reason hindering the development of integration processes which is a difference in developmental levels of the political culture and the economic relations of the territories included in the Golden Horde. While the Crimean, Bulgarian, Russian and Chorasman lands had a quite high level of political and economic development, the same was low enough in others subservient lands and was limited to a small period of state formations that existed within these territories (Khazar, Western Turkic and Avarians kaganats).

The third reason was conflict zones along the borders of the Jochi Ulus that were drawing out the considerable human and financial resources from the central areas. As a result, this increased centrifugal forces in Desht-i-Kipchak.

A zone most conflict for Jochi Ulus was the South Caucasus located directly on the border with Persia. This was the region where interests of several major players (Persia, revived Byzantine Empire, Crusade kingdoms of the Peloponnesian peninsula, Genoa and Venice) were intersecting. It therefore, provides an explanation for difficulties the Horde had faced when established its authority over the most important local cities (Nakhichivan, Maraga and Tabriz) (Iskhakov and Izmailov, 2007).

According to the researches, another conflict zone of Jochi Ulus included Western uluses in the interfluvium of the rivers Prut and Dnieper. Its territorial remoteness from the central regions of the country as well as the economic focus on Foreign markets are some of the root causes that led the local Horde officials to pursue a Foreign and economic policy that departed from time to time from the goals and objectives of the central authorities of Jochi Ulus (Egorov, 1985).

The unity of areas of the Golden Horde was complicated by the great number of empty and uncontrolled territories along the entire borderland between the Golden Horde and Rus. In this environment, the khans of the Golden Horde, seeking to establish full control over the entire territory of Desht-i-Kipchak had to create cities as new economic centers in the wastelands. The main task of the new cities was to economically attract both areas of the Golden Horde and neighboring territories. However, according to the typology of cities by Braudel-Wallerstein, new cities established by the khans of the Golden Horde were rather a kind of “quasi-gates” in the global economic system (Braudel, 1974). Although, these cities were similar in terms of international trade to the classic gate-cities in Western Europe and could even become economic leaders for a short period of time. However, unlike the latter, the economic development of the cities depended completely on quite “strong personal contacts with the authority hierarchy,” rather than on the development of cooperation through fiscal and administrative methods between the commercial and financial center and its exploited province of Chora (Sergeev and Kazantsev, 2004). As a result of the reduction of transaction costs (collection and processing of information, acceleration of the negotiation process, removal of all kinds of economic barriers, the legal protection of foreign merchants in the territory of the Golden Horde), virtually all international trade in the cities reduced often to a simple exchange of resources. Thus, the cities of the Golden Horde could develop economically only as a major trans-shipment points and only with the help of a powerful authority of the “charismatic rulers” of Jochi Ulus (Abu-Lughod, 1989).

The researchers consider geographical location of these cities to be another specific feature of the development of the Golden Horde settlements. The availability of water resources and the possibility of shipping directly dictated the foundation of new cities to the rulers of the Golden Horde. Therefore, it was no mere chance that all new cities had arose on the banks of the large navigable rivers. No one knows whether there was a common development plan for the cities. However, the

initial focus of new settlements on the Great Silk Road and the lack of defensive structures in these cities allowed the rulers of Jochi Ulus to ensure safe and sustainable development of the national trade (Kulpin, 2004).

According to V.L. Egorov, urban development in Desht-i-Kipchak took several steps:

- Period of recovery and use of the old towns that existed prior to the Mongols invasion in 40s of the 13th century
- Beginning of urban development in the steppes under the reign of Batu, the first half of 50s of the 13th century
- The rise of urban development under the reign of Berke latter half of 50s first half of 60s of the 13th century
- Period of slowdown in the urban development 70s of the 13th century until 20s of the 14th century
- Golden age of urban development under the reign of Uzbek and Jani Beg 20-60s of the 14th century
- Decline in the urban development 60s of the 14th century until 1395

Generally, his idea about that every period of urban development in the Golden Horde reflected the main course of political and economic development of the country at a certain stage, seems to be objective enough (Egorov, 1985). However, it does not provide a complete picture of the development of the Golden Horde cities. The researcher principally emphasizes the economic determinism in this process.

Drawing on the new archaeological and source findings, we can consider the development of the Golden Horde cities at different stages in a bit different manner.

An important impetus to the creation of new cities was the construction of Sarai-Batu the first capital located on the Lower Volga. However, the development of the new capital was a political action rather than the development of internal economic relations of the Golden Horde. A Franciscan friar Plano Carpini made a journey around the entire territory of the Golden Horde from East to West in 1246-1247 and did not mention any town built by the Mongols on the way to their capital the city of Karakorum. The horde of Batu Khan is mentioned as to be located in the Cumans' (Kipchaks') lands and on the Lower Volga. The source gives no facts about any other permanent city. The Franciscan friar rather talked about a nomadic horde consisting of tents.

A bit different picture was provided by another Franciscan friar William de Rubruk, who visited the Golden Horde 6 years after Plano Carpini did. He noticed three settlements with a mixed Russian and Saracen

population on the Don and Volga Rivers crossings to be founded at the order of Batu Khan as well as a new administrative center in the Lower Volga region founded by Batu Khan's son, the Christian, Sartak. Unlike the first evidence, the horde of Khan now was a large city located on an active trade route. However, the source provides no exact information on the location of the Golden Horde capital.

Archaeological excavations, conducted in the latter half of the 20th century, allowed determining the location of the city near a modern village Selitrennoe in the Astrakhan region. It gives rise to doubt that a new city that occurred in the deserted areas of the Lower Volga region could be founded only due to trade development. It would be extremely difficult to do this without a strong central authority. Therefore, we can identify several prerequisites when analyzing a new capital of the Golden Horde.

According to the scientists, one of the major prerequisites for a new city to be founded in the desert is a favorable geographical location for new towns. Central regions of Jochi Ulus (the Crimea, Lower Volga and North Caucasus) traditionally were the crossing regions of the main transcontinental trade routes since antiquity.

Another important prerequisite could be the presence of rich mineral deposits and construction materials (clay and wood). As can be seen from the studies by domestic geographers and archaeologists G.N. Vysotskii, L.S. Berg, B.A. Keller, G.G. Matishov, N.P. Kalmykov, A.S. Rulev and many others, the territories of Lower Volga region, the North Caucasus and the Black Sea steppes was rich in forests during the establishment of the Golden Horde. This is evidenced by numerous finds of the bones of forest animals and birds, ash and multiple residues of birchbark, wooden items, floorings and coverings (Artamonov, 1937). We should note, however, that there were mostly ravine or floodplain forests along the waterways, slopes, watersheds and ravines. Such forests usually have low bonitet and small-sized vegetation. Due to local adverse climatic conditions, the latter directly depends on the groundwater level which in turn, determines its importance for the formation of the local microclimate (Rulev, 2013).

Information by Fedorova (1954) and Matekin (1950) on semi-fossil ground malacofauna of the Lower Volga and North Caucasus complements the findings about the widely distributed forests in the South of Russia (Fedorova, 1954).

The presence of large wooded areas near the Golden Horde centers promoted the urban development, yet at the same time made such cities dependent upon large-scale wood supply. However, a steady climatic

optimum of the steppes of Desht-i-Kipchak (Matekin, 1950) and targeted urban policies of the Horde Khans starting from Berke directly contributed to a sharp economic rise of the Golden Horde cities. Time delay in the development of the Horde cities in the latter half of the 13th century was largely due to internal political conflict with Nogai Murza, a powerful ruler of the Western uluses of the Horde, rather than the wish of khans to continue Berke's policy of Islamization of Jochi Ulus. At the same time, we should note that the final inclusion of the Horde cities in the world economic system falls at this period. According to many historians, the Great Silk Road is commonly believed to be a backbone of the latter.

ECONOMIC RISE OF THE GOLDEN HORDE CITIES

The already existing Khorezmian, Bulgarian and Crimean cities of the Golden Horde were the first to experience the economic effect of this inclusion. They quickly turn into large trans-shipment points for Eastern and European goods. This was mainly explained by a deliberate policy of the Horde khans, who managed to expand their business relations by establishing close diplomatic contacts with Mamluk Egypt, Genua and Khulaguid Iran. Not least important was the distribution of so-called "tsar's letters" to Novgorod and Suzdal merchants that greatly expanded contacts with European counterparts (Ryskov *et al.*, 2006).

A direct consequence of this policy was the development of overland routes in the Golden Horde and the rise of urban development in the old urban centers (Khorezm, uluses of the Crimea and Bulgaria, Russian principalities), rather than the explosive economic growth of the Golden Horde cities. Archaeological excavations have spoken to this fact. At that moment, the Golden Horde cities proper were a mere cluster of yurts and tents, or rarely, stationary constructions. The Golden Horde cities of the latter half of the 13th century either lacked or had a quite low level of cultural layer as opposed to the cities located in the old urban centers (Nedashkovskii, 2010). This keeps archeologists out of arguing about both the significant economic activity of the urban population and, as a consequence, active anthropological impact on their neighborhood.

The consolidation of power carried out by Uzbek Khan and his son Jani Beg in the early 13th century brought the significant changes into the Golden Horde cities. First, the interest of central authorities of Jochi in the sustainable development of trade contributed directly to the formation of the whole industry of the Horde's economy based entirely on the

transshipment trade in European and Asian goods. According to G. Fedorov-Davydov, a premier domestic researcher of the Golden Horde, the important element of this industry was a strictly centralized system of trade routes control involving a group of Kipchak languages interpreters, horse and camel herders and roosting places (caravanserais) equally distributed along the trade routes. However, one of the main elements of the trading system of the Golden Horde was a stable entry fee of 3% that had not been revised until the second half of the 14th century (Zeleneev, 2010). We should note that the success of the Golden Horde economy was entirely related to the monetary reform implemented under the reign of Tokhta Khan in 1311. As a result, the official exchange rate of dirham became fully dependent upon market prices for precious metals contained in the coin (gold, silver and copper). This approach to the monetary system of Jochi Ulus was an essential prerequisite for cashless payments throughout the entire territory from Europe to India (Zeleneev, 2010).

The stability of the financial system of the Golden Horde both contributed to the sustainable development of the domestic market and enhanced Foreign relations with major trading partners in Europe and Central Asia. This has led to the formation of two major transcontinental overland trade routes in Jochi Ulus in the first decade of the 14th century: from the West to the East the Great Silk Road with the branch routes in the Caucasus, the Carpathians and the Crimea from the North to the South with a branch route on the Dnieper and Volga Rivers, linking Northern Europe, the Russian principalities and Great Perm across the Caspian Sea together with Persia and the Middle East.

This led to that the Venetians and Genoese took interest in these cities of the Golden Horde. As a result, there occurred 38 Italian trading posts in the Black Sea and Bessarabian steppes, two of which Kaffa (Feodosiia) in the Crimea and Tana (Azov) at the mouth of the Don River quickly became the economic centers of attraction of the surrounding lands on a par with the cities of the Golden Horde (Kramarovskii, 1997). The further economic growth directly contributed to the foundation of a large number of new cities of the Golden Horde on the banks of major rivers in the Black Sea and Azov basin in the first half of the 14th century (Ryskov *et al.*, 2006).

Moreover, we should note that a similar burst of urban development was observed everywhere in the Golden Horde. Large urban centers were arising in the sparsely populated areas: the city of Naruchad (Muhsha Ulus the Sura and Sviaga interfluvium) (Fedorov-Davydov, 1973); the city of Staryi Orkhei (the Prut and Dniester interfluvium); the city of Shekhr al-Jadid (left bank of the

Dnieper); the city of Azak (mouth of the Don river); the city of Majar (the North Caucasus); the city of Saraichik (right bank of the Ural River) and numerous towns and villages in Siberia and Central Asia. According to V.L. Egorov, there were about 110 cities of the Golden Horde in the early 14th century. The localization of 30 settlements specified in the Genoese and Venetian maps of that period cannot be determined due to the lack of archaeological study (Egorov, 1985).

Based on the analysis of the Italian medieval maps, the cities located in the central areas of the Golden Horde became main political and economic centers of Jochi Ulus by the early 14th century. This was due to the restoration of the Byzantine Empire and the time of peace in the Mongol Empire during that period.

The further development of trade led to a complete transformation of the Golden Horde cities. The proclamation of Islam as the official religion of Jochi Ulus by Uzbek Khan played a certain role in this process. Nevertheless, the upper circles of the Golden Horde continued to maintain and cultivate their Mongolian origin. Therefore, there are features of both nomadic and eastern cities clearly traced in the Horde cities of the Lower Volga region. For example, the researches investigating Sarai al-Jadid (Tsarev site), a new capital of Jochi Ulus, distinguish two areas, namely a trade and craft area with residential blocks and streets and an affluent area with independent manors. According to G.A. Fedorov-Davydov, this layout resembles the one of the Mongolian capital Karakorum and the architectural planning of the houses of the nobility and the Khan's palace with South-North orientation preserves generally, the traditions of the Mongolian architecture (Fedorov-Davydov, 1994). We should also emphasize a serious increase in the number of urban buildings made according to Islamic traditions of the Middle East (Fedorov-Davydov, 1997). Historians attribute this phenomenon to the increased number of prisoners from Muslim regions of the Caucasus and Central Asia during the war between Persia and the Golden Horde in the second half of the 13th century.

ECOLOGICAL CATASTROPHE OF THE SECOND HALF OF THE 14TH CENTURY

Sharp increase in the urban population of the Golden Horde had both positive and negative consequences. On the one hand, there were significant changes in the intellectual and everyday culture which helped to accelerate the formation of urban estates in Jochi Ulus (Nedashkovskii, 2010). On the other hand, the sharp increase in immigrants from very different climatic zone

caused rapid environmental changes in the Lower Volga region. Active urban development at the climatic optimum peak led to a sharp reduction in ravine and floodplain forests and further to the acceleration of soil erosion and a sharp drop in the ground water level against the heavy salinization of soil and spread of sand masses from Central Asia. This fact is confirmed by analysis of soil and halophyte vegetation of the Middle and Lower Volga regions, conducted in 1994-2005 by T.M. Lysenko, a senior research associate of the laboratory of phytodiversity, Institute of ecology of the Volga River basin of Russian Academy of Sciences (Lysenko, 2012).

By late 30's of 14th century, the situation was exacerbated through the worsening of climatic conditions which in turn was accelerated the adverse effects in agriculture.

Active deforestation of the Lower Volga region and Northern Caucasus resulted in unprecedented spread of sand masses from the desert areas. The situation began worsening due to accelerated transgression (increase in level) of the Caspian Sea and desiccation of climate in the Lower Volga region, characterized by a sharp decrease in the amount of precipitation in summer, dry and frosty winters and a sharp reduction of agricultural areas. All this eventually led to famine and urban depopulation. This stroke a severe blow to the economic bases of the Golden Horde (Iskhakov and Izmailov, 2007). However, it was only the tip of the iceberg. The more dramatic changes took place near the Golden Horde cities. Food shortage in the steppe directly contributed to the mass migration of steppe rodents which further resulted in occurrence of a new form of zoonotic diseases. New waves of rodents migrating from the Middle Asia led to the mutation of the bubonic plague which was rampant in the Eurasian fault of the Lower Volga region to its pneumonic form (Makaev, 1988).

The situation was exacerbated by the changeable climate that contributed to the expansion of areas affected by a parallel outbreak of other epidemic diseases (cholera and typhoid). All this eventually led to catastrophic consequences involving a great plague that killed a huge number of people and animals (Barash, 1989).

Rounding Europe in 1352/1353, plague appeared again in the territory of the Golden Horde. Later, a plague repeatedly occurred in the territory of Jochi Ulus: in 1360/1364, 1367, 1374/75, 1382 and 1396. Researchers associate the repeated pandemic outbreaks in the Golden Horde lands with the activation of the "relict Northwest" and North African foci on the North and Baltic Seas seaboards and within the territory of present Algeria. The activity of three natural foci led to the constant outbreaks of plague within the territory of Jochi Ulus that were

changing political, religious, cultural and ethnic composition of the state beyond its recognition (Sukhopnitskii and Supotnitskaia, 2006). However, Russian chronicles, being the only written sources that throw light on the epidemic focus, directly point to the original hotbed of the disease located near Beljamen, a city of the Golden Horde in the Lower Volga region as well as to the spread of two forms of this disease (bubonic and ulmonary).

By the beginning of the 15th century, most of the Golden Horde cities were destroyed or became political centers of the new states. However, the destruction of vast wooded areas in the Lower Volga during the Golden Horde times allowed them neither to recover their previous state, nor to start actively influencing the political and economic situation of the East European Plain as was formerly during the Jochi Ulus times.

SUMMARY

The study has shown that cities were the one of the important elements of the state system of Jochi Ulus. Their formation and development were directly related to a favorable geographical position and a deliberate policy of the Golden Horde khans. Ravine and floodplain forests used to play one of important roles in the activity of such cities. They provided the Golden Horde cities with vital resources in the form of wood and the naturally protected local groundwater and agricultural areas from erosion and sand masses spreading from Central Asia. Active deforestation, caused by improper human activities, accelerated greatly the crisis processes in the Lower Volga region that further worsened and resulted in the outbreak of the Black Death in the second half of the 14th century.

CONCLUSION

Pedologic, climatic and environmental studies by the domestic researchers of the second half of the 20th century have proved the existence of large wooded areas in the Lower Volga and the North Caucasus steppes in the Middle Ages. The forests made possible the functioning of local ecosystem despite the sharp climatic changes. Virtually before the 14th century, the Golden Horde cities had a minimum influence on the ecosystem. Most of them were nomadic settlements with a small number of permanent buildings usually being public ones (prayer houses, saunas and palaces of the rulers). Islamization of Jochi Ulus which started after the rise of Uzbek Khan to power in the early 20th century, accelerated the further urban development in the Golden Horde. Direct

consequence of this process were a modification of urban development policy of the Golden Horde authorities:

- The mass development of new cities in the poorly populated areas
- A large number of permanent buildings with the features of both Mongolian and Oriental architecture appear in the Golden Horde cities

The central regions of the Golden Horde were experiencing a construction boom and a sharp increase in the population just in a few decades of the 14th century. All this strengthened the human impact on the environment and led consequently to the irreversible processes: desiccation of steppes and spread of desert sand masses from Central Asia. Large wooded areas of ravine and floodplain forests helped to neutralize these negative processes. Hazards became already apparent in early 1330. Active deforestation of the Lower Volga region led to both visible changes in the ecosystem of West-Eurasian steppes (waterbody drying, salinization of fertile agricultural areas of the Lower Volga region, the spread of deserts) and a new and more dangerous pneumonic plague resulted from new wave of rodents coming from the steppes. Direct consequences of these processes were famine, pestilence and population migration from the Golden Horde cities.

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