

VILNIUS UNIVERSITY
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**EVOLUTION OF POPULATION OF LITHUANIA'S
TERRITORY IN THE 1st–12th CENTURIES AD**

Summary of Doctoral Dissertation
Physical sciences, geography (06 P)

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INTRODUCTION

Research problem

Ethnogenesis of Lithuanians as that of many other Central European nations was especially complicated. Migrations at the end of Late Pleistocene and Holocene, innovations changing the lifestyles of local residents, interaction of various cultural groups and their adjustment to the local physical environment were dynamic processes. Though the territory of the present day Lithuania is small the dynamics of ethnogenesis and the structure of territory population were chronologically and spatially uneven. The foundations for emergence of naturally integrated regions were laid in the glacial period. It was then that the melting large glaciers transformed the Lithuanian landscape and created unique constantly developing ecological niches. The animate nature and man occupied them, adapted to them and synchronically developed themselves. Basically, *Homo sapiens* species is subject to the same laws of the theory of adaptation as are other representatives of animate nature. True, today this dependence is not as strong as it used to be. Yet in the time frame under consideration (before the emergence of Lithuanian state in the 13th century), the links between man and physical environment were very close. The specific environment predetermined the specific relation between man and environment, the specific land use and the specific world outlook, i.e. the specific material and spiritual culture. It predetermined the differences of the development and structure of territory population by cultural divisions. In the course of time, the cultural divisions within the surrounding physical environment would develop into an integral spatially differentiated system – ethnogeocenosis – where cultural variance of ethnos was integrity index.

The relevance of the study

Population of territories and system links between humans and environment always have been an object of interest for researchers. It is easy to investigate the present systems of territory population. The ample information, comprehensive databases, relevant methods and technological achievements (GIS technologies, technologies of developing and managing databases, etc.) expand the possibilities of scientific research. Investigation of the prehistoric systems of population is a considerably more complex task. Time dims memory and new physical and cultural layers hide the traces of human activity. Of course, long-term archaeological and regional studies slightly remove the curtain from the past events. Yet much is hidden or has been irremediably destroyed by nature and human activity. It can be stated that the available data about the prehistoric (not recorded in written sources) human activity are scanty. Archaeology and historical geography are full of assumptions and conflicting hypotheses. However, rich databases of archaeological studies and modern data processing technologies (GIS, etc.) allow carrying out generalising studies which were impossible two decades ago. According to employment of GIS technologies, Lithuania is still behind the advanced countries. This can be accounted for not only by technological lag and poor financial resources but also by human factor. The lack of attention from research institutions to assimilation of digital technologies and staff training and little interest taken by representatives of human sciences in the new technologies are responsible for that most of scientists using GIS technologies are self-taught. For application of GIS programs it is essential to have at least minimal skills of working with databases. Unfortunately, Lithuanian universities

pay too little attention to training these skills. Recently, the situation has been rapidly changing: since 2009, master students within the Vilnius University programs of heritage preservation and archaeology have had a possibility to choose optional subject “*GIS and information technologies in heritage preservation*”. Increasing numbers of Lithuanian archaeologists successfully apply GIS technologies and compile individual databases. However, it should be pointed out that these databases are narrow (include only small investigated regions and chronologically short time segments) and inaccessible for wider users. For this reason, the author of the present study had to create a scientific GIS database, which would encompass the data from the entire territory of Lithuania related to the timeframe 1st millennium BC – 2nd millennium AD, and use it as a basis for a detailed analysis of the systems of population of Lithuania’s territory.

It is important that in this context interdisciplinary studies become increasingly important. Every phenomenon, including the archaic anthropogenically transformed landscape, is viewed as a part of a system. Archaeologists more and more often apply cartographic analysis and mathematical statistical methods common for natural sciences. On the other hand, the so far traditional objects of archaeological studies (traces of past human activities) more often attract the attention of scientists engaged in other fields of research. This trend which for a few tens of years has been popular in the West is gradually making its way into Lithuanian scientific studies. This is predetermined by the necessity of regionalization of territories required by regional policy. For this reason, investigations of small territories (geographically defined regions; micro-regions) often also bear applied character. Regrettably, the administrative institutions responsible for optimal legitimation of regionalization of the country often ignore the results of scientific research and divide the country into regions often disregarding the naturally established geosystematically integral natural-social-cultural regions. In spite of the context, distinguishing of geosystems and investigations of their integrity are indispensable hoping that in the future the attitude of administrative institutions towards the regionalization of Lithuania’s territory will change.

Research object

In a general sense, the research object encompasses integral natural–social–cultural geosystems (*ethnogeocoenoses*). *In a narrow sense*, the research object is the development of the systems of Lithuania’s population in the Iron Age (the 1st–12th century AD).

The aim and objectives of the study

The strategic aim of this study is to contribute to development of archaic population systems in the territory of Lithuania based on the possibilities provided by GIS technologies. *The specific aim of the study* is to carry out a comparative causative analysis of population systems in the territory of Lithuania in the 1st–12th century AD.

For achievement of the indicated aims, the following tasks were set:

- 1) To develop a scientific GIS database of archaeological sites dating to the 1st–12th century AD;
- 2) To analyse the data for reliability;
- 3) To develop a methodology how to use the created GIS database for investigations of territory population systems;
- 4) To perform genealogical analysis of ethnogeocoenoses’ development and their variances;

- 5) To distinguish different stages of territory population system (for each cultural division) based on the analysis of the history of use of archaeological sites;
- 6) To map and define in the text the main stages of territory population system of each cultural division;
- 7) To show the main features (which influenced the processes of ethnogenesis) of the structural elements (central and peripheral) of territory population systems;
- 8) To show the main differences between the systems of territory population of East Lithuania and the rest of Lithuania and to highlight their causes.

Scientific novelty of the study

Scientific novelty of the study is mostly noticeable via the following characteristics of the research technique, methodology and results:

➤ A comprehensive GIS GDB of archaeological sites and find spots dated to the 1st millennium BC–the beginning of the 2nd millennium AD was created. It stores the data about 2.4 thousand known, mentioned in the sources and destroyed archaeological sites and find spots. The data is mapped and recorded in attributive tables of vector layers. The compilation of this GIS GDB took six years (2003–2009). So far, there has been no GDB of this volume in Lithuania. Therefore, its creation can be evaluated as a weighty contribution to development of archaeology and natural sciences.

➤ The data of GIS GDB about archaeological sites and find spots dated to the 1st millennium BC–the beginning of the 2nd millennium AD were analysed for reliability. Also the data stored in the database were systematized and standardized, i.e. adapted for GIS analysis. This scope of work was carried out in 2010.

➤ A modified and chronologically extended (into the Stone, early metal ages and Middle Ages) variant of this GDB was derived: *GIS layer of pro historic Lithuanian objects* (PROLIGIS) (a part of project “*Evolution of cultural landscape according to the data of archaeology and natural sciences (ARCHEOKRAŠTOVAIZDIS)*” supported by the Lithuanian Science Council and implemented by the Lithuanian Institute of History (LII), Vilnius University (VU) and Kernavė Culture Reserve. It is accessible to other researchers investigating the time frame of the 1st–12th century AD, since 2011 has been used by the Department of Archaeology, Faculty of History, VU, and intended to be used by the Department of Geography and Land Management, Faculty of Natural Sciences, VU and students in their research works.

➤ A large part of the work is devoted to application of GIS technologies for visualization of GDB data and cartographic analysis of the systems of Lithuania’s territory population in the 1st–12th century AD. This also is one of the merits of the present study because until now cartographic visualization and analysis of data have been rarely used in this kind of investigations.

➤ A concept of natural environment and integrity of cultural divisions (*ethnogeocoenoses*) is presented and used as an ideological and theoretical basis for further structural analysis of territory population systems. The differences of population systems and their evolution are analysed concurrently with the natural environment as one of especially important decisive factors.

➤ Making advantage of the possibilities offered by GIS technologies, a comprehensive analysis of chronological development of territory population (by cultural groups localized in the territory of Lithuania) systems was carried out distinguishing their progression, change, stability and regression stages. The present

detailed analysis of population systems over the territory of Lithuania in the 1st–12th century AD has no analogues.

➤ The results obtained by other researchers who have investigated the structural homogeneity of cultural areas and distinguished their kernel areas, peripheries, unpopulated tribal and intertribal, and peripheral areas of mixed cultural possession. Much attention is paid to the boundaries of cultural areas and their changes. The territorial unevenness of the spread of innovations is pointed out and their seed-beds and centres of old tradition distinguished (the most interesting among them is the conservative centre of Samogitian and North Lithuanian barrow culture (NLBC) of the 5th–6th century AD in the Raginėnai–Bačiūnai environs).

➤ The system differences of the structure and development of population systems of East Lithuania (East Lithuanian region of barrow culture (ELBC)) and the rest part of Lithuania are highlighted. For their explanation, two alternative hypotheses with a common denominator or causality (different forms of land use predetermined by natural environment) were distinguished. This issue has been discussed in the works of Lithuanian researchers only fragmentarily.

Defended propositions

The following defended propositions reveal the essence of the present dissertation and the trend of interpretation of obtained results best:

1) An integral and often spatially differentiated system – ethnogeocoenosis – is a result of adaptation of ethnic divisions to the environment.

2) The history of population systems in the territories of cultural groups included periods of development, stabilization, transformation and decline. Their run in different cultural regions was uneven.

3) The structure of population of Lithuania's territory in the 1st–12th century AD was uneven. There were densely and scarcely populated territories and unpopulated areas (between and within the territories of cultural groups). The unpopulated territories were represented by limnoglacial plains unfit for land use. Cultural groups often were separated by territories of mixed cultural possession. This fact only supports the statement that the long existence of unpopulated territories is first of all related with their unfitness for land use rather than ethnical discord.

4) Cultural regions had a territorial core-periphery structure often with more than one core. The role of core areas in the processes of ethnogenesis took different manifestations. Somewhere they acted as liberal centres of new traditions and innovations whereas in other areas they acted as conservative centres enshrining the old tradition.

5) Throughout the 1st–12th century AD, the structure of territory population of East Lithuania remained different from the one in the rest of Lithuania. This can be explained by persistence of archaic forms of land use predetermined by physical environment and considerably weaker susceptibility to innovations predetermined by adaptation capacity.

Approbation of the results

7 scientific articles have been published on the thesis topic. A detailed list of publications associated with the paper's topic is given below the conclusions of the paper.

Size and structure of study

This paper consists of the following recommended main parts referring to the Lithuania Science Council's resolution Nr. VI-4, 2003: introduction, research review, methodology, research results, conclusions and references. The paper includes 81 original pictures (cartoschemes and structural schemes), 2 tables, 998 cited literature sources. The whole paper consists of 663 pages (459 pages of main text (with pictures and tables) and 204 pages of appendices).

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1. RESEARCH REVIEW

Studies of archaic territory population systems: European experience

Systemic relations of cultural formations and geographical environment have been studied by many prominent scientists. In the 19th century, German geographer K. Ritter devoted many of his studies to interactions between cultural and geographical environments. His ideas were further promoted by American geographer E. Ch. Semple, English historian A. J. Toynbi, and American anthropologist G. P. Murdock. In the second half of the 20th century, Soviet ethnographers (N. N. Čeboksarov, B. V. Andrianov, and others) suggested a theory of cultural-economic types. The ideas of the Western natural determinism were promoted in the Soviet Union by the famous geographer and historian from St. Petersburg L. N. Gumiliov.

In the 20th century, researchers from the North America (J. Steward, G. R. Willey, W. T. Sanders, K. C. Chang, and others) focused on the studies of archaic settlements of larger regions (USA prairies, Viru Valley in Peru, etc.). Meanwhile, in the first half and the middle of the 20th century, the European researchers took interest in considerably smaller territories (localities) where they carried out detailed archaeological and palaeogeographical (landscape) investigations. The British school of landscape archaeology (C. Fox, O.G. Crawford, etc.) was the most prominent representative of this trend of investigations. The European tradition of landscape archaeology dramatically

changed in the 60ties of the 20th century when regional studies occupied the leading positions (Kantner, 2008). The European landscape archaeology assimilated with the American trends of research yet preserved certain differences: the smaller European countries (Middle European, Scandinavian, etc.) took interest only their own regions. The changes of the scope of investigations largely were predetermined by wider use of natural scientific methods (statistical mathematical, radioactive carbon, pollen analysis, etc.) and modern technologies (geoinformation systems (GIS), distant sensing (cosmic photography, etc.). Computer technologies have made it possible to process the huge amounts of data received by interdisciplinary studies (not only archaeological but also complex palaeogeographical and palaeobotanical investigations) (Goudie, 1987). Worth mentioning are interesting studies of: South Sweden (Berglund, Frenchel, Leppakovski, 1991; Lager, 1996), Also Islands of Zeland Archipelago (Denmark) (Sorensen, Hill, Lucy, 2001), Estonian regions (Lang, 2003), Selpils micro region (Latvia) (Vasks, 2001), Alps in Switzerland (Menotti, 2003), Bohemia (Czechia) (Kuna, 1991), various Greek regions (Bintliff, 1999), environs of Valencia (Catalonia) (Grau Mira, 2003), the western part of Jordan (Hill, 2004), etc. In the 70ties of the 20th century, complex investigations of territory population systems were amplified shifting from the elementary superficial investigation of territorial distribution of settlements to deeper structural analysis of population systems (Parsons, 1972; Flannery, 1976). Along with the investigations of this kind, spatial models of central places and gravitation came into circulation (Hodder, Orton, 1976; Bintliff, 1999; Grau Mira, 2003; Hamerow, 2002; Kuna, 1991; Lang, 2003; Sahlqvist, 2001; Vasks, 2001). Many works were dedicated to determining the boundaries of cultural and population systems (B. R. Bilman, G. M. Feinman, S. K. Fish) (Kantner, 2008). Attempts were made also to determine the boundaries of territories used by communities (living space, sacral spaces, fields of intensive agriculture, pastures, hunting spaces) using the methods of cartographic palaeogeographic analysis (Bintliff, 1999; Kolb, Snead, 1997; Peterson, Drennan, 2005). Using interesting though not always reliable methods the sacral spaces were determined: e.g. distribution of barrow cemeteries and other archaeological objects in the environs of Vättern Lake in Sweden (Sahlquist, 2001), territorial distribution of barrow cemeteries of the Bronze Age in the Jutland Peninsula (Johansen, Laursen, Holst, 2004), etc. Rather interesting is the J. Bintliff's comparative analysis of distribution models of territorial communities and population systems (Bintliff, 1999). J. Bintliff determined the distribution density of territorial communities by distinguishing the "flexible" models of the spaces used by communities which are related with the forms of land use.

The use of GIS technologies for development of large-scale databases and for spatial analysis gave impetus to further development of regional and landscape archaeology. The creators of software do their best to promote their technologies in various fields of scientific research. For example, in the website of ESRI company www.esri.com one can find scientific publications describing successful cases of application of GIS technologies in archaeological and cultural landscape investigations. Many investigations (large-scale well funded projects) of this kind are carried out in the American continent, West Europe and Near East. As can be judged from the publications, in this field of research Central and East Europe are far behind. It is essential to mention the textbook compiled in 2006 by *J. Conolly and M. Lake* from the University of Cambridge "*Geographical Information Systems in Archaeology*" in which the methodical aspects of the use of GIS in archaeology are described at length. The

textbook also contains information about statistical methods, map algebra, compilation of databases, etc. Other important publications are: a collection of scientific articles “*GIS and Archaeological Site Location Modeling*” edited by M. W. Methrer and K. L. Wescott and devoted to employment of GIS technologies for modelling archaeological phenomena, ancient roads, land use areas and distribution of artefacts, “*Practical Application of GIS for Archaeologists: A Predictive Modelling Kit*” edited by K. L. Wescott and R. J. Brandon and devoted to modelling of prehistoric cultural landscape and “*Spatial Integrated Social Science: Examples in Best Practice*” by M. F. Goodchild and D. G. Janelle. GIS technologies broadened the field of interdisciplinary studies. For example, J. B. Hill applied them in his investigations of the link between the population system in Jordan and soil erosion in Holocene (Hill, 2004). The wide use of GIS technologies of spatial analysis and modelling help to investigate how ancient communities integrated into the surrounding environment and how human economic activity affected the ancient ecosystems (historical ecology and landscape archaeology) (Crumlay, 1994; Kantner, 2008). Landscape research is based on the approach that it should be investigated as a system perceived by people which at the same time is idealized and sacralized and is taken as “own” or “alien”. This encompasses not only practical but also holistic attitude towards sacral spaces or e.g. distribution of barrows in space (Hoder, 2000; Knapp, Ashmore, 1999; Tilley, 1994; Thomas, 1996, 2001; and others).

Studies of archaic territory population systems in Lithuania

The studies of the evolution of population systems in the 5th–12th centuries in Lithuania lack emphasis on the regional differences of this process. Until the 90ties of the 20th century (and partly today), traditionally the Lithuanian archaeologists were more interested in the processes of ethnogenesis often leaving aside the specific patterns of population of territories. This position is understandable because poor knowledge of archaeological objects and roughcast databases predetermine the subjective character of investigations of this kind. Also this is an old tradition of the German and then Russian schools of archaeology. At the end of the 20th–the beginning of the 21st century, there appeared research works devoted to the issues of population of some Baltic regions in the Iron Age. The population system and administrative structure of Curonia and Lamatia was investigated by V. Žulkus, of Lamatia by A. Bliujienė, of Scalovia by V. Šimėnas and Middle Lithuania by M. Bertašius. M. Michelbertas showed interest in the spread of barrows of Roman Era in Samogitia and North Lithuania. Geographers F. Kavoliūtė and R. Tučas and historian V. Almonaitis studied the population system of Samogitia. As distinct from Samogitia, Semigalia has more often received attention of researchers (I. Vaškevičiūtė; E. Vasiliauskas, I. Jarockis). Though Selonia is still regarded as the least investigated cultural region of the Iron Age it must be pointed out that its cultural development and population structure of the 1st millennium – the beginning of the 2nd millennium has been rather particularly discussed by A. Simniškytė-Strimaitienė. In her doctoral dissertation “*Cultural dynamics in the Selonia region (1st–13th c. AD)*”, A. Simniškytė-Strimaitienė suggested a hypothesis of cyclic cultural development of Selonia and distinguished a few development, stability and regression periods in the process of cultural evolution of Selonia. The best investigated in the East Lithuanian (ELBC) region is its northern part: Nalšia and Deltuva lands (G. Zabiela, T. Baranauskas). The boundaries of ELBC region and its cultural development

were investigated by archaeologists L. Kurila and R. Vengalis and the evolution of the cultural landscape and distribution of barrows in groups by geographers F. Kavoliutė and R. Tučas.

A full-scale study of the evolution of population systems over the whole territory of Lithuania can be only found in K. Šešelgis and F. Kavoliutė works. Yet these works are interesting and important as generalizing ones. Deeper analysis and comparison of population systems received too little attention. In this respect, V. Ušinskas articles and dissertation “*Formation of the Early Territory of the Lithuanian State in the 1st–13th century (archaeological data)*” are of special importance. Archaeologist G. Zabiela devoted many of his works to distribution of late hill-forts over territories, typology of hill-forts and their evolution. Archaeologist J. Genys investigated the link between the distribution of soil types and development of towns in West Lithuania.

The newest research works of archaeologists A. Girininkas, E. Jovaiša, A. Luchtanas, A. Merkevičius, V. Šimėnas and others are important for understanding the processes of ethnogenesis and migration theories. Investigations of the Baltic ethnogenesis and formation of political and administrative territorial units also were carried out by geographers and geologists: V. Baltrūnas, V. Daugirdas, F. Kavoliutė, G. Motuza, A. Seibutis, R. Tučas and others. Interdisciplinary complex investigations (A. Simniškytė, M. Stančikaitė, D. Kisielienė and others) and application of computer and GIS technologies (R. Augustinavičius, I. Bagdanavičiūtė, D. Brazaitis, L. Kurila, R. Laužikas, I. Marmaitė, L. Tamulynas, R. Tučas, J. Valiūnas, R. Vengalis and others) are gaining popularity in regional and landscape archaeology studies. And of course, integral approach to landscape is of primary importance in the complex studies of landscape and socium integrity. Its methodological aspects have been for some time consistently studied at the Department of Geography and Landscape Management, VU, (P. Kavaliauskas, R. Skorupskas, D. Veteikis, J. Volungevičius and others).

2. METHODOLOGY

The scope and structure of research

The title, objectives, investigated issues, tasks and defended propositions of the present dissertation show that the scope of research is rather wide. Yet questions may rise as to the spatial, chronological and methodological bounds of the present research. Thus, they must be pointed out and grounded.

The research was carried out within the following **bounds**:

I. Spatial bounds. The research is focused on **the present territory of Lithuania**. The state border of the Republic of Lithuania (LT) is arbitrary. Neither of its sectors (except in the seaside area) is a result of natural ethnic or physical development. The majority of the cultural ethnic regions of the 1st–12th century AD (*Curonia, Semigallia, Selonja, the cultural region of East Lithuanian Barrows (ELBC) (Lithuanians), Sudovia, Nadruvia, and Scalovia*) has been divided by the present state border between LT and the neighbouring countries (Latvia, Byelorussia, Poland and Karaliaučius Region). Only *Samogitia, the cultural region of Laminar Burial Grounds of Central Lithuania (CLBGC) (Austechia), Dainava* and *Lamata* are fully included in the territory of Lithuania. Undoubtedly, in terms of methodology the divided ethnic regions should be analysed in complex, i.e. as territories of habitation at large. Yet the character of the present work is somewhat different. It is aimed at comparison of population

systems and their development in different cultural regions using the GDB compilation and GIS technologies. By necessity, ample data must be collected, selected, systematized and standardized. The archives of the Lithuanian research and monument preservation institutions store data only about the archaeological objects in the territory of the Republic of Lithuania. The data about archaeological objects outside the territory of Lithuania are stored in the archives of the neighbouring countries. Taking into consideration the labour and time expenditures, the present research was limited to the present territory of Lithuania and the data stored at the Lithuanian archives.

II. Chronological bounds. In the present work, the comparative analysis of population structures is confined to the Iron Age (the 1st–12th century AD). The beginning of the 1st century is a very important point in time when the stage of very rapid development of Baltic ethnogenesis and population structure began in the greater part of Lithuania's territory (except the East Lithuanian *Brushed Pottery Culture* region) began. The 12th century AD also is important. In the second half of the 12th – the 13th century AD, an undetermined yet well-expressed process of “disappearance” of burial monuments was taking place. Yet actually only in the cultural regions of *Semigallia*, *Selonia* and *Sudovia*, regression of population systems was a real phenomenon predetermined by the warfare with the Teutonic Order. The considerable decrease of the number of burial monuments in other regions is a methodological gap rather than a real phenomenon. The new social processes (baptism, etc.) dramatically changed the old systems and traditions (burying in barrows was relinquished and cremation and the custom of placing burial items into graves became out of date). The relatively poor archaeological exploration of the time under consideration and decrease of the number of archaeologically precisely dated burial items generated a subjective gap of knowledge creating the erroneous idea about the “abrupt disappearance of burial monuments” in the 13th century AD even in the prospering regions such as *Samogitia* and East Lithuania. Meanwhile, the data about the objects designed for living and defensive purposes do not imply any regression. Only the transformation of the territory population system is obvious (newly built or better fortified old hill-forts along Nemunas and in other strategic sites of those times). These processes are first of all related with the Order aggression, consolidation of Lithuanians and Samogitians, and development and consolidation of statehood.

However, the indicated chronological bounds (1st–12th century AD) are not strictly observed. One of the sections of the present dissertation is devoted to population of Lithuania's territory at the end of the 1st millennium BC. The discussion about the Baltic ethnogenesis and processes of ethnogeocoenoses is based even on the earlier times (the Late Neolithic and early metals ages (the 3rd – 1st millennium BC). Only the chronologically extended boundaries allow full understanding of the processes of ethnogenesis and population of Lithuania's territory before the intensive transformation of population system in the 1st millennium AD. The processes taking place after the 12th century AD are not included in the present work.

III Methodological bounds. The present research is confined to the data, statements and hypotheses provided by geographical and archaeological sciences. The research methods used in archaeology considerably differ from the ones used by historical and linguistic sciences. Actually, they are comparable with the methods used by natural sciences. They are perceived better by the author as a representative of natural sciences. The reasons for the mentioned confinement are related not only with the better

skills of using methods employed by archaeology and natural sciences but also with the better understanding of the issues of archaeological and geographical studies and opportunities provided by GIS technologies for GDB development. The present work offers an opportunity for other researchers to expand the research using the data of other sciences.

While preparing the present dissertation, the author encountered a serious problem – absence of scientific comprehensive database of archaeological objects of the Iron Age (in any format). For this reason, it was necessary to collect and systematize the data contained in superabundant information sources (archaeological literature, scientific publications, digests, reports of archaeological explorations and reconnaissance, etc.) and create a GDB to be used as a basis for the present research. The intensive work that took a few years strongly affected the methods and structure of the present dissertation. The labour expenditures on creation of the GDB predetermined the strict methodological confinement because of the lack of time for broader and deeper analysis based not only on archaeological data but also on data of other sciences and for broader survey (e.g. size of populations, density of population and cartographic presentation of the obtained data possible using the compiled GIS GDB). The progress and structure of the present research is best illustrated by the structural scheme given in Fig. 1.

The database compilation methodology

Data sources. The primary *GIS GDB of archaeological sites and find spots of the Iron Age* was compiled including the archaeological sites listed in the Cultural Values Register of the Republic of Lithuania. The data about them were taken from the inventories of archaeological sites made by the specialists from the Centre of the Lithuanian Cultural Heritage (KPC), reports of archaeological reconnaissance and archaeological researches, stored at the archives of the KPC and the Lithuanian Institute of History, serial publication “*Archeologiniai tyrinėjimai Lietuvoje*” (ATL) (“*Archaeological investigations in Lithuania*”), “*Lietuvos TSR archeologijos atlasas*” (LAA) (“*Archaeological Atlas of the Lithuanian SSR*”), volumes II–III, “*Lietuvos piliakalniai. Atlasas*” (LPA) (Hill-forts of Lithuania. Atlas), volumes I–III, scientific journals („*Lietuvos Archeologija*“, „*Archaeologia Litwana*“, „*Archaeologia Baltica*“), monographs, cartographic sources (plans of former collective farms at a scale 1:10 000), etc. These sources also provided the data about the destroyed or hypothetical archaeological objects and find spots of the Iron Age.

The structure of the primary GDB. Abundance of specific (characteristic of one or a few types of archaeological objects) features predetermined the choice of creation of discrete vector layers for each type of archaeological objects (hill-forts, settlements, barrow grounds and barrow cemeteries). Along with the main general features (titles, codes, addresses) (typical of the heritage GDB) of archaeological sites, many other features were recorded of which only some were common for archaeological sites of all types. The general features are: dating; reconnaissance, exploration (headed by, date); exploration results; cultural attribution; precision of localization; sources and other features.

Along with mentioned general features common for archaeological objects of all types, the GDB recorded the specific features characteristic of some types of archaeological objects. Hill-forts apparently have the greatest number of specific features: relative altitude; slope angle; parts of hill-fort complexes (foreworks, baileys,

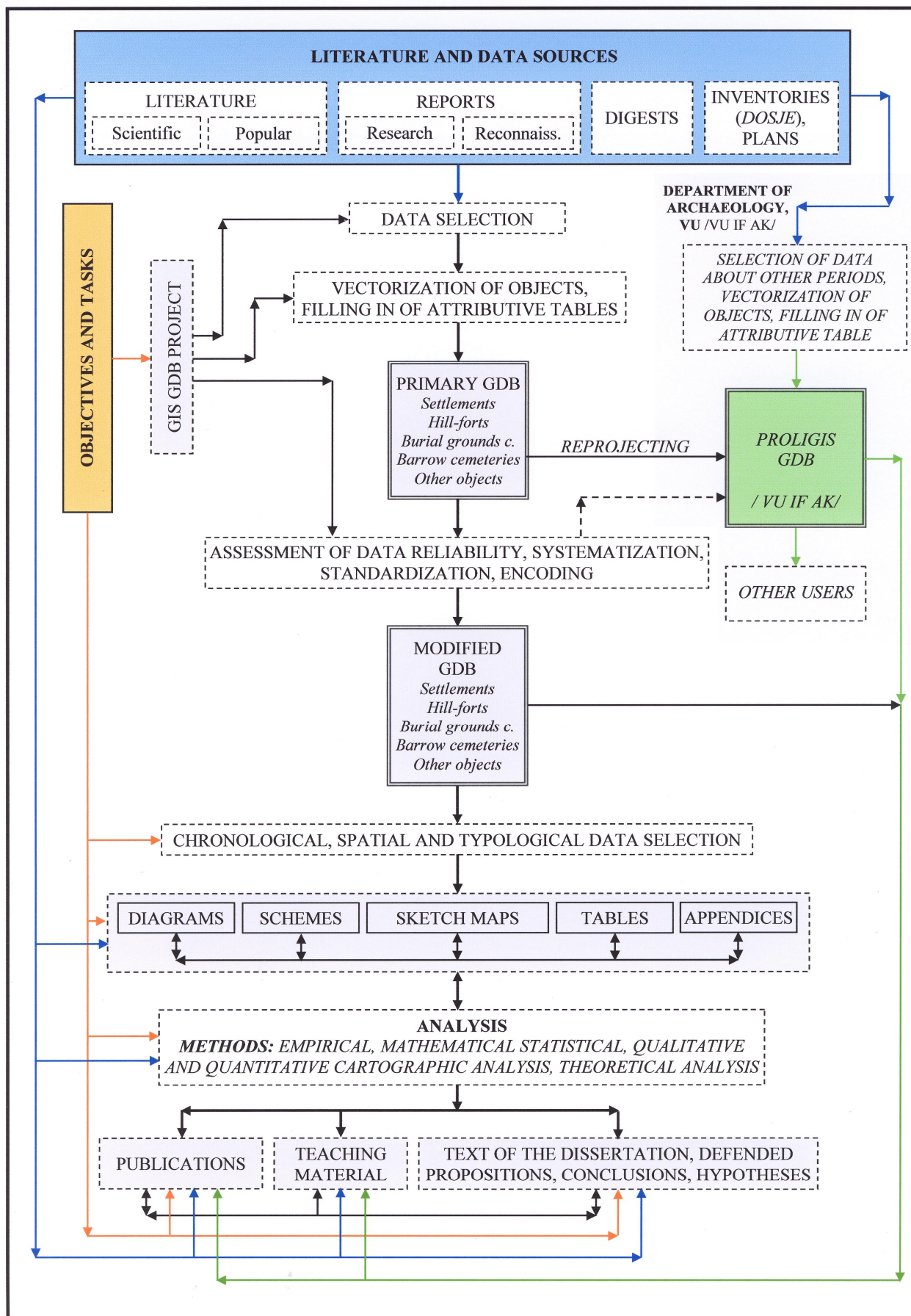


Fig. 1. Structural scheme of preparation of the dissertation and wider use and publicizing of the obtained results

fortification of hill-forts (foreworks, baileys) (number and parameters of earthworks and ditches); cultural layer (structure, thickness, location); dating according to the visual examination; mentioning in historical sources, etc. As distinct from hill-forts, settlements do not have features related with the surface relief but other features are comparable (cultural layer, finds, etc.). Barrow cemeteries have the greatest number of specific features: number of barrows in a cemetery (number of preserved barrows; number of barrows mentioned in past sources), arrangement of barrows (spaces between barrows, groups of barrows, spaces between groups of barrows), parameters of earthworks (form, altitude, width at the foot), structure of earthworks and their environment (stone circles, pits, ditches), investigation results (number of explored barrows, number of graves in barrows, position of graves in the earthworks, etc.), type of graves (inhumations, cremations; female, male, horse burials, etc.), finds (burial items, stray finds); dating according to visual examination; other features characteristic of barrows alone. Flat burial grounds usually have no features related with the surface relief. Other features are comparable with the general features investigated in barrows: investigation results; type of burials; finds, etc.

Though the main stage of GDB compilation was finished in 2009, episodically new data were included until the end of 2010. In 2011, the inclusion of the new data became impossible. For this reason, the majority of data for 2011 and the whole data for 2011 were not included in the present research. Until the end of 2010, **2547 preserved, destroyed and loosely localized archaeological objects** (1081 objects of habitation and defence and 1466 burials) **were mapped and the data about them collected**. They number according to types was: 1) Hill-forts – 873; 2) Settlements of Iron Age unrelated with hill-forts – 208; 3) Burial grounds – 577, and Barrow cemeteries – 889.

The modified GDB were created after systematization, standardization and encoding of the primary GDB data. Two modified GDB were created based on the primary GDB (Fig. 1.):

➤ *Modified GIS GDB of Lithuanian archaeological sites and find spots of the Iron Age* designed as a basis for the present dissertation;

➤ *PROLIGIS GDB* (GIS layer of pro-historic Lithuanian objects) (developed via re-projecting the primary *GIC GDB of archaeological sites and find spots of the Iron Age* and supplementing it with the data about other periods as a part of the project supported by the Lithuanian Science Council (contract No C-08029) “*Evolution of cultural landscape according to the data of archaeology and natural sciences (ARCHEOKRAŠTOVAIZDIS)*”) designed for other users. At present, PROLIGIS GDB is administered by the department of Archaeology, VU.

The issues of GDB creation have been presented to academic society and discussed in detail in author’s publications.

Analysis of data reliability

The use of GIS in archaeology, including the creation of scientific databases of archaeological places, has certain particularities. The indeterminacy of archaeological data and the ambiguity and indefiniteness of their interpretation do not sit well with the traditional principles of database creation (ensuring integrity of data, etc.).

The reliability of archaeological data was evaluated in a few aspects:

Problems of definition of archaeological sites and find spots as objects. This is not an easy task because in registers and other sources, the objects comprising an integral

complex usually are regarded as discrete units. This kind of problem usually occurs when distinguishing complexes and barrow cemeteries used by the same communities. In the present dissertation, these complexes are regarded as one research object (giving it a unique number) composed of a few functional parts of the same or different functional design. Most uncertainties occur when distinguishing barrow cemeteries used by the same community. In this case, methodical problems arise because of the absence of determined criteria for distinguishing barrow cemeteries and barrow groups. There are many cases when outlying barrow groups or single barrows obviously belonging to the same barrow cemetery are regarded as discrete objects. This affects the reliability of the results derived by statistical analysis.

Find spots of archaeological material as investigation objects represent another problem. The GIS GDB designed for the present dissertation includes the maps of the sites where stray finds dated to the 1st–12th century AD were found. During the systematization and specification of the data (the modified GDB), it was evaluated whether the finds possibly belonged to the archaeological objects of the explored site or their finding circumstances were unknown. The present work includes only the find spots whose finds are described in the sources as belonging to destroyed archaeological objects of the site.

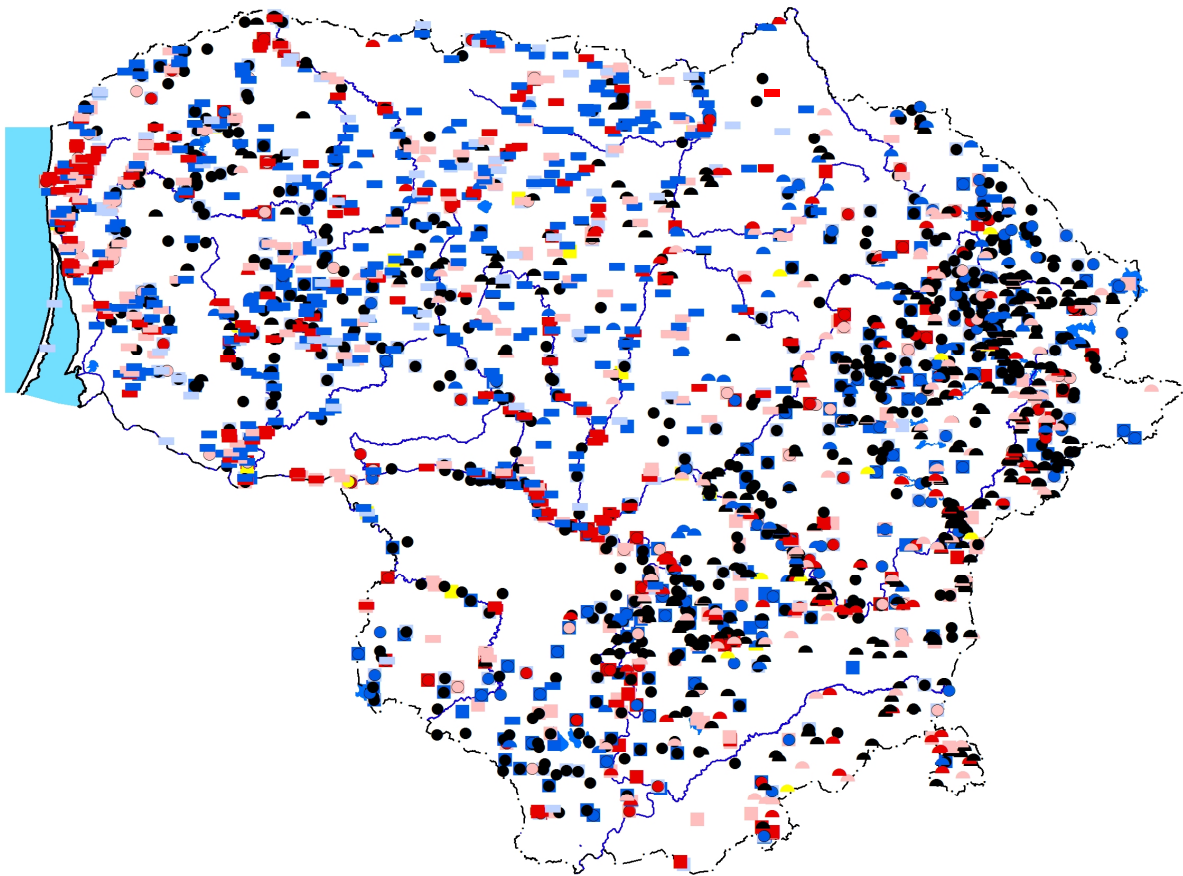
Reliability of localization of archaeological objects. In the GIS GDB, only the preserved Lithuanian archaeological sites and find spots of the Iron Age (about 2/3 of the total number of objects) were localized according to their coordinates determined by GPS. The remaining part, i.e. the destroyed (about 1/3) archaeological objects were localized according to the descriptions of their situation in the reports of archaeological reconnaissance and other sources. The precision of localization is indicated in the special fields of attributive table columns of GDB.

The quantitative aspect of exploration of Lithuanian archaeological sites alone (Fig. 2), may seem form an attitude that archaeological hypotheses and theories are premature due to relatively poor data about Lithuania. Yet this attitude is baseless because usually archaeological investigations are not casual (except the exploration of destroyed objects). They are carried out using certified methods therefore the data obtained are sufficiently reliable both in the chronological and territorial aspects.

Reliability of dating of archaeological objects (Fig. 2) directly depends on the level of exploration and abundance of stray finds.

1) *The data obtained during archaeological exploration.* The value of the data obtained during archaeological exploration differs. Firstly, it depends on the scope of exploration (whether it was large-scale stationary exploration or small-scale reconnaissance exploration) and, secondly, on the methodology of evaluation of obtained data. *The large-scale exploration* clearly defines the dating and cultural attribution of barrow cemeteries. Yet in the cases of hill-forts and settlements, the chronological boundaries not always are clearly defined due to the wide spectrum of dating of characteristic objects. *The small-scale (reconnaissance) exploration* carried out for determining whether the object can be regarded as a monument usually is less informative and the data obtained are not sufficiently reliable.

THE END OF THE 1ST MILLENNIUM BC - THE BEGINNING OF THE 2ND MILLENNIUM AD



| DISTRIBUTION OF METHODS | TYPE OF OBJECT | METHOD OF COLLECTING DATA | | | | | | | | | | NO DATA | | TOTAL |
|-------------------------|--------------------------|---------------------------|-----|----|-----|----|-----|-----|-------------------|----|-----|---------|----|-------|
| | | R | | RR | | IF | | UIF | | VE | | 1 | 2 | |
| | | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | |
| | Hill-forts ¹ | ● | 85 | ● | 64 | ● | 121 | - | (70) ³ | ● | 598 | ● | 5 | 873 |
| | Settlements ² | ■ | 103 | ■ | 160 | ■ | 208 | ■ | 214 | ■ | 463 | ■ | 13 | 698 |
| | Burial grounds cemet. | ■ | 135 | ■ | 120 | ■ | 261 | ■ | 61 | ■ | 463 | ■ | - | 577 |
| | Barrow cemeteries | ▲ | 121 | ▲ | 156 | ▲ | 136 | - | (14) ³ | ▲ | 463 | ▲ | 13 | 889 |

1. Data about related foot settlements are given in the row devoted to settlements;

2. Foot settlements unrelated with hill-forts;

3. Supplementary method. Main – visual evaluation of hill-forts and barrows. Not included into the total number.

R - Productive archaeological researches

RR - Productive archaeological reconnaissance researches

IF - Informative stray finds

UIF - Uninformative (wide chronology, etc.) stray finds

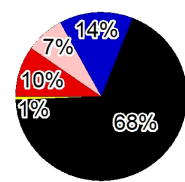
VE - Visual evaluation

ND - No data

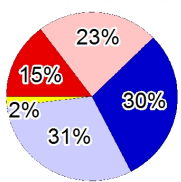
1 - Marked in the sketch map

2 - Number of objects

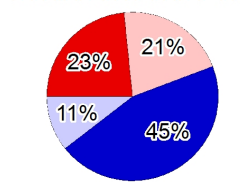
HILL-FORTS



SETTLEMENTS²



BURIAL GROUNDS C.



BARROW CEMETERIES

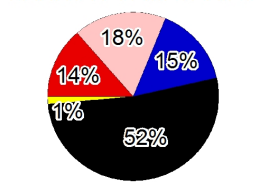


Fig. 2. The level of exploration of identified archaeological objects of the end of the 1st millennium BC – the beginning of the 2d millennium AD in the territory of Lithuania

The level of exploration of barrow cemeteries. According to the GDB data, there are 889 barrow cemeteries (preserved and destroyed) in Lithuania (including single barrows and outer barrow groups) which had about 14 600 barrows (the “exact” number is 14 627). This number includes not only the preserved barrows (according to the GDB data, about 11 7000 (11 729) but also the destroyed barrows mentioned in sources. Of course, the data are far from precise. The number of barrows and barrow cemeteries used to be considerably larger. Yet the data about their precise number is lacking. According to the GDB data, in the 19th – the beginning of the 21st century, more than 1 600 barrows (1614) were explored accounting for 11% of the total.

The level of exploration of hill-forts. The main aspects of exploration of the hill-forts and foot settlements have been thoroughly discussed by archaeologist G. Zabiela. Generalizing the available data, G. Zabiela states that the total area explored in 1886–2000 in 152 hill-forts amounts to 3.7 ha. The data collected in the GDB are slightly different: 198 hill-forts were explored (the data for the time frame 1886–2008) yet in 49 cases, the exploration confined only to test excavation or was not productive. According to the GDB, the total explored area is smaller: 3.61 ha. The ancient settlements (including foot settlements) became an object of interest only in the middle of the 20th century and the explored area is definite (according to the GDB data, it is 6.59 ha).

2) Data of evaluation of stray archaeological finds. The stray finds usually occur in disturbed or destroyed archaeological objects. The greatest disadvantage of such finds is that the context of their stratigraphic position and complexion are unknown. This limits the possibility of judging about the chronology and cultural attribution of disturbed object. On the other hand, the intensively disturbed objects yield very many archaeological finds therefore the data obtained from them often are more reliable than the data obtained from smaller-scale archaeological explorations.

3) The data of visual evaluation of archaeological objects. This method can be used only for archaeological objects with a certain orographic form (hill-forts and barrows). It is not used for dating of burial grounds and settlements. The method is not sufficiently reliable as it shows the latest use of the object. By this method, it is impossible to determine whether the object was used before. Yet it is more reliable than the dating based on evaluation of a few stray finds or small-scale exploration. The method of visual evaluation used to be rather popular. Today it is trusted with caution because investigations have proved that hill-forts and barrows dated by visual evaluation to the end of the 1st millennium – the beginning of the 2nd millennium AD actually were used in the middle or even in the first half of the 1st millennium AD (Liūlinė III, Santaka, Skersabaliai, Vigodka barrow cemeteries and Molavėnai and Vėdriai hill-forts).

This method was used for dating of many destroyed hill-forts and burials. The data about their appearance were obtained from earlier sources and descriptions by local residents. Many such data can be found in the reports about archaeological reconnaissance. The reliability of this kind of data is low.

The reliability of typology of archaeological objects. The preserved archaeological objects usually are of definite typology. Problems in determining the types of objects usually occur in the cases of investigation of destroyed burials localized on the basis of stray finds: especially when the burials are localized in the peripheral parts of cultural groups and dated to periods of transition to different types of burials.

There are no problems in identifying the types of hill-forts and ancient settlements. Certain problems arise only in relation with the identification of functional

parts of hill-fort complexes (e.g. whether they are two neighbouring hill-forts or one hill-fort with the foreworks or baileys). In the present dissertation, the evaluation of hill-fort complexes and their types is based on the attitude of the famous researcher of hill-forts G. Zabiela.

The reliability of identification of cultural attribution of archaeological objects directly depends on the level of their exploration. Yet there are differences related with the typology of objects. The hill-forts and ancient settlements of the 1st–12th century AD (excluding the *Brushed Pottery Culture* region) actually have no ethnocultural marks. Archaeological habitation and defence objects serve as a good basis for analysis of territory population structure (reveal the central or peripheral character of archaeological sites). Yet they are uninformative in distinguishing ethnocultural areas. When only hill-forts and settlements are localized in a territory, its cultural attribution is a rather difficult task. When a territory with hill-forts is surrounded by the territories inhabited by a concrete cultural group (abounding in burials with cultural marks), the attribution of its archaeological objects to this cultural group raises no major problems. Yet if such territories are in the peripheral parts of cultural units and especially when other cultural units are localized in the close proximity, judgements about their cultural attribution become uncertain or even impossible.

Methods of using the database

After systematization and standardization of the data, some chronological columns were created in the attributive tables of vector layers (dividing the investigated time frame into 50 years segments) of the modified GDB. The columns contain codes indicating not only the fact of dating but also the basis of dating (large-scale exploration, small-scale (reconnaissance) exploration, informative or insufficiently informative finds, visual evaluation) and probability of dating (“*was or was not*” for certain; “*most likely was or most likely was not*”). The attributive tables of vector layer have more thematic columns necessary for analysis containing systematized and standardized data illustrating the defensive power of hill-forts and presenting the data about the area of burial grounds and ancient settlements, number of barrows in barrow cemeteries, the level of their exploration, etc.

The main methods employed in the present dissertation. The systematization and standardization of the available data was followed by data selection and development of derivative vector layers. Thematic sketch maps were compiled and mathematical statistical (for evaluation of transformation trends of population systems) and cluster analysis (grouping of archaeological objects according to many attributes) operations and qualimetric evaluation of data (distinguishing between the centres and peripheries of lands) were performed using the *GIS Desktop 9.3. Spatial Analyst* (for spatial analysis), *Merge*, *Intersect* (for merging and intersection of layers), *Select by Attributes* and *Select by Location* methods. Yet the “mechanical brain” is not omnipotent. A large part of the research was carried out using visual qualitative sketch map analysis and logical generalization (of data and obtained results) methods. The hypotheses and conclusions of the present dissertation are based on the results obtained by the mentioned methods.

The methods used for analysis of territory population systems can be best demonstrated via distinguishing its logical stages:

1) *Genealogical analysis of ethnogeocoenoses and their variance.* This kind of analysis is the only one not related with GIS technologies and GDB. Analysis of the theories of Baltic ethnogenesis and ethnogenesis in general (theories of cyclic evolution, systematic adaptation (*evolutionism*) and migration) served as a basis for evaluation of the Baltic cultural groups and their genetic relations. The systematic adaptation attitude appeared to the author to be the most convincing and is used in the present dissertation for explanation of the processes of Baltic ethnogenesis. The term “*Ethnogeocoenosis*” used in the present dissertation is applied to the integral unity of cultural group and geographical environment. The perception of the processes of Baltic ethnogenesis formed in the course of the present study developed into an “ideological” conception lying at the basis of the structure of the main part of the dissertation.

2) *Data selection according to cultural attributes.* According to the available cultural traits, objects attributive to various Baltic cultural groups or of uncertain cultural attribution were selected from the GIS GDB. All objects used for solution of the following tasks were grouped in this way: 1) compilation of appendix 1; 2) distinguishing of cultural areas in sketch maps; 3) analysis of evolution of archaeological sites lying at the basis of distinguishing development stages of territory population systems of cultural groups.

3) *Grouping of archaeological objects into complexes used by one territorial group.* This task was fulfilled taking into account the topology (distance between) and chronology of archaeological sites. According to the principle lying at the basis of grouping, the objects used by one territorial community are spaced at distances not exceeding 1–1.5 km. East Lithuania (ELBC region), where the indicated distance might have been greater, makes an exception (one of the given hypotheses represent an attempt to explain the cause). Various natural obstacles (e.g. rivers, bogs and lakes) which undoubtedly influenced the territorial distribution pattern of communities were visually examined and described.

4) *Distinguishing development stages of territory population systems by cultural groups.* This very important stage of investigation was implemented through evaluation of the aggregate evolution of objects used by each cultural group. Three groups of objects were evaluated separately:

1. All functional burial objects of a concrete cultural region;
2. Investigated functional burial objects of concrete cultural region;
3. Investigated habitation and defensive objects of concrete cultural region.

All functional burial objects were dated to accuracy of 100 years and the investigated objects to accuracy of 50 years. In all cases, the dating ranges within the time frame the 1st millennium BC – the 13th century AD. The evaluation technology included determining the changes of the number of objects which appeared, disappeared or continued. It was carried out by comparison of the data of definite chronological time (relevant column of attributive table of GIS GDB) with the data of previous and following chronological times (neighbouring columns of attributive tables). The graphical images of the data obtained were compiled using the *GIS Desktop 9.3* function *Create graphs*. On the basis of obtained data, the evolution scales of definite cultural units were created and taken as a basis for distinguishing development stages of territory population systems, their visualization in sketch maps and description in the text. The following qualitatively different development stages were distinguished in the evolution

scales: *intensive development, partial development, intensive transformation, partial transformation, stability, partial stability, intensive regression, and partial regression.*

5) *Compilation of sketch maps of the main development stages of the main territory population systems by cultural groups.* The sketch maps of this type comprise the absolute majority in the present work. The total number of this type of sketch maps (54) is great yet their number for each territory population system may differ considerably. The sketch maps are designed for visualization of the main development stages of population systems of concrete cultural regions and for spatial factor analysis of Lithuanian territory population systems. The territorial communities are digitalized (numbers from 1 to 1853) whereas the information about the archaeological objects used by them is given in *appendices 1 and 2.*

Conception of hierarchic structure of territory population system

Territorial units of different hierarchic ranks – volost and land – are plotted in the sketch maps devoted to the beginning of the 2nd millennium AD. The present dissertation is distinguished by that its methods are based exceptionally on the data provided by archaeological science. Meanwhile, the administrative territorial units of different ranks usually are distinguished using historical data and methods of historical research (analysis of historical sources). Historical sources usually give information about the territorial administrative units of later periods (13th–14th century AD). However it is obvious that they did not appear “from nowhere” and their embryos should be traced in the 11th–12th century AD. The qualimetric evaluation of objects revealed rather variable qualitative and quantitative parameters of archaeological objects and their complexes used by territorial communities. It is obvious that the territorial communities coexisting in the Late Iron Age markedly differed in economic and military power (this is proved by abundant archaeological evidences).

The following territorial units of different hierarchic ranks of the beginning of the 2nd millennium AD can be distinguished:

I. Territorial community („*teritorinė bendruomenė*” (Lt.)): a compact community residing in a certain locality which used the same complex of archaeological objects of different functional designs.

II. Volost („*valsčius*” (Lt.)): a lower rank territorial administrative unit. In the present work, volost is applied to territorial communities spaced a few kilometres (their number may vary from two to more) and visually distinguished as groups of communities separated from other groups by relatively large areas of unpopulated territories (from 5 to more than 10 km).

III. Land („*žemė*” (Lt.)). Land is the second largest sovereign political administrative unit (after “state”) of highest hierarchic rank composed of a number of volost that lost their sovereignty. At the end of the time frame under consideration, they were in the embryo stage of development.

Yet this hierarchic territorial structure was not characteristic of all regions. In many localities, there existed a number of individual sovereign volost and remote communities.

3. RESEARCH RESULTS

Formation patterns of ethnogeocoenoses in Lithuania

Chronological development of ethnogeocoenoses. Though the object of the present research is the evolution of territory population systems it would be incorrect to survey them chaotically ignoring the genetic links between the studied archaeological cultures. The territorial behaviour often depended on the genetic affinity. Systemic adaptability in heterogeneous environment acted contrariwise, i.e. genetically distanced the kindred archaeological cultures and formed new cultural variants. The time dimension is especially important in these processes: in the course of time, the intercultural relations weakened and the differences strengthened even more. For better understanding of the patterns of ethnogenetic evolution and genetic links of cultural groups and for development of theoretical attitude which could serve as a basis for consistent systematic analysis of population systems a retrospective analysis of ethnogenetic processes in the territory of Lithuania was carried out.

Landscape as a system and community as its sub-system comprise a reciprocal integral whole – *anthropogeocoenosis* of a certain hierarchic level. Ethnos is the most stable and easily distinguished community of people. Thus it seems relevant to apply the term *ethnogeocoenoses* to the anthropogeocoenoses of this hierarchic level.

For about 6 thousand years (8000–2300 BC), there existed in the territory of Lithuania the *Kunda–Narva* and *Nemunas* cultures which produced a huge impact on the successive ethnogenetic processes. They developed on the basis of a mixed substratum of settled *Baltic Magdalenian* and *Swiderian* cultural groups influenced by newcomers of *Maglemosian* culture. Undoubtedly, during the long time span, these cultural groups formed a very stable integral ethnogeocoenosis with the environment. The climate conditions also were rather favourable for the long-lasting existence of this integral system. According to Blytt–Sernander postglacial climate classification scale, the 6th–4th millennium BC was the time of Atlantic climate period, the warmest period of postglacial climate. In this period, the number of human population markedly increased. Climate cooling and reduction of biomass in Subboreal dislodged the communities of people. They were thrust out from their native lands and forced to look for better life in new territories. This was presumably caused by lack of food. The Atlantic nature provided the human communities with plenty of food but the cooler Subboreal climate reduced the natural food resources. These processes took place on a global scale. They caused confusion all over the world and even destroyed many settled ethnogeocoenosis. Thus in the middle of the 3rd millennium BC, the situation changed in the essence. The territory of Lithuanians was invaded by Finno-Ugric ethnic groups, carriers of *Comb-Pit Marked Pottery Culture* (CMPC), yet the ethnogeocoenosis of local substratum managed in short time and very successfully absorb this cultural invasion. In the middle of the 3rd millennium BC, the local substratum also was affected by the *Globular Amphora Culture* (GAC). It is assumed that its influence on the West Lithuanian archaeological cultures was strong (spread of stock breeding and farming). The Narva Culture of East Lithuania was not as strongly affected (Fig. 3).

The substratum ethnogeocoenosis of the Narva and Nemunas cultures also was strongly affected by the southern tribes of stock breeders (representatives of *Corded Ware Culture* (CWC)) which invaded the territory of Lithuania in the second half of the 3rd millennium BC. Yet the influence on different areas was uneven. The West

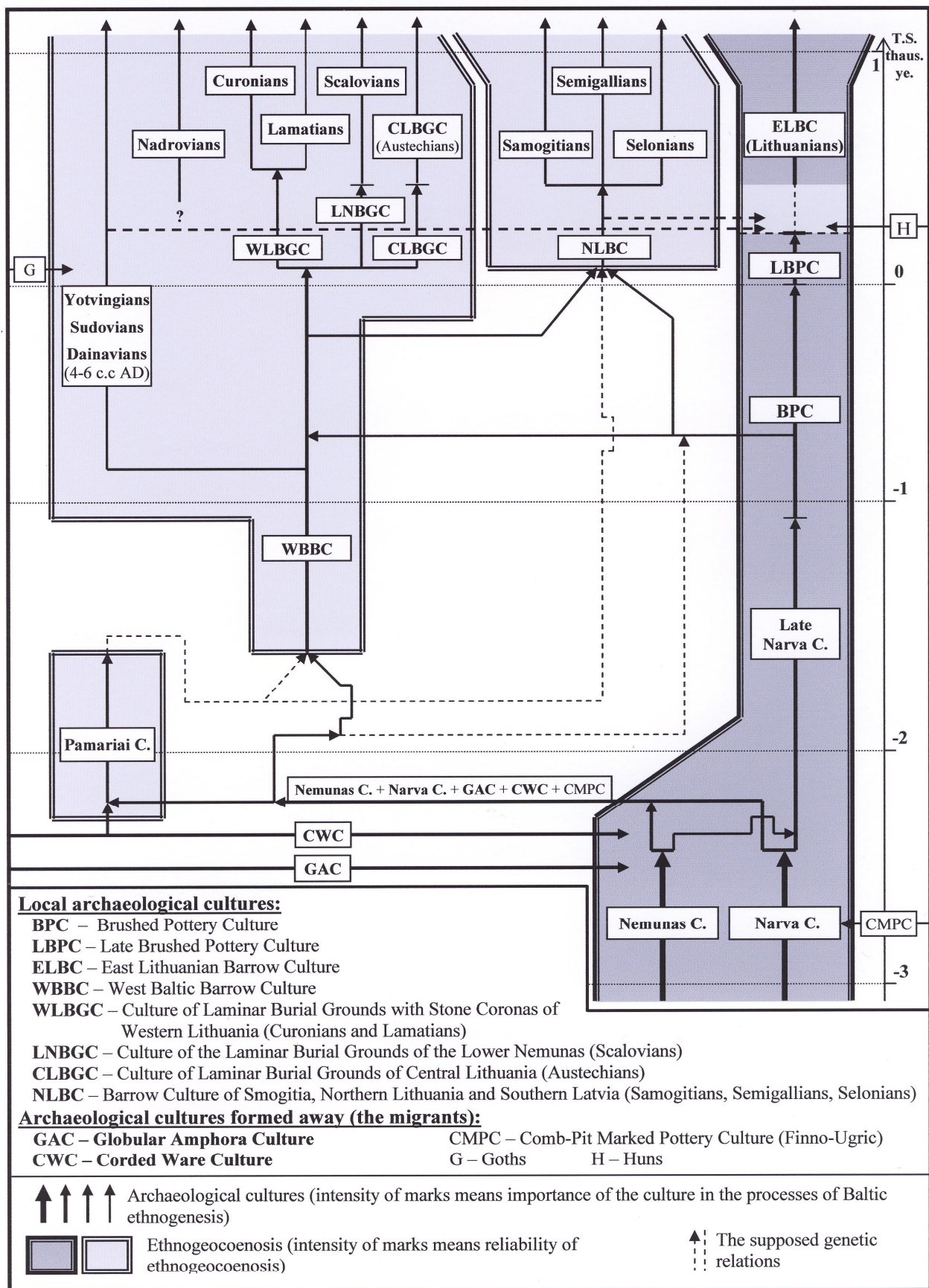


Fig. 3. Ethnogenesis processes in the territory of contemporary Lithuania (3rd millennium BC – 1st millennium AD)

Lithuanian ethnogeocoenosis, which already had been affected by the GAC, surrendered

to the CWC influence and the new *Pamariai Culture* developed at the end of the 3rd millennium BC. It is presumed that this culture genetically was closer to the CWC than to the Nemunas and Narva cultures. Meanwhile, the ethnogeocoenoses of Narva and Nemunas cultures in the northern and north-eastern parts of Lithuania successfully resisted the CWC impact. The vivid traces of CWC in this region were shortly and successfully absorbed by the substratum ethnogeocoenosis. It acted as a reliable and flexible system and its invariance did not change.

Fig. 4. Cultural regions in the territory of contemporary Lithuania (end of 3rd millennium BC – 1st millennium AD)

In the Bronze Age, in approximately the 16th century BC, the *West Baltic Barrow Culture* (WBBC) emerged in Prussia and spread in the coastal area of present Lithuania and on the left Nemunas bank (Figs 3 and 4). The genetic links between the Pamariai Culture and WBBC has not been proved and still remains a blank spot in archaeology. The WBBC ethnogenesis did not form a uniform cultural whole and already at the beginning of the 1st millennium BC it split into a few local variants. Already in the 9th–8th century BC, on its basis the *Yotvingian–Sudovian* archaeological culture emerged on the left Nemunas bank. In the first centuries BC, the WBBC in the coastal area developed into the *Culture of Laminar Burial Grounds with Stone Coronas of Western Lithuania* (WLBGC). Recently, the *Culture of the Laminar Burial Grounds of the Lower Nemunas* (LNBGC) (*Scalovians*), the *Culture of Laminar Burial Grounds of Central Lithuania* (CLBGC) (*Austechians*) and other variants of local ethnogeocoenosis also have been related to the WBBC. In the 5th–6th century AD, the WLBGC split into two variants: *Curonians* and *Lamatians*.

Formation of the *Barrow Culture of Smogitia, Northern Lithuania and Southern Latvia* (NLBC) is related with the migration, which started in the 1st century AD from the WBBC region southward to the scarcely populated Samogitian, North and Middle Lithuanian and South Latvian regions, and mixing with the scarce inhabitants of these region, presumably the descendants of the BPC. Archaeologist V. Šimėnas pointed out the mixed origin of NLBC and applied the term Middle Balts to it and the descendant other archaeological cultures. The tradition of burying in barrows existed in the NLBC region a short while (except in Sela). Already at the beginning of the 5th century AD, the NLBC split into three genetically related ethnic groups: *Samogitians*, *Semigallians* and *Selonians* (Figs 3 and 4).

The process of ethnogenesis was most sequential in East Lithuania where it took a slightly different course than in the rest of Lithuania. It was already mentioned that the ethnogeocoenosis that developed on the basis of the Kunda–Narva Culture did not change its invariant until the 2nd–3rd century AD. Investigations revealed that the inhabitants of East Lithuania preserved the archaic forms of economy (late transition to productive economy, more important role of pasture stock breeding, etc.) longer than in the rest of Lithuania. Yet the migration processes that took place in the 1st millennium AD did not bypass East Lithuania. In the 2nd–3rd century AD, brushed pottery abruptly disappeared, the fellow men were buried in barrows and the structure of population system changed. The unfavourable for agriculture natural conditions (low productivity soils, et.) and early tendencies of unification impelled Lithuanians to harass the richer yet weaker neighbours.

Territorial manifestation of systemic adaptation of ethnogeocoenoses. Comparison of the sketch maps of Lithuania's regionalization and cultural areas of the

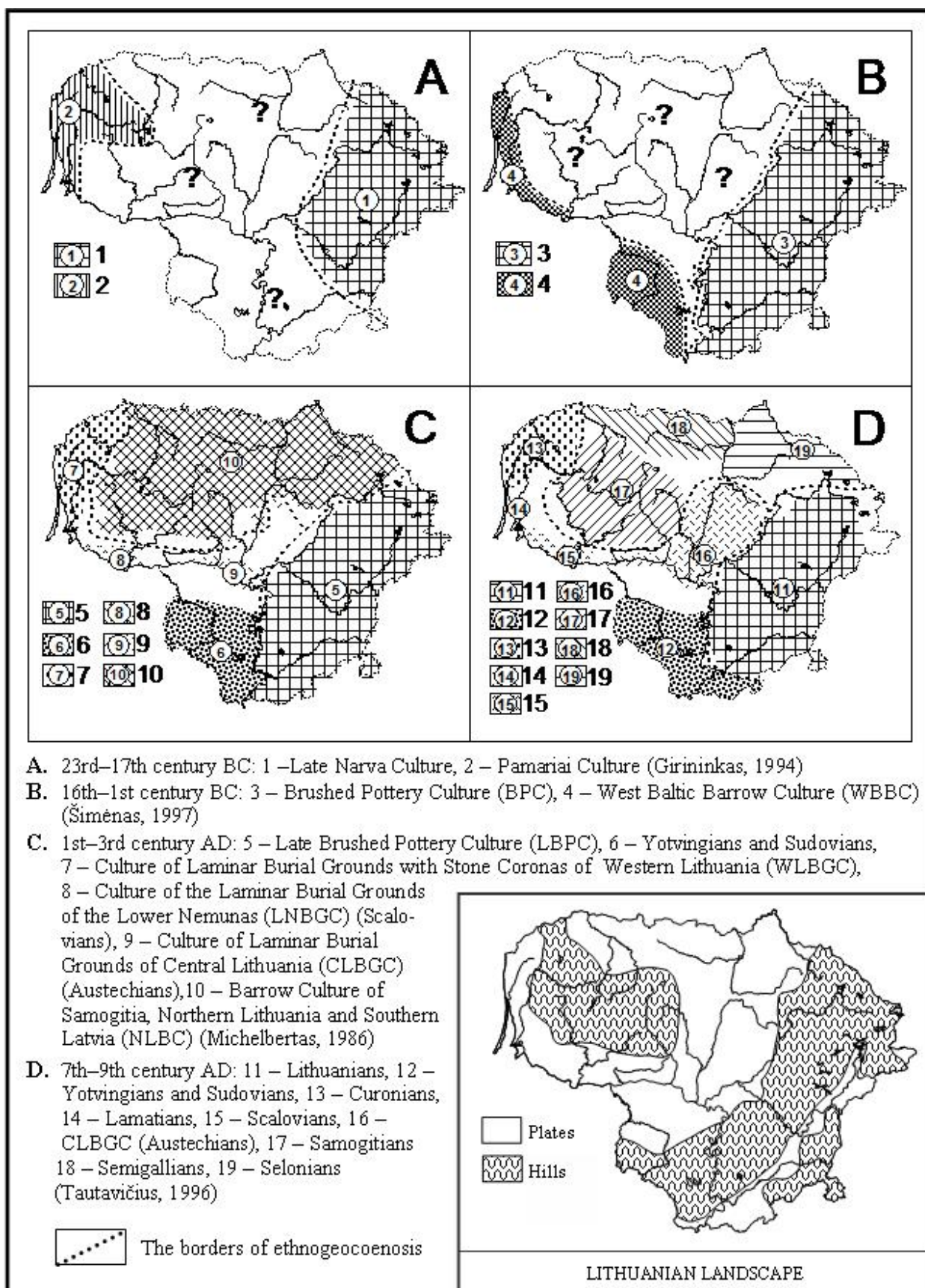


Fig. 4. Cultural regions in the territory of contemporary Lithuania (end of 3rd millennium BC – 1st millennium AD)

5th–8th century AD showed their obvious correlation (Fig. 4). Is this a coincidence?

Presumably not. The dependence of ancient residents on natural conditions was enormous. Human communities depended on the climate, soils, properties of relief and other landscape elements. The economic conditions depended on climate and soil properties. The landforms and bodies of water were important as barriers and as communication channels. Different natural conditions were responsible for differences in land use. The different land use formed specific spiritual and material culture and specific world outlook. The settled life style and limited relations with the outer world created good conditions for deeper integration into the surrounding environment. Even minor differences of landscape affected the different relationship with the environment, world outlook and perception of the environment as very own or alien. The cultural groups composed with the closest environment integral and often spatially differentiated systems. The degree of integration of landscape and ethnos as its constituent part varied. The problems of integration with the environment would occur for migrant cultures which found themselves in alien environments. According to research data, usually these cultural groups would merge into the substratum culture and in gradually assimilated by it. Namely this happened to the migrants of CMPC and CWC in the second half of the 3rd millennium BC in the north-eastern and eastern parts of Lithuania. The immigrants into the alien environment usually adapt to it and are assimilated by the substratum culture. Different geographical environment split the cultures whereas similar environment unite even the different cultural groups. It is important that cultural groups are not strictly adhered to their landscapes. Boundaries of their areas constantly change and superpose the landscapes of other types. The boundaries or peripheral zones of cultural groups are of minor importance. The qualitative development of their cores is by far more important.

In the course of integration into the environment, the variance of a cultural group directly related with the variance of landscape becomes ever more distinct. The diversity of cultural groups in the territory of Lithuania in the 5th–6th century AD proves this assumption (Fig. 4). In this context, the splitting of the rather continuous NLBC (in the 1st–4th century AD) region at the end of the 4th – the beginning of the 5th century AD (Selonians split some time later) into three ethnic groups is rather interesting: Samogitians, Semigallians and Selonians. This process might have been predetermined by the factor of different geographical environment. The areas of ethnocultural regions of Semigallians, Samogitians and Selonians almost ideally coincided with the different types of landscape. In the Žemaičiai Upland, the Samogitian ethnos developed, in the plains of Lielupė basins Semigallians and in the uplands of Augšzemē (Latvia) the core of the Selonian ethnic group. This example is illustrative of the importance of natural environment in formation of the variance of ethnogeocoenoses. The development of Scalovians and genetically very kin CLBGC (Austechians) archaeological cultures can serve as another example. In the 1st–3rd century AD, Scalovians lived in a small Lower Nemunas high productivity area and CLBGC representatives lived in the plains of Middle Nemunas and Lower Nevėžis. In the 4th–5th century AD these kin cultural groups rapidly expanded their living boundaries but only into the plains. Scalovians expanded their territory in the Lower Nemunas area whereas the CLBGC cultural groups spread northward in the Nevėžis basin – productive Middle Lithuanian Plain (Fig. 4.).

Territorial development patterns of population systems in the territory of Lithuania in the 1st–12th century AD

Territorial pattern of population system of Lithuania at the end of the 1st millennium BC.

For better understanding of population system transformation in the first centuries AD, it is necessary to survey the situation that was at the end of the 1st millennium BC. Still little is known about this period. According to the available data, at the end of the 1st millennium BC (as throughout it), the present territory of Lithuania was very unevenly populated (Fig. 5). NE part of Lithuania was most densely populated: areas of Šėliai and Aukštaičiai uplands (the northern part of BPC region) and Baltic coastal region and Middle Minija – geomorphological regions of Palanga coastal plain and NW Žemaičiai morainic plain (northern part of WBBC region).

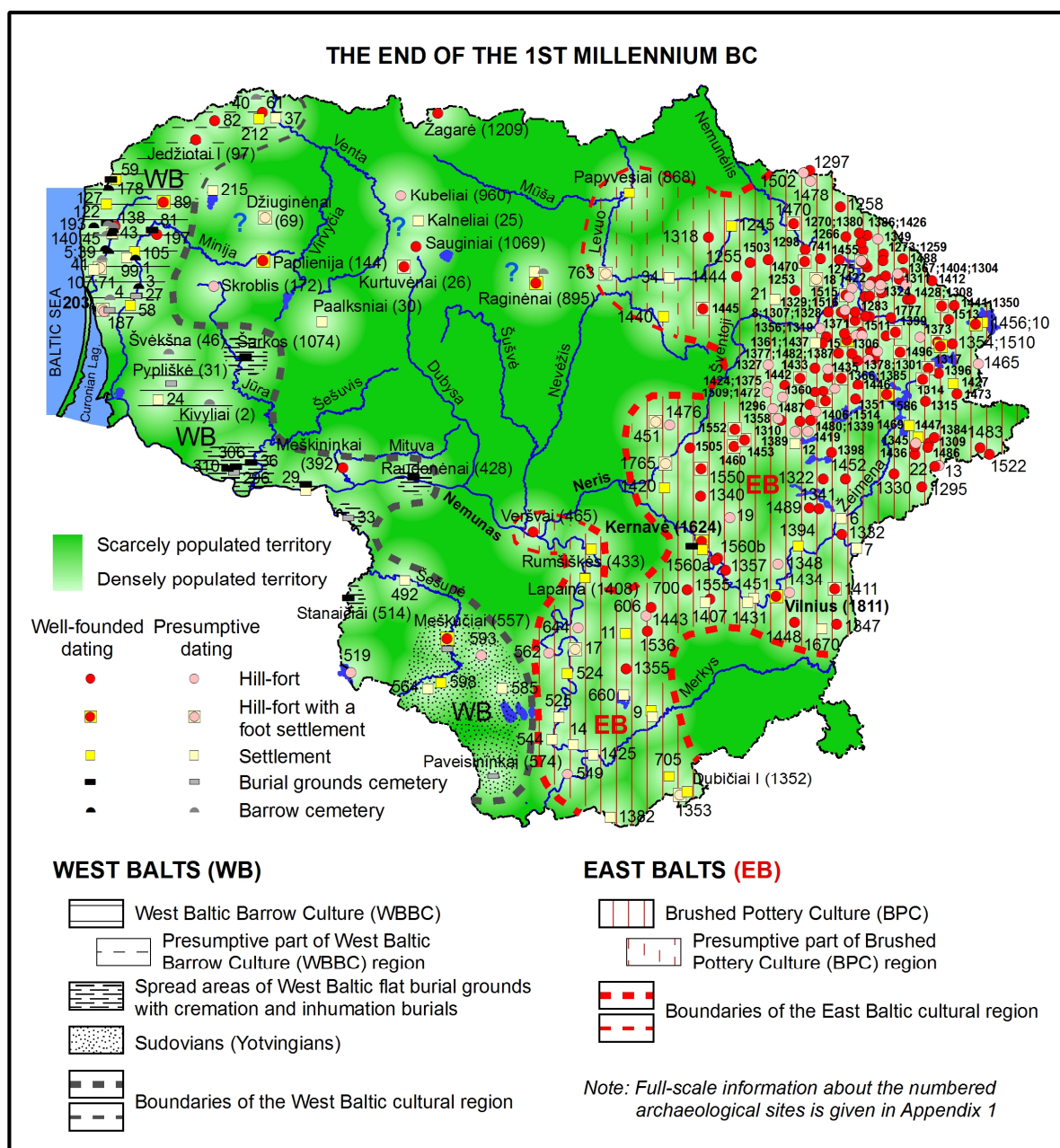
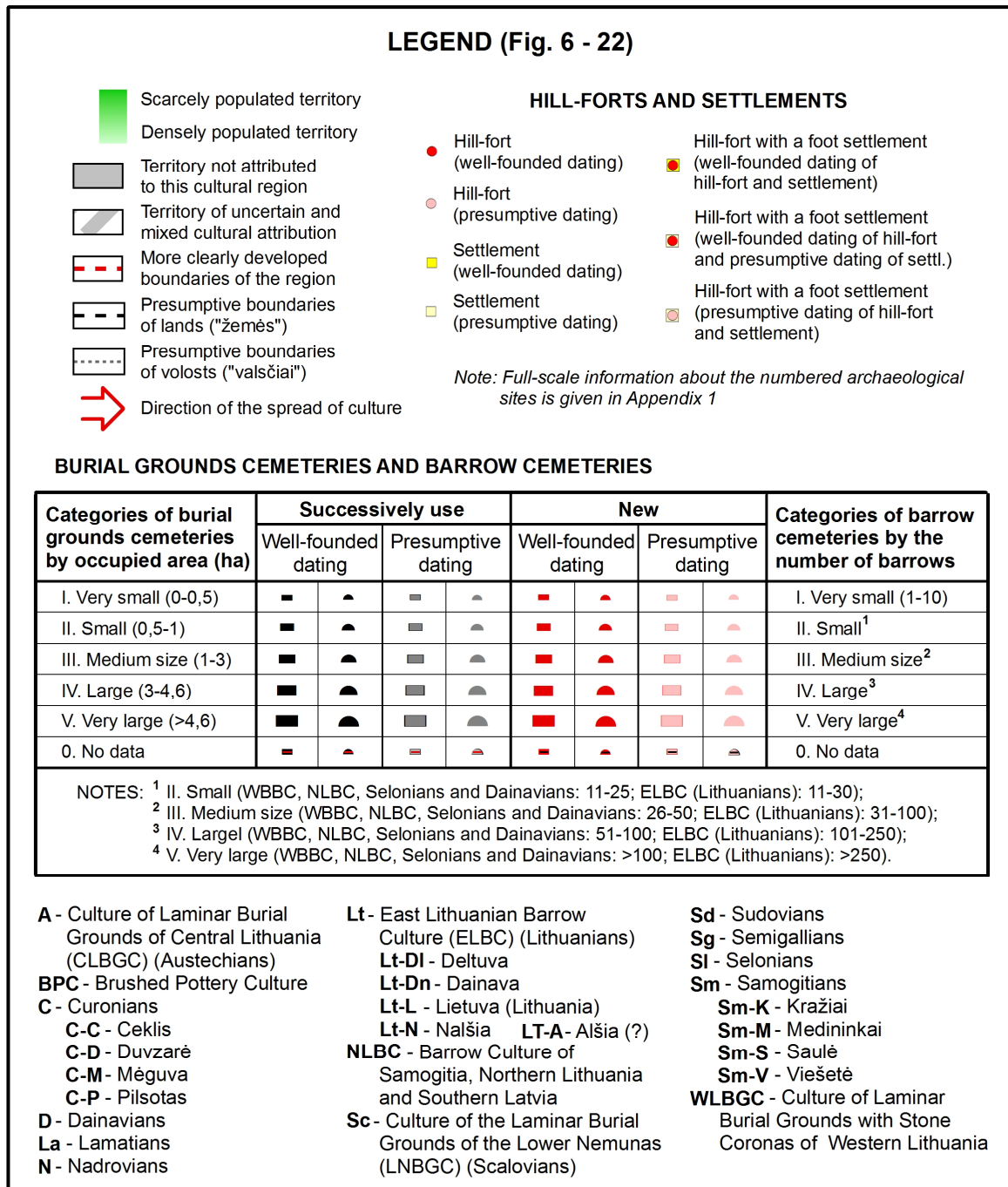


Fig. 5. Population of the territory of Lithuania at the end of the 1st millennium BC

At the end of the 1st millennium BC, the **West Baltic cultural region** included the NW part of West Lithuania and as separate areas wedged in the south-western part of Žemaičiai Plain and Vilkyškiai Ridge. Isolated archaeological objects attributed to West Balts were also localized along Jūra (Šarkos (1074)) and Nemunas (Naudvaris (29), Raudonėnai (428)) rivers and on the left Nemunas bank (Užnemunė). The objects of the 1st millennium BC attributed to West Balts belonged to different cultures.



The **East Baltic cultural region** (BPC region) also was very unevenly populated. The network of settlements was very dense in the laky NE part of the region: especially the northern part of Baltic Upland (region of Sėliai and Aukštaičiai uplands) (Fig. 5). In other parts of the BPC region, more or less compact groups of territorial communities can be distinguished separated by wider belts of depopulated territories. In the southern

part of the BPC region (Dzūkai morainic-fluvioglacial plain), the population network was considerably thinner. Concentrated settlements could only be observed along Nemunas and Neris.

North and Middle Lithuania and Samogitia were surprisingly scarcely populated. A more or less compact group of archaeological objects of uncertain cultural attribution is represented by a group of hill-forts localized in the Kurtuvėnai environs. Raginėnai (895) localized at the Daugyvenė river stands out in the general context. This is an immeasurably interesting and unique locality later known as the main NLBC core. It preserved its conservative identity for more than one hundred years after the decline of NLBC at the beginning of the 5th century AD in the greater part of the region.

Systems of territory population by West Baltic cultural groups

Evolution of population system in the South Curonia and Lamatia territory.

From the cultural point of view, until the 6th century AD, Curonia and Lamatia comprised a continuous region (WLBGC). Curonians and Lamatians have been distinguished since the 7th century AD. Curonia is localized in the Baltic Coastal Plain (Pilsotas and Mėguva), western and northern parts of Žemaičiai Upland and northern part of Middle Venta morainic plain (Ceklis). Lamatia is localized in the South-Western Žemaičiai Plain. Throughout the second half of the 1st millennium – the beginning of the 2nd millennium AD, the Lamatian land persisted as a compact territory isolated from other territories.

Analysis of the evolution of population system in the localized South Curonia and Lamatia in the 1st–13th century AD allowed distinguishing in these periods:

1) *Development period I* is distinguished in the population systems of Curonia of the 2nd–3rd century AD and Lamatia of the 1st – the 1st half of the 3rd century AD (Fig. 6). The beginning of the development period I actually was follow-up of the population system of the 1st millennium BC. In the 1st

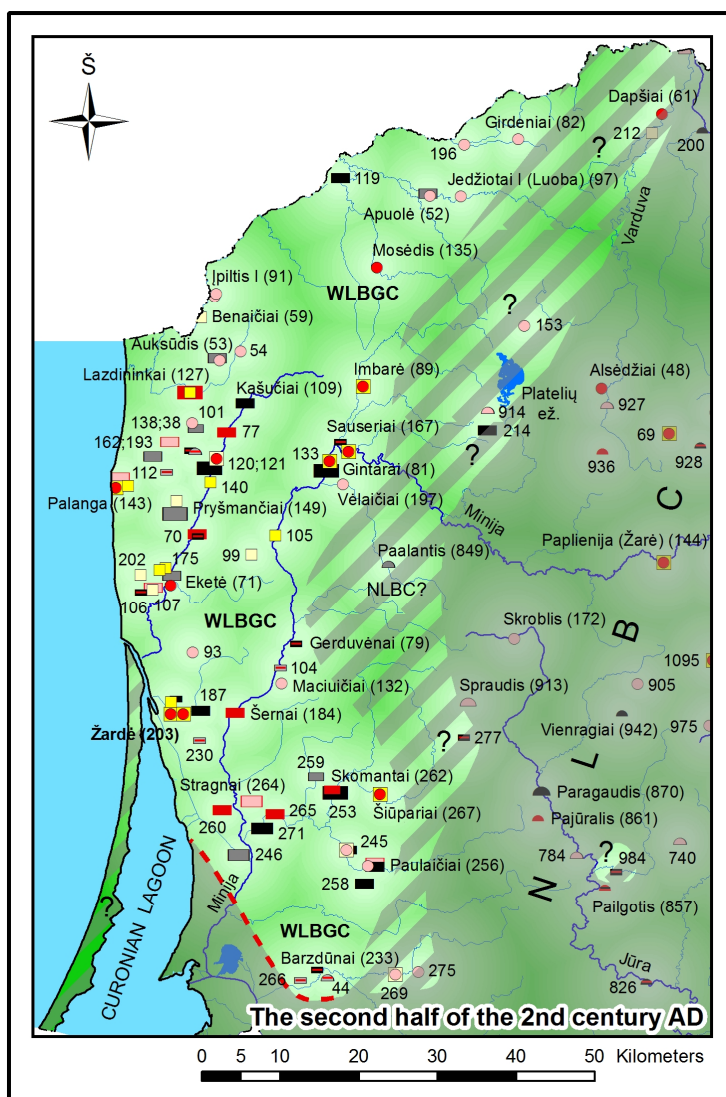


Fig. 6. The WLBGC region in the second half of the 2nd century AD

century AD, there occurred no territorial transformation. Only cultural changes could be observed: an obvious shift from barrows to flat burials. The shift was gradual: most of the communities of the region already used to bury their fellowmen in flat burial grounds (Auksūdis (53), Kašučiai (109), Negarba (138), Pryšmančiai (149), etc.), yet some of them still used barrows (Ankštakiai (38), Ēgliškiai (39), Kurmaičiai (42), Padvariai (45), etc.). In the Curonia and Lamatia regions, an intensive development of population system took place.

2) *Regression period I (the 4th century AD).* In the 4th century AD, regression of population system took place over the whole WLBGC region. Regression was more intensive at the end on the 4th century AD and was first of all associated with the loss of relations with the Roman Empire and the processes of Migration Period.

3) *Period (the 5th century AD).* In the 5th century AD, regression discontinued. The Curonian territory population system was in the stage of transformation and the Lamatia system in the stage of stability. Reduction of Curonian communities of the 5th century AD is proved by the fact that the new burial grounds were smaller than the older ones.

4) *Period.* In the 6th century AD, the development of territory population systems in Curonia and Lamatia took different courses. The Curonian population system was marked by slack regression whereas Lamatia entered into the transformation period of the 6th–7th century AD.

5) *Period.* In the 7th century AD, the processes of population systems development in Curonia and Lamatia were comparable, i.e. they were transforming. The earlier (the 6th century AD) regression of Curonian population system reduced the Curonian communities even more. Thus the 6th–7th century AD can be regarded as the most painful period of development for Curonia. Yet discrete territorial groups of Curonian communities separated by depopulated areas can be distinguished. This implies that the rundown Curonian population structure presumably contained the embryos of volosts and lands.

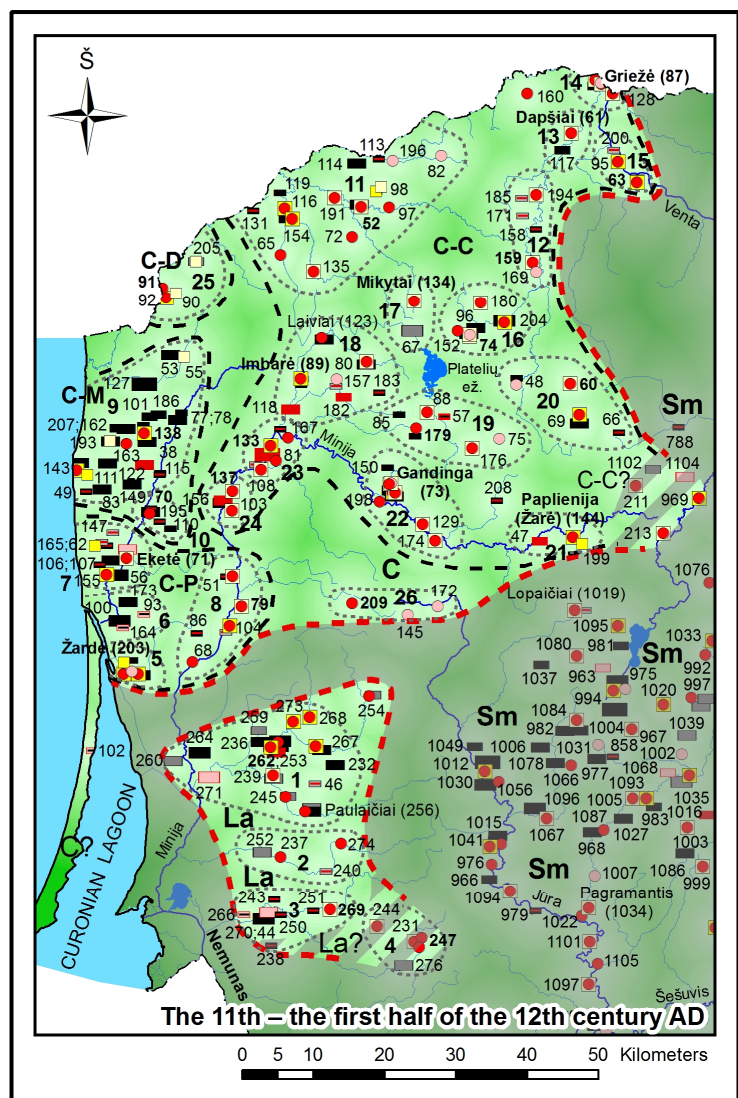


Fig. 7. The South Curonia and Lamatia in the 11th – the first half of the 12th century AD

6) Period. In the 8th–10th century AD, the development of Curonia and Lamatia population systems was different. The 8th century AD marked the beginning of the new development period in both regions. Yet in the 9th–10th AD century, the development of Curonian population system was very intensive whereas in Lamatia it resembled transformation rather than development.

7) Stability period. The stability period is recorded in Curonia in the 11th – the first half of the 12th century AD and in Lamatia in the 10th – the first half of the 12th century AD. The population systems that formed in the 8th–10th century AD experienced no radical changes. The boundaries remained the same and even more definite than before. Only the boundary of the SE corner of Curonia with Samogitian communities residing in close proximity remains uncertain. In this period, Pilsotas, Mėguva and Ceklis lands can be localized in the Curonia region. The Lamatia communities comprised a very compact group (Fig. 7).

Evolution of population system in the Scalovia territory. In the time under consideration (the 1st–12th century AD), Scalovians (LT territory) resided in a small territory on the Vilkyškiai hill ridge and at its foot in the Lower Jūra. This was only the central part of Scalovia region. In the 2nd–8th century AD, Scalovians had an interesting feature: disposition to moving to distal territories. Among such distal (removed from the main territory even for 25–30 km) territories inhabited by Scalovians can be mentioned: Vėluikiai (312) (the 2nd – the first half of the 5th century AD), Šaukėnai (307) (the 3rd–the beginning of the 5th century AD) (both included in the NLBC region), Rubokai (303) (the 5th–8th century AD; bordering on the southern part of Lamatia), Smalininkai (304) (the end of the 4th – the first half of the 5th century AD; bordering on the CLBGC). In the 9th–12th century AD, this feature was not as manifest yet there still existed communities inhabiting distal areas: Viešvilė (315) and Lazdėnai (294).

Analysis of the evolution of population system in the localized north Scalovia in the 1st–13th century AD allowed distinguishing 8 periods:

1) Transformation period (the 1st century AD). At the end of the 1st millennium BC, the Scalovia region had a few objects dated to this period: Lumpėnai (296), Naudvaris (29), Strazdai (306), Trakininkai (310), Vartūliškiai (36) burial grounds cemeteries. The degraded communities were replaced by the new ones that appeared at the beginning of the 1st millennium AD: Dauglaukis (288), Būbliškės (287), Opstainys (299) and Šereitlaukis II (308).

2) Development period I (the 2nd century AD). In the 2nd century, the Scalovian population system developed rather intensively. The list of 3 burial grounds dated to earlier years is supplemented even with 9 new burial grounds (Barzūnai (286), Greižėnai (289), Palumpiai (301), Viešvilė (315), Vėluikiai (312) and others).

3) Period of stability I (the 3rd–4th century AD). This period is marked by partial stability of population system: in the 4th century, Scalovians again inhabited Lumpėnai (296). The disposition to move to distal areas became even more manifest: Šaukėnai (307).

4) Development period II (the 5th century AD). The development is associated with the processes triggered by Migration Period. The population network became denser in the main area (Vilkyškiai hill ridge and its foot): new burial grounds in Oplankys (297), Sodėnai (305) and Vidgiriai (314). This period also is marked by a new

wave of moving to distal areas: Rubokai (303) and Smalininkai (304). These Scalovian communities settled in the peripheral territories of other cultural groups (Fig. 8).

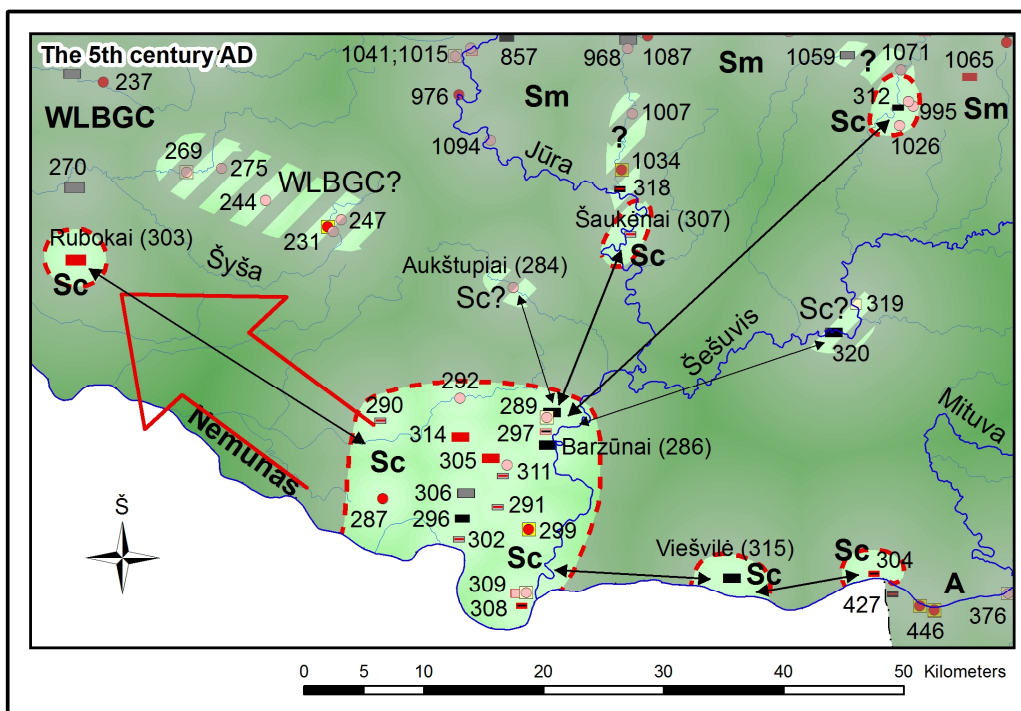


Fig. 8. The North Scalovia in the 5th century AD

5) *Regression period I (the 6th–8th century AD)*. In this period, the boundaries of the main Scalovian habitation area did not change. The population density decreased: Lumpėnai (296) and Strazdai (306) communities disappeared. Certain changes also took place outside the boundaries of the main area: burial grounds in Rubokai (303) and Smalininkai (304) were abandoned.

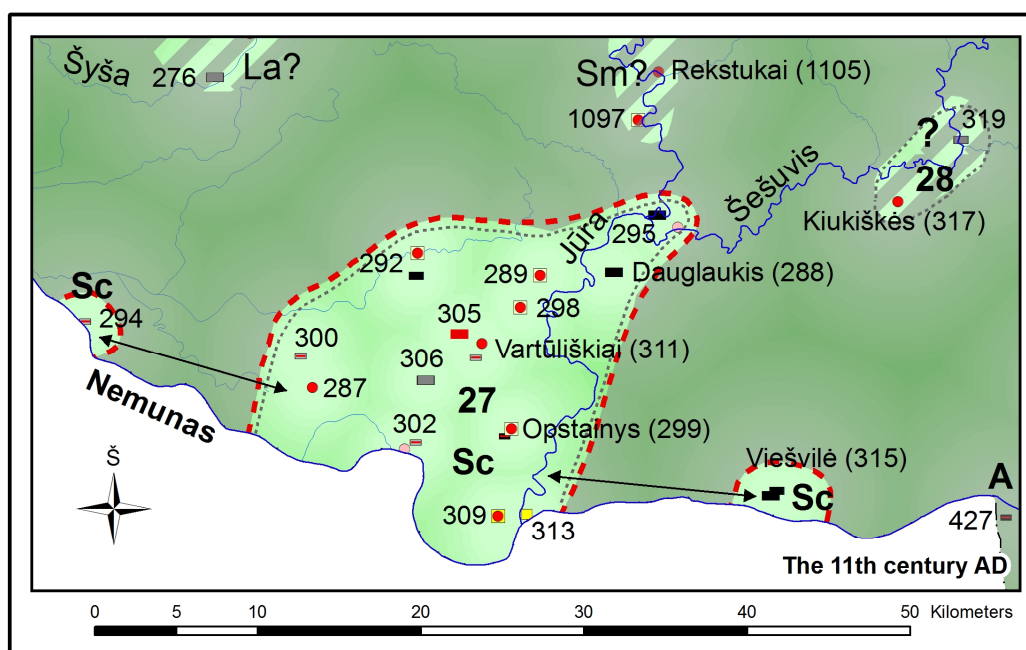


Fig. 9. The North Scalovia in the 11th century AD

6) Development period III (the 9th–10th century AD). The period is marked by new growth of Scalovian communities (Strazdai (306), Dauglaukis (288), Viešvilė (315) (was again inhabited by a rich and militant community). Scalovian communities also settled in Ližai (295) and Lazdėnai (294).

7) Stability period II (the 11th century AD). The stability period of the beginning of the 2nd millennium AD (already recorded in the 10th century) characteristic of population systems of cultural groups localized in Lithuania was shorter and less pronounced. Viešvilė (315), Dauglaukis (288), Vilkyškiai (311) burial grounds cemeteries were abandoned already in the 11th century AD (Fig. 9). Thus the 12th century AD can be regarded as a period of degradation of population system – 8) Regression period II.

Evolution of population system in the territory occupied by the Culture of Flat Burial Grounds of Central Lithuania (CLBGC) (Austechia). The CLBGC was akin to the Scalovian culture and is often attributed to the Western Balts. The CLBGC development in the junction of the 1st millennium BC – the 2nd millennium AD is associated with migration from Prussia or other lands. This region is interesting in that its inhabitants, who in the 2nd–3rd century AD resided in a compact territory on both Nemunas banks at the Nemunas confluence with Dubysa, Nevėžis and Neris, in the 4th–5th century AD (when the processes of migration gained momentum) in short time expanded their territory along Nevėžis northwards assimilating and ousting the local NLBC communities.

Analysis of the evolution of population system in the localized CLBGC region in the 1st–13th century AD allowed distinguishing 7 periods:

1) Development period I (the 1st – the second half of the 3rd century AD). The territory which since the 1st century AD is identified as the CLBGC region was inhabited by isolated communities already at the end of the 1st millennium BC. Yet according to the available data, the region was scarcely populated and the isolated communities (Raudonėnai (428) with its unique inhumation burials and Veršvai (465)) at that time presumably belonged to different cultural groups. In the 1st century AD, the situation changed. Based on the data about hill-forts and settlements, in the Nemunas valley section between the Nemunas–Dubysa and Nemunas–Neris burial grounds many localized communities are dated to the 1st century: Daučioniai (345), Ringovė (431), Jaučiakiai (362), Kulautuva (377), Kačerginė (366) and others.

2) Development period II (the second half of the 3rd – the 5th century AD). In this period, the situation changed cardinally. The inhabitants of the CLBGC region not only expanded the boundaries of the main area (as in the first development period) but (in the second half of the 3rd – the 4th century AD) migrated to the regions of Nevėžis Plain and East Žemaičiai Plateau (its SE part) (Upytė (454), Plinkaigalis (423), Kalniškiai (336), Čiukiškiai (343) and other burial grounds cemeteries) scarcely populated by NLBC cultural group in the 2nd–3rd century AD (Fig. 10). This is the distinguishing feature of the second development period. The area of the region expanded from about 530 sq km in the first half of the 3rd century to about 4 500 sq km in the 5th century. Most likely, in the second half of the 3rd – the 5th century, the Nevėžis Plain and the SE periphery of East Žemaičiai Plateau was inhabited by the CLBGC representatives by ousting the small local NLBC communities. The ousting of NLBC communities into the northward region of Upper Nevėžis, Lėvuo and Daugyvenė

basins is proved by an interesting fact that exactly at that time (the 4th–5th century AD), the number of NLBC communities and their members rapidly increased in the northern periphery of Nevėžis Plain and southern part of Mūša Plain what is illustrated by the new big barrow cemeteries dated to the 4th–5th century AD along the Daugyvenė and other rivers: Raginėnai (895), Berčiūnai (742) and others.

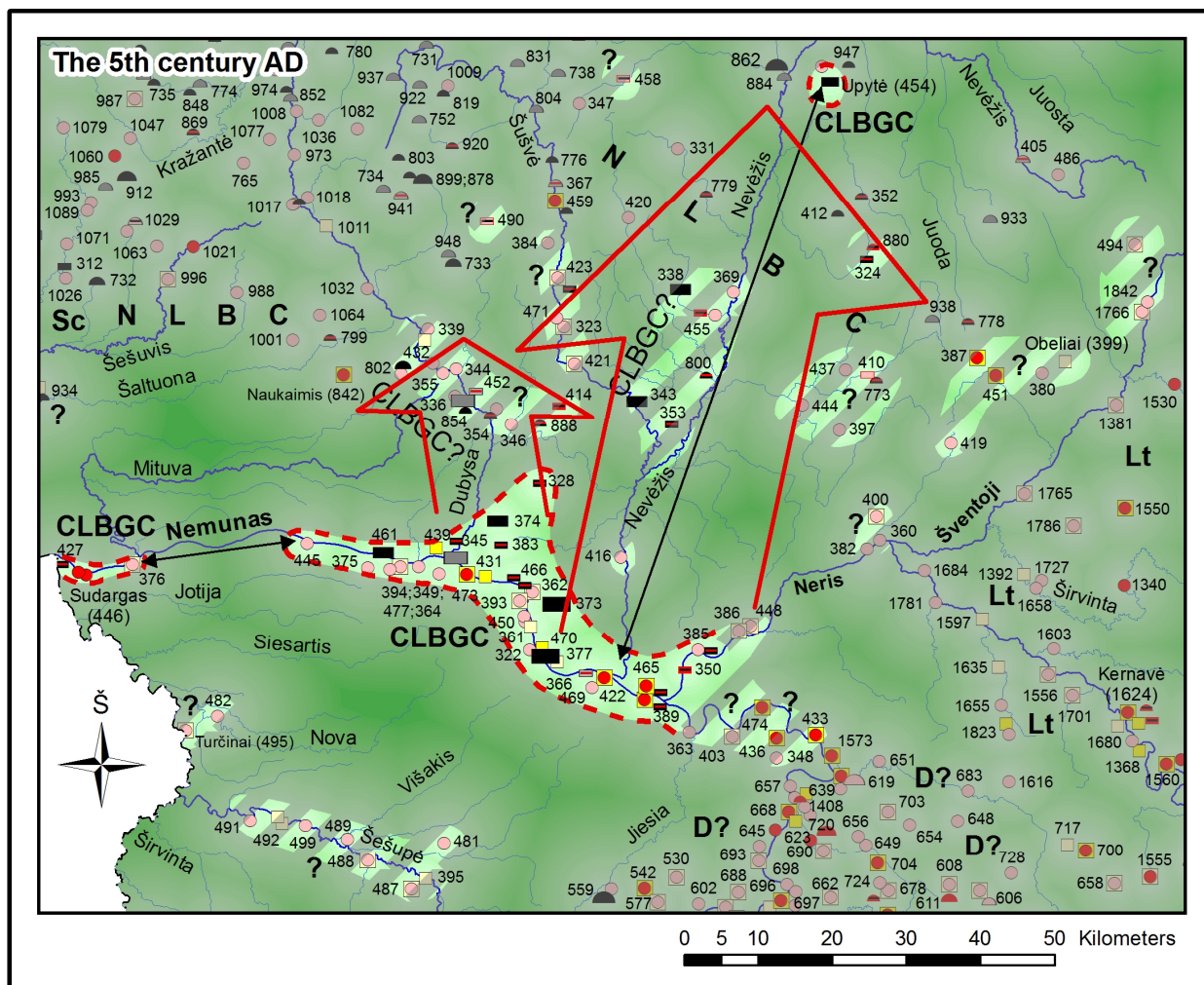


Fig. 10. The CLBGC region in the 5th century AD

4) Regression period (the 7th–8th century AD). It followed the rather short 3) Transformation period I (the 6th century AD). In the 6th–8th century AD the boundaries of the region did not change yet the network of settlements degraded considerably. The reduction of the number of territorial communities is proved by decrease of the number of burial grounds cemeteries from 41 (the 5th century) to 25 (the 8th century).

5) Development period III (the 9th–10th century AD). It is marked by new intensive development of CLBGC population system. Similar processes also were characteristic of other cultural regions localized in the territory of Lithuania but in Austechia it lasted longer. The boundaries of the region changed a bit but the density of population (especially along Nemunas and in the southern part of the Nevėžis Plain) increased. Minor changes of the territory population system occurred only in the northern and eastern parts of the region.

6) Stability period (the 11th – the first half of the 12th century AD). The CLBGC population system stabilized. Yet the stability was not absolute. The population structure

since the beginning of the 2nd millennium AD developed rather unevenly. The network of settlements along Nemunas became even denser whereas in the central, northern and eastern parts of the region it thinned. In this period, community groups identified as volosts can be distinguished (Fig. 11).

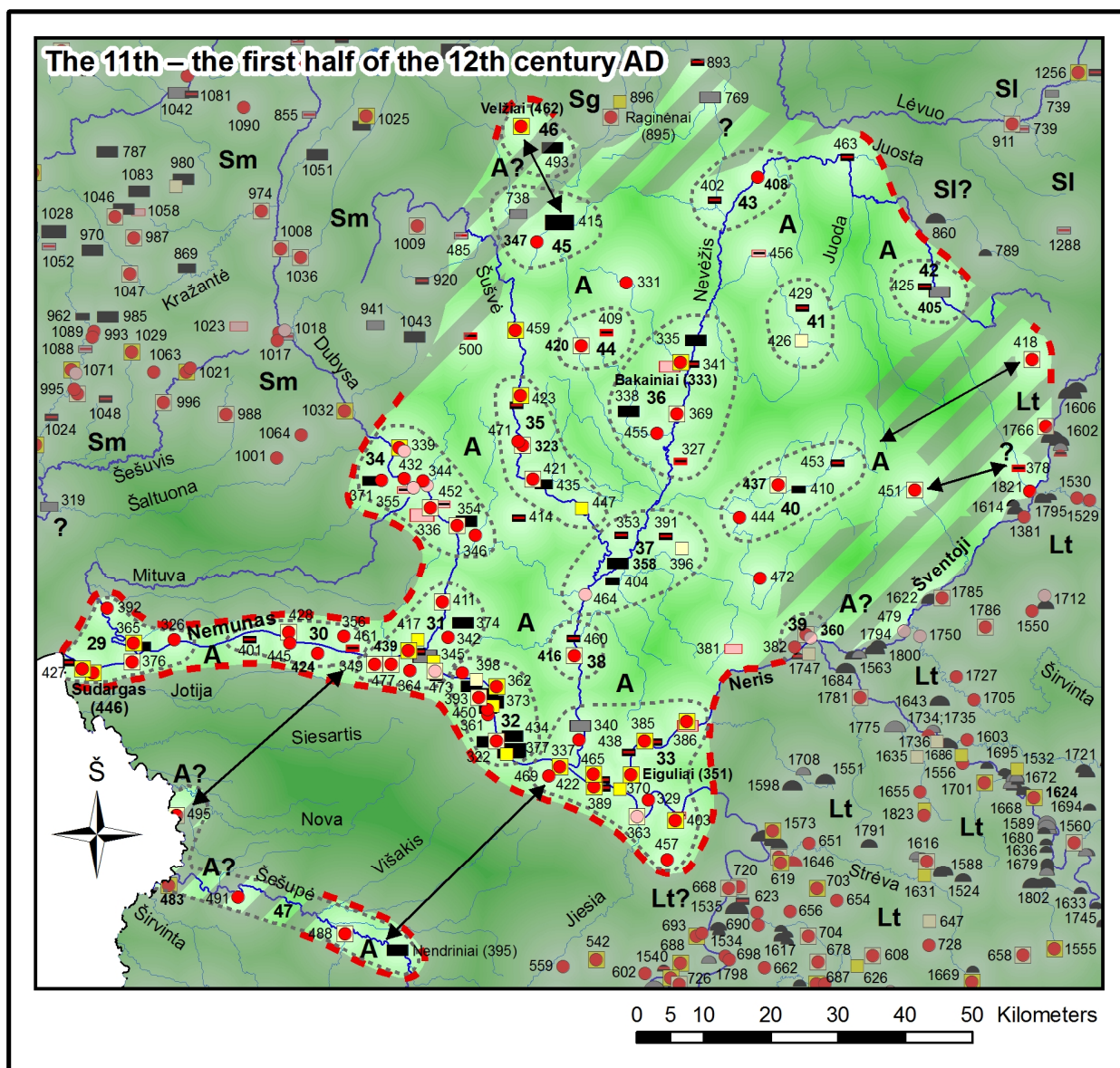


Fig. 11. The CLBGC region in the 11th – the first half of the 12th century AD

7) Transformation period II (the second half of the 12th century – the 13th century AD). As distinct from other Lithuanian regions of this period, the territory population system in the CLBGC region was not decaying but transforming. This was related with the cultural transformation – migration of East Lithuanian cultural groups (Lithuanians) to the Nevėžis and Lower Nemunas plain regions.

Evolution of population systems in the territory of Sudovia, Dainavia and Nadrovia. The cultural attribution of South Lithuanian archaeological objects of the Iron Age is uncertain. Throughout the 1st millennium BC, the region was culturally heterogeneous. The cultural attribution of hill-forts (especially of the ones located on the both Nemunas banks) is not clear as usual. The burial objects of the region differ

implying their different cultural attribution. Two of the cultural groups were related with Yotvingians (Sudovians and Dainavians). The third group was related with the West Baltic archaeological culture Nadrovia. The present territory of Lithuania includes the eastern periphery of the region inhabited by Nadrovians localized in the western part of Suvalkai (Sūduviai) Upland. The data that the territory of Lithuania was inhabited by Nadrovians are not sufficiently reliable. Sudovians used to live in the eastern part of Suvalkai (Sūduviai) Upland, western part of the Dzūkai Upland (sub-regions of Seirijai and Middle Nemunas limnoglacial plateaus) and southern peripheries of the Lower Nemunas limnoglacial plain. Only the Ančia sandur plain was not populated. In the 4th–6th/7th century AD, Dainavians lived on the other bank of Nemunas (eastern part of Dzūkai Upland), as isolated islands, presumably in the scarcely populated central and eastern parts of Merkys–Nemunas Plain, Dieveniškės Plateau of Ašmena morainic ridge and regions of Lyda Plateau.

The territory of Lithuania includes only the peripheral part of Nadrovia. Therefore, it was not included into the present analysis of population systems. The population systems of Sudovia and Dainavia were analyzed jointly as they are very closely interconnected. Analysis of the evolution of population system in the Sudovia–Dainavia region in the 1st–13th century AD allowed distinguishing 8 periods:

1) Development period I (the 1st–3rd century AD). In the junction of eras, no major transformations in the population systems of Sudovia and the eastern periphery of Nadrovia occurred. The data about the use of hill-forts are not reliable. Some of them (firstly the ones localized along Nemunas in the eastern part of the left bank (Užnemunė)) yielded many finds representing the Brushed Pottery Culture (BPC): Krikštonys I ir II (543 ir 544), Norkūnai (562), Rumbonys (630) and others. Thus in the 1st millennium BC, the eastern part of the left Nemunas bank most likely was the SW periphery of BPC region. The boundary between the Eastern Balts (BPC) and the Western Balts in the eastern part of the left Nemunas bank was vague. Presumably, a wide territory of mixed cultural attribution extended southward. In the first centuries AD, a few new objects were used in the left Nemunas bank: Pažarstis barrow cemetery (559), Ažuoliniai (523), Černiauskai (529), Kumelioniai (554), Lakinskai (547), Pašlavantis (573), Verstaminai (594) and other hill-forts. For this reason, this time frame is recorded as a period of development taking place only in the left Nemunas bank and manifesting through thickening of the population network.

2) Development period II (the 4th–5th century AD). This period differs considerably from period I in trends and rates of development. During this period, not only the number of Sudovian and, presumably, Dainavian communities in the left Nemunas bank (Užnemunė) increased but intensive migration of Dainavians to the eastern part of Dzūkai Upland took place (Fig. 12). From the cultural point of view, the left Nemunas bank remained heterogeneous. Along with Sudovian burial grounds cemeteries (Delnica (531), Paveisininkai (574)) barrow cemeteries of uncertain cultural attribution (Sudovian or Dainavian) were localized in it: Pažarstis (559), Dimiškės (533), Seiliūnai (583), Rudamina (584), Vilkiautinis II (638)). In the eastern part of Dzūkai Upland, barrows built of earth and stones attributed to Dainavians spread rapidly: Eitulionys (611), Intuponiai (612), Lavariškės (618), Maisejūnai (619), Migliniškės (622), Migonys (623), Moša (624), Musteniai (625), Nemaitonys (626) and others.

3) Transformation period I (the 6th century AD). The expansion of Dainavians slowed down. In the 6th century, a few new Dainavian barrow cemeteries (Bagočiai

(605), Beižionys (608), etc.) appeared and a few declined (Moša (624), Nemaitonys (626) and others).

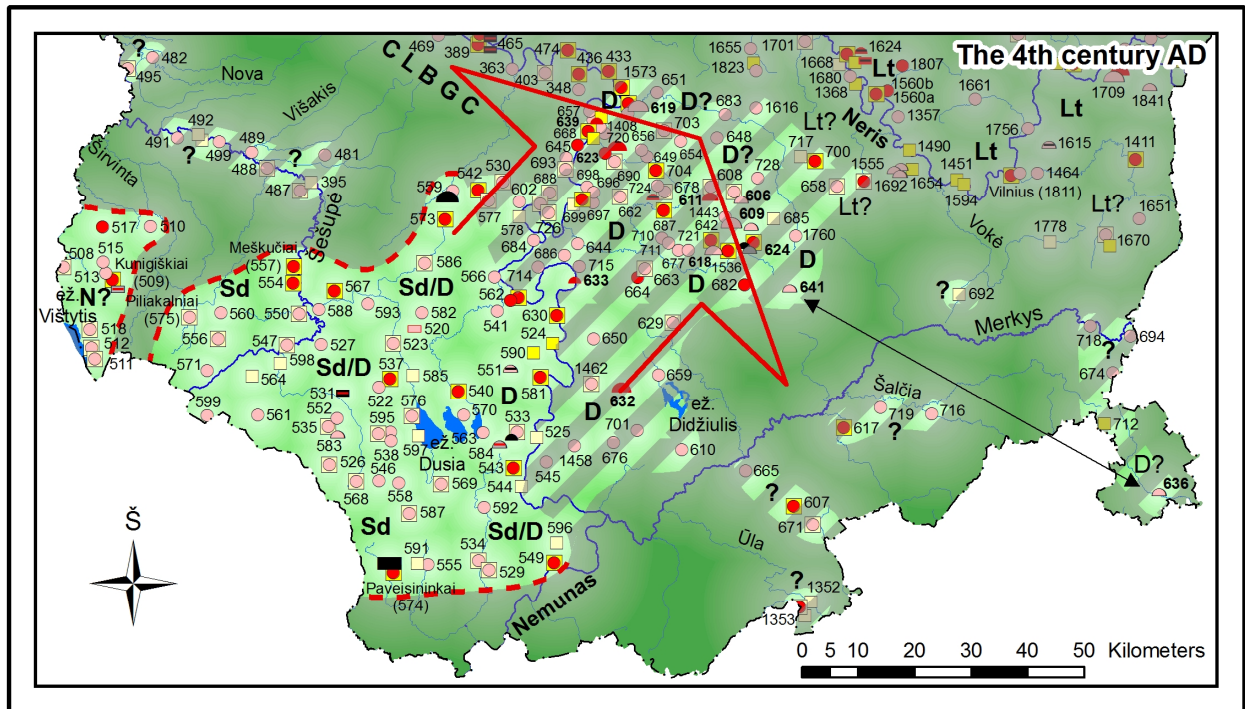


Fig. 12. The Sudovia and Dainava in the 4th century AD

4) Regression period I (the 7th century AD). Distinguishing of this short yet intensive population system regression period followed by transformation period II is problematic due to contradictory available data. It is reported in archaeological literature that the latest burials attributed to Dainavians are dated to the 6th century whereas since the 7th century ELBC (Lithuanians) barrows spread in Dainavia. Yet in various other sources (inventories, reports of archaeological explorations and others), stone barrows are dated to the 7th century (Bagočiai (605), Krikštonys (616), Musteniai (625)) and even 8th (Beižionys (608), Eitulionys (611), Mickonys (621) and others) centuries. Thus it is unclear whether the mentioned barrows still were used by Dainavians or – since the 7th century – by Lithuanians.

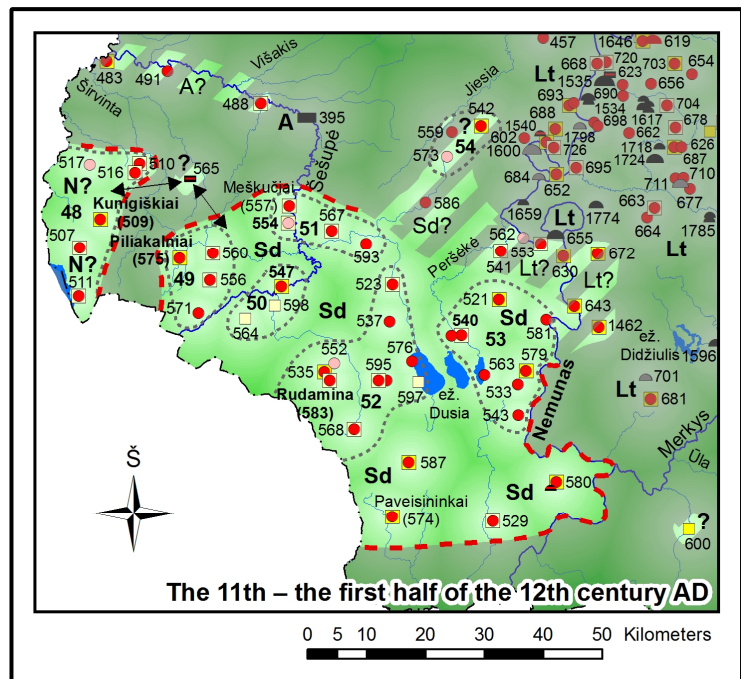


Fig. 13. The Sudovia in the 11th – the first half of the 12th century AD

5) Transformation period II (the 8th–9th century AD) and 6) Regression period II (the 10th century AD). Beginning with the

8th century, only the development of population system in the left Nemunas bank (Užnemunė) is analyzed. An again, nothing concrete can be said about the periphery of Nadrovia localized in the territory of Lithuania. Also little is known about the development of Sudovia. The data are scanty therefore the distinguished development periods of population system in the 8th–13th century AD are not sufficiently reliable. Based on the poor available data about Sudovia, transformation (the 8th–10th century) and regression (the 10th century) periods of population system development were distinguished.

7) Stability period (the 11th – the second half of the 12th century AD). Territorial units ranked as lands are not distinguished in Sudovia and Nadrovia. Sudovia can be equalized to land whereas in the east Nadrovia periphery included in the territory of Lithuania only one territorial unit corresponding to volost can be distinguished (Fig. 13). From the 12th century AD can be regarded as a period of degradation of population system – *8) Regression period III.*

Systems of territory population by Middle Baltic cultural groups

Evolution of territory population system in the Barrow Culture region of Samogitia, North Lithuania and South Latvia (NLBC). The formation of NLBC is related with the migration processes which began in the 1st century AD. The migration took place from the WBBC to the scarcely populated Samogitia, Middle and North Lithuania and South Latvia where the WBBC representatives mixed with the scanty local residents (most likely, the descendants of the East Baltic BPC). The first WBBC barrows that appeared in the Žemaičiai Upland are dated to B1b (40–70 y.e. of the first century AD) and the latest (Daugyvenė River basin and other territories in the southern part of Mūša Plain and northern part of Nevėžis Plain) to the 5th–6th century AD. The NLBC barrow cemeteries built in Selonia sometimes were used even at the beginning of the 2nd millennium AD (in this work they are referred to as “Selonian barrows”).

The evolution of population system in the NLBC region had only three clearly defined periods:

1) Development period (the middle of the 1st century – the 3rd century AD). The first NLBC barrows appeared in the Žemaičiai Upland in the middle of the 1st century AD (B1b period): Paalksniai (850), Paragaudis (870), Vienragiai (850). They are the earliest known NLBC barrow cemeteries. Presumably, the Agelaičiai (733), Kybartiškė (808), Noliškiai (846), Pažobris (878), barrow cemeteries localized in the Žemaičiai Upland, Zastaičiai (200) barrow cemetery localized in the Middle Venta Plain and Pajuostis (860) (strangely removed farther in the east) barrow cemetery localized in the northern part of Nevėžis Plain can be dated to the second half of the 1st century AD.

In the 2nd century AD, the number of barrows and the area occupied by NLBC barrow cemeteries increased (Fig. 14). The NLBC region expanded into the Žiemgala Plain and into the eastern and south-eastern scarcely populated regions of Mūša–Nemunėlis and Nevėžis plains. According to GDB data, 104 new barrow cemeteries appeared in the 2nd century AD. Together with the 9 cemeteries dated to the 1st century AD, their number amounted to 113. Undoubtedly, the actual number was even larger. In the 3rd century AD, the number of communities was rapidly growing (according to the available data, 113 new barrow cemeteries appeared in the NLBC region 3rd century. The total number amounted to 224). However, the boundaries of the region expanded

negligibly. The number of communities increased as a result of thickening network of settlements rather than territorial expansion (as was the case in the 1st–2nd centuries AD).

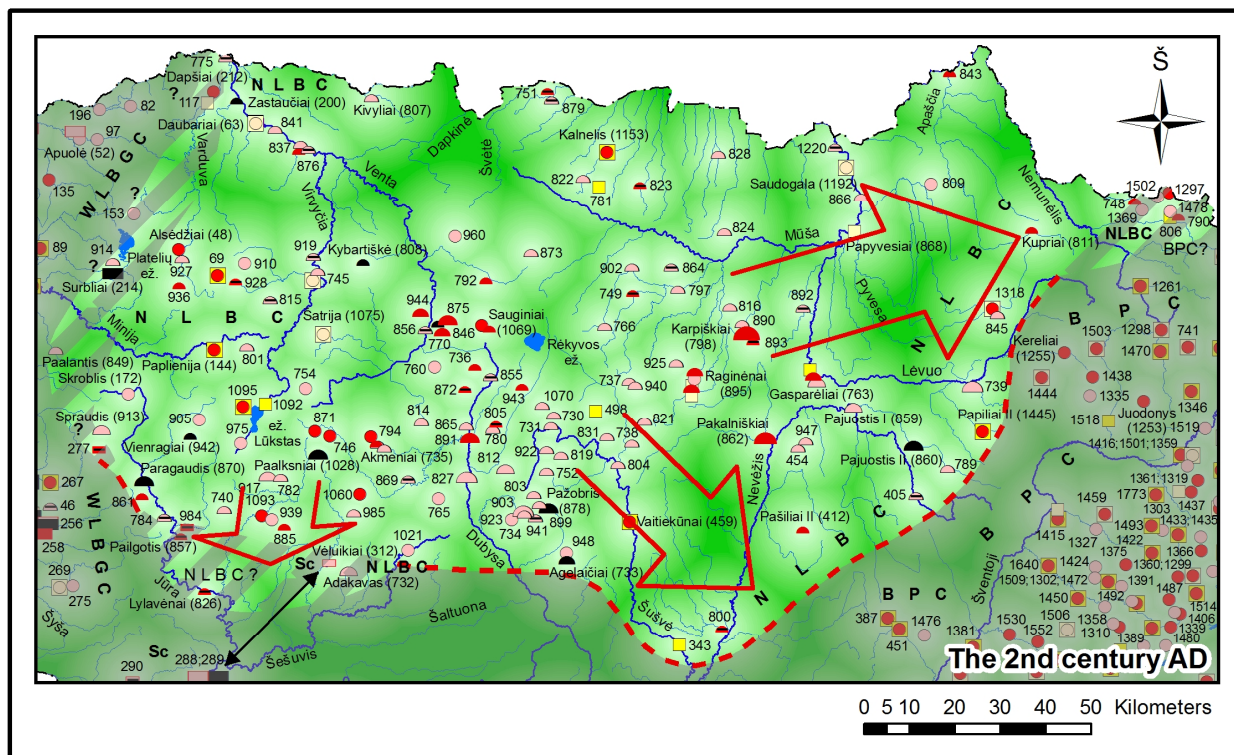


Fig. 14. The NLBC region in the 2nd century AD

There are interesting insights as to the changes of the boundaries of NLBC region. The first NLBC region slightly expanded into the western part of Sėliai morainic upland which was rather densely populated by BPC representatives. The ratio between the NLBC representatives and local BPC substratum is not clear. The new barrows not necessarily appeared near the still used BPC hill-forts. It is possible to assume that at least for some time (in the 3rd and perhaps even in the 4th century AD) the population of the western part of Sėliai Upland belonged to two cultural groups. The second NLBC region was represented by the northern part of Karšuva Plain. Before the expansion of NLBC region, this territory (along Jūra and other rivers) had been populated by a few communities of uncertain cultural attribution. The Šarkai (1074) burial grounds cemetery is attributed to the West Balts, the Vėluikiai (312) and Šaukėnai (307) burial grounds cemeteries – to Scalovians. In the 2nd–3rd century AD, in this region appeared a few NLBC barrow cemeteries: Adakavas (732), Jonaičiai (784), Lylavėnai (826), Užvarniai (934) and others. Thus in the 2nd–4th century AD, this region also was of mixed cultural attribution.

2) Stability period (the first half and the middle of the 4th century AD). In the 4th century, the population system in the NLBC region settled (Fig. 15). There appeared only 16 new barrow cemeteries (mainly in the central and eastern parts of the region). In the 3rd century, about 30 barrow cemeteries declined. Bearing in mind the total number of NLBC barrow cemeteries (210), the changes were negligible. Therefore, this period may be regarded as a stability period in the evolution of population system. Yet namely in the 4th century AD, there emerged **Raginėnai community (895)** (the most important

different. In the 4th–6th century, fellow-men were buried in barrows: Raginėnai (895), Daujėnai (750), Gailiūnai (762), Gasparėliai (763), Ilčiūnai (1249), Juljanava (786), Juostininkai (789), Pajuostis (860), Plaučiškiai (882), Venslaviškiai (463) and other barrow cemeteries. In Selonia, barrow culture persisted even longer.

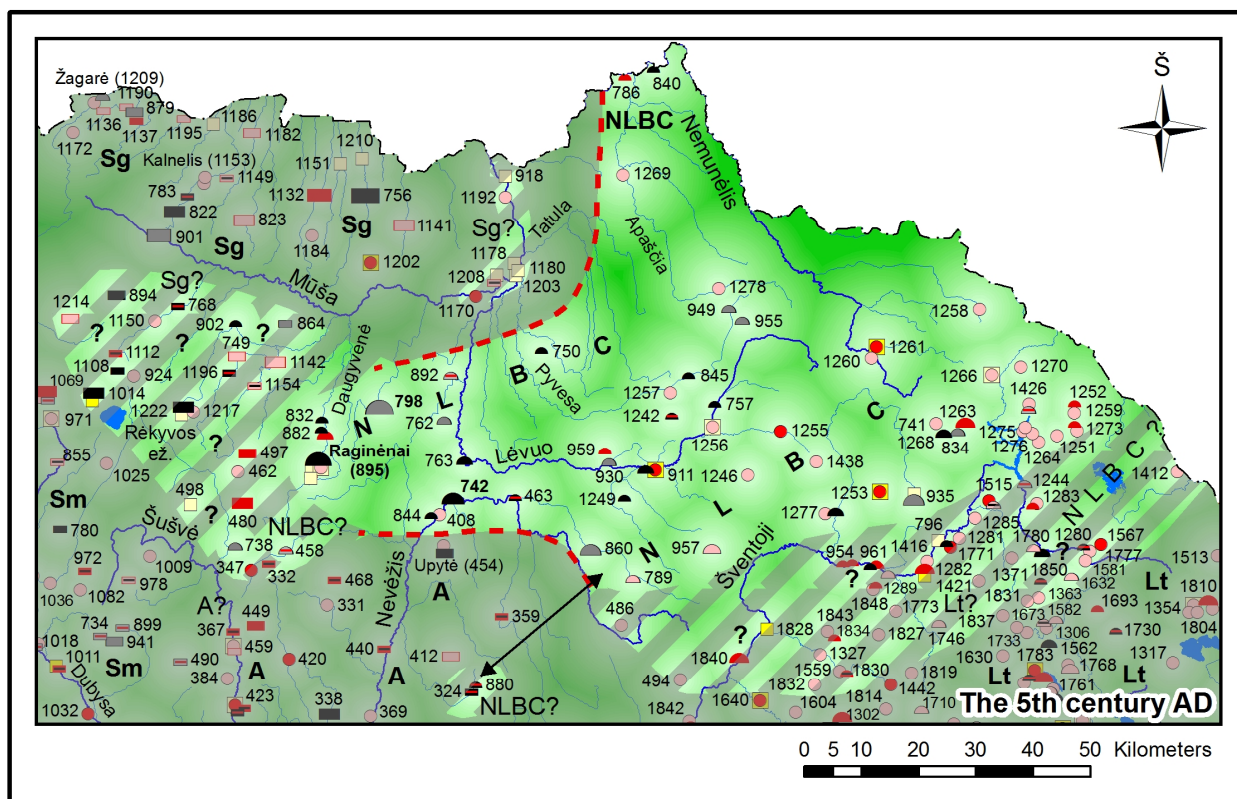


Fig. 16. The NLBC region in the 5th century AD

Evolution of population system in the territory of Samogitia. In spite of its exceptional historical importance, Samogitia remains one of the least archaeologically explored Lithuanian regions. Samogitia as a cultural region formed in the 5th century AD and till the 12th century AD its territory changed inconsiderably: from about 4300–7000 sq km in the 5th century to 5300–6800 sq km in the 12th century. In the 5th–12th century AD, the Samogitian region embraced the Middle Jūra, Middle and Upper Dubysa, Virvyčia and Upper Venta basins. From the geomorphological point of view, Samogitia occupied the Žemaičiai Upland (without the western (Curonian) and south-eastern (CLBGC) parts) and the northern part of Karšuva Plain. A few Samogitian communities were localized in the southern part of Middle Venta morainic plain. The most densely populated part of Samogitian region included the Middle Žemaičiai Ridge (Medininkai land) and drained banks of rivers (Jūra, Akmena and Ančia) in the northern part of Karšuva Plain. Other parts of Samogitian region were more scarcely populated. Slight territorial changes of Samogitia in the 5th–11th century AD were related with the reduction of the territories of uncertain cultural attribution and more accurate definition of Samogitian boundaries in later chronological time frames rather than with the expansion of Samogitian population system into the depopulated territories or territories of other cultural attribution.

Analysis of the evolution of population system in the Samogitia region in the 1st–13th century AD allowed distinguishing 8 periods:

1) Development period I (the 1st – the first half of the 3rd century AD). It was marked by intensive population of the territory. It was already mentioned that the first barrow NLBC cemeteries appeared in Samogitia rather early: in the middle and the second half of the 1st century AD. Later, their number rapidly increased (according to GDB data, 8 barrow cemeteries are dated to the second half of the 1st century and even 57 barrow cemeteries to the 2nd century AD) and reached its maximum in the 3rd century AD (90). The Žemaičiai Upland was then more densely populated than the North and Middle Lithuanian plains.

2) Stability period I (the second half of the 3rd – the first half of the 4th century AD). It also began earlier than in the North and Middle Lithuanian plains. The development of population system ceased: according to available data, there appeared no new objects and even the number of old objects slightly decreased.

3) Regression period I (the second half of the 4th century AD). This period is marked by a rapid decline of NLBC barrows. There is an impression that the regression of former population system was very fast. Yet the impression may be slightly incorrect. Firstly, this is because the majority of unexplored NLBC barrow cemeteries (especially the destroyed ones) formally are dated to the Old (Roman) Iron Age. Thus the 4th century AD is taken as a formal end of this kind of cemeteries. This assumption may be partly correct because at the end of the 4th century, the ethnocultural situation dramatically changed not only in Samogitia but also in many other Central European regions. The intensive migration processes (Migration Period) of the end of the 4th–5th century AD touched all Baltic tribes. The cultural transformation of Samogitia may be partly related with these processes. According to available data, in Samogitia migration processes were not very pronounced. Presumably, only the number of communities decreased considerably.

4) Development period II (the 5th – the first half of the 6th century AD). According to available data, about 20 new cemeteries appeared in Samogitia in the 5th century. In the 6th century, there appeared 14 more cemeteries: Pagrybis (1035), Paklibakiai (1042), Sauginiai (1069) and others. In the 5th–6th century, the boundaries of Samogitia are uncertain. Almost on all sides, Samogitia is surrounded by a wide belt of territories of unknown cultural attribution (except the western part bordering on depopulated territories).

5) Transformation period (the second half of the 6th – the 8th century AD). This was one of the longest periods in Samogitia. Having started at the second half of the 6th century when the processes of migration slackened, it lasted till 8th century. The transformation of population system was not very intensive. It should be pointed out that the new cemeteries (Paupynis (1055), Požerė (885) and others) were localized in the SW part of Samogitia. At the beginning of the 2nd millennium AD, this region – the historical Medininkai land – became the core of Samogitia. Therefore, the rapidly increasing number of communities in this part of Samogitia was a regular phenomenon. Being the core of Samogitia, this territory also became the centre of new traditions what is vividly illustrated by the earliest decline of barrow tradition (in the 3d–4th century AD).

6) Development period III (the 9th century AD). Beginning with the 9th century, the number of Samogitian burial grounds increased (Paluknis (1043), Paragaudis (1049),

Tolišiai (1083), Upyna (1086), Žašinas (1096) and others) demonstrating an obvious development of population system.

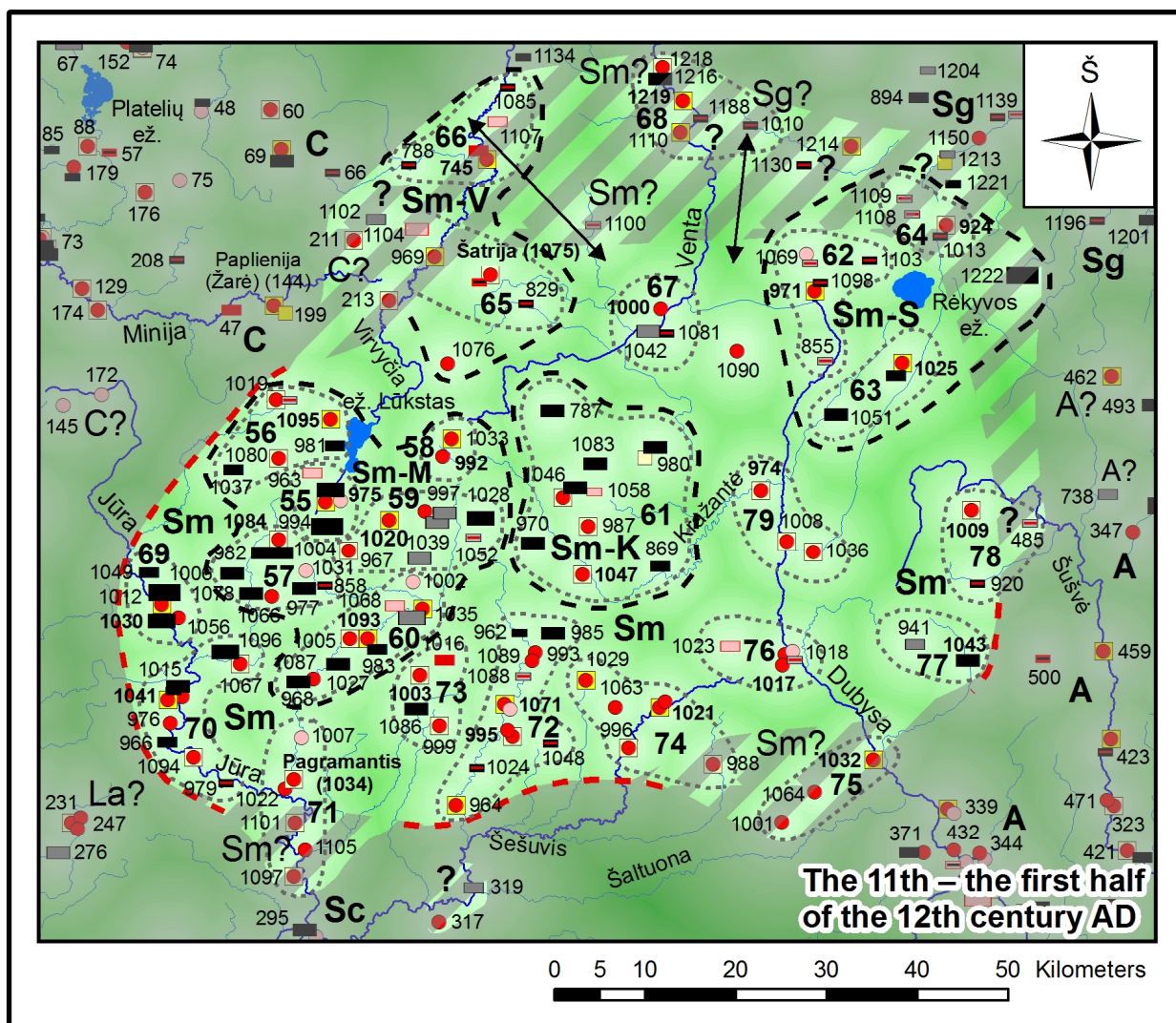


Fig. 17. The Samogitia in the 11th – the first half of the 12th century AD

7) Stability period II (the 10th – the first half of the 12th century AD). The Samogitian population system settled in the 1st half of the 12th century. The boundaries of Samogitia in the western, southern and eastern parts were rather well defined (Fig. 17). The peripheral burial grounds undoubtedly attributed to Samogitia and the father extending depopulated territories (mainly limnoglacial plains and other areas of heavy and waterlogged soils) serve as a good basis for determining the boundaries of Samogitia in the 9th–12th century AD. The northern boundary of Samogitia remains most uncertain. In the 11th – the first half of the 12th century, presumably the Samogitian ethnocultural region was not yet a politically organized unit with a uniform hierarchical territorial administrative structure. However, some parts of this region might have had a fully developed territorial administrative system (village–volost–land) of a few (two or three) hierarchical levels. Like enough, in this period embryos of Medininkai, Kražiai, Viešetė and Saulė lands can be traced.

8) Regression period II (the second half of the 12th – the 13th century AD). The process of the diminishing number of territorial communities became obvious at the end

of the 12th and especially in the 13th century. Yet it would be incorrect to define it as very intensive. Though many burial grounds cemeteries were abandoned Samogitia did not empty. Hill-forts ever after were used and in later years (the 13th–14th century), Samogitia was known as a rather densely populated and military powerful region.

Evolution of population system in the territory of South Semigallia. Semigallia as a cultural region formed in the 5th century AD yet the barrow tradition in it declined later than in Samogitia. In Samogitia, this process set in already in the 4th century AD (in the southern part of Samogitia perhaps even in the 3rd century) whereas in Semigallia they began at the end of the 4th – the first half of the 5th century). The region inhabited by Semigallians in the 5th–12th century (including the larger part of Semigallia localized in the territory of Latvia) was almost twice as large as the culturally kindred Samogitian region of the same period. Actually it included almost the whole Lielupė basin and a large part of Middle Venta basin. The part of Semigallia (South Semigallia) localized in the present territory of Lithuania accounted for about one third of its total territory. Its settlement network was only slightly thinner than that of Samogitia but hill-forts were considerably fewer. This is the main difference between the Semigalian and Samogitian population systems. The changes of the boundaries of the territory populated by Semigallians were more obvious. Throughout the whole period, the western part of Semigallia included a large depopulated territory (in the 5th century, it extended into the territory of Semigallia for about 1300 sq km (without a single discovered archaeological object): Šakyna and Naujoji Akmenė in the Middle Venta plain and partly Mažeikiai–Viekšniai (northern part) and Kuršėnai (eastern part) geomorphological micro-regions) which was not inhabited due to unfavourable conditions for farming (large bog terrains, water saturated sod-gley soils).

Analysis of the evolution of population system in the South Semigallia region in the 1st–13th century AD allowed distinguishing 8 periods:

1) Stability period I (the 1st century AD). The data about population of Semigallia at the end of the 1st millennium BC – the 1st century AD are very scanty. Until the 1st century AD (or perhaps till the middle of the 2nd century), the Žiemgala, Mūša and Middle Venta plains were scarcely populated.

2) Development period I (the 2nd–3rd century AD). This period began slightly later than in Samogitia (in Samogitia it started in the middle of the 1st century AD and in Semigallia only in the 2nd century) yet was very intensive. The tradition of burying in barrows spread very rapidly from the West Curonia and Samogitia. In the 2nd–3rd century, the number of barrows promptly increased (according to GDB data, only one (Zastaučiai (200)) barrow cemetery was dated to the second half of the 1st century AD, 34 cemeteries were dated to the 2nd century and even 70 barrow cemeteries were dated to the 3rd century).

3) Stability period II. In the first half of the 4th century AD, the population system in Semigallia stabilized for a short time. Only 5 barrow cemeteries came into use in the 4th century. At the end of the 4th century, about 50 barrow cemeteries were abandoned (4) Regression period I).

5) Development period II (the 5th – the first half of the 8th century). At the end of the 4th – the beginning of the 5th century, in Semigallia as in Samogitia some NLBC barrow cemeteries were abandoned and in the 5th century some of them were converted into Semigallian cemeteries (fellow men were buried in cemeteries near the NLBC

barrows: Dargužiai (749), Diržiai (756), Jauneikiai (783), Paventė (876a) and others) (Fig. 18). According to available data, in the 5th century 16 new cemeteries were used in Semigallia (Aukštadvaris (1132), Degesiai (1141) and others), in the 6th century 15 (Lieporiai (1159), Užupiai (1153) and others), in the 7th century 10 (Kriukai (1157), Linksmučiai (1163), Pamiškiai (1178), Žeimelis (1210) and others), and in the 8th century 21 (Astravas (1162), Kyburiai (1155), Šukioniai (1201), Valdomai (1204) and others). In the 5th – 6th century, only 6 cemeteries were abandoned. At the end of the 8th century, 12 cemeteries were abandoned.

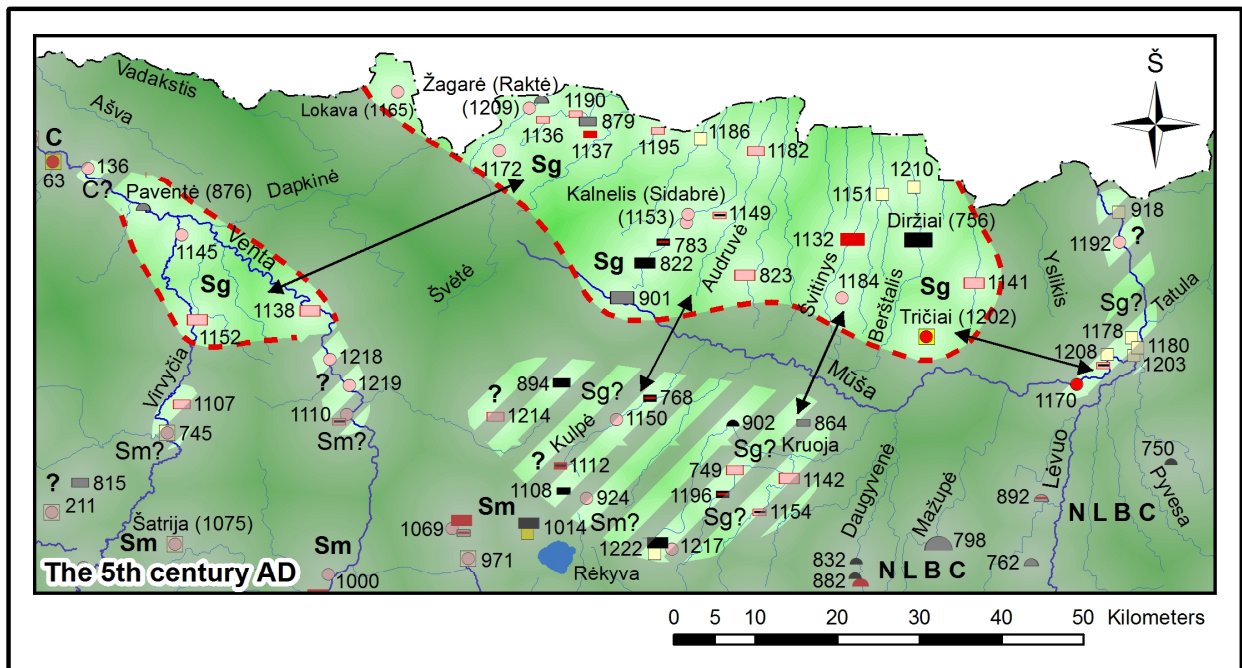


Fig. 18. The South Semigallia in the 4th century AD

The main difference between the evolution of Samogitian and Semigallian population systems in the 5th–8th century AD is in the fact that in Samogitia the development and transformation of population system took place within the unchanging boundaries through thickening of the network of settlements whereas in Semigallia not only the network of territorial communities became denser but the territory of the region expanded into the neighbouring territories of Mūša morainic plain. In the 6th–7th century, the southern territories of this plain used by the NLBC communities were converted into Semigallian territories (Raginėnai (895) and others). At the end of the development period, Semigallia expanded eastward (into the Biržai and Vabalninkas land) yet its network of settlements was very scarce (Ancišķiai (1211), Astravas (Biržai) (1162), Vabalninkas (1223)).

6) Transformation period (the second half of the 8th – the 9th century AD). As distinct from the neighbouring Samogitia and many other regions, in the 9th century the Semigallian population system did not develop but only transformed. Presumably, the transformation began in the 8th century (perhaps in the second half of it). According to GDB data, at that time 12 cemeteries were abandoned in Semigallia. In the 9th century, 11 new cemeteries were used. The material available about the cemeteries of the 8th–9th century AD is comparable therefore its relation with a concrete age would be incorrect

(without exploration). Thus the defined period can be characterized as a poorly defined period of population system transformation.

7) *Stability period III (the 10th – the first half of the 11th century AD)*. This period was not marked by appreciable changes in the population system of Semigallia. Yet the stability was not absolute. In the 10th century the Sakališkės (902) and in the 11th century Martyniškės (1167), Miciūnai (1169) cemeteries were used again. The Miliai (1171) cemetery was abandoned in the 10th century. The network of settlements was thinner yet the communities were presumably larger than in Samogitia (this is proved by Semigallian cemeteries). This circumstance can be explained by adaptation. In Semigallia, there were very few forms of relief suitable for building hill-forts. Therefore, the life was safer only in large concentrated communities.

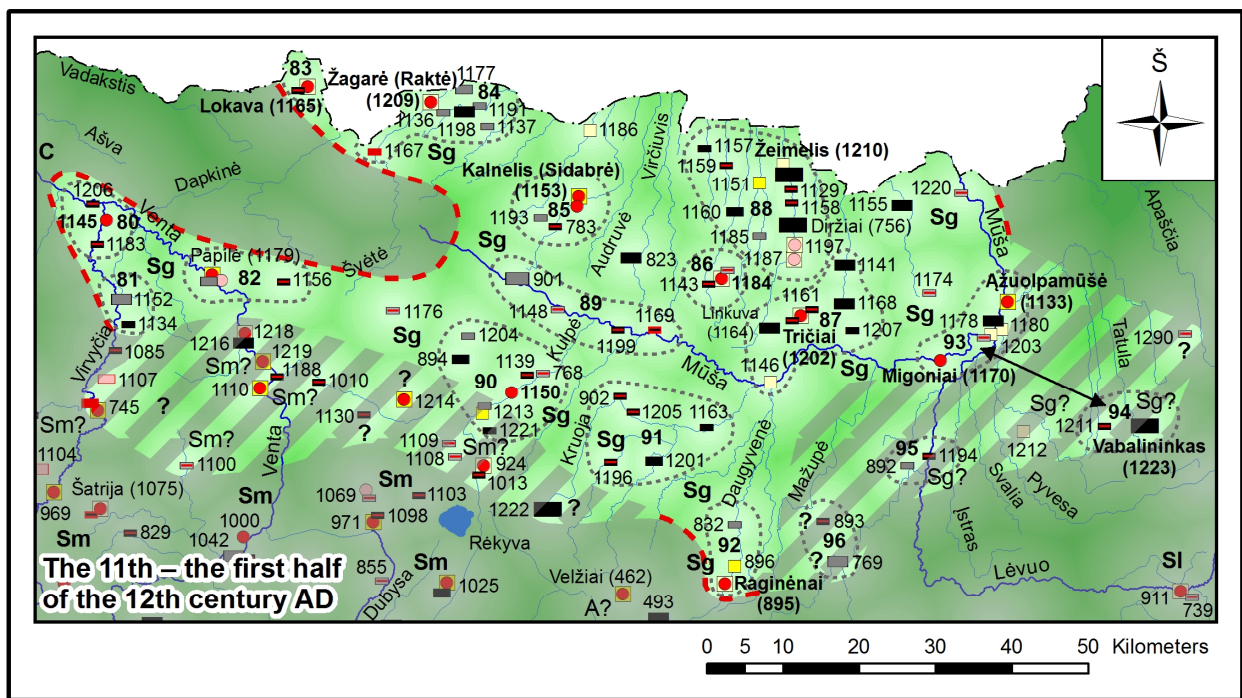


Fig. 19. The South Semigallia in the 11th – the first half of the 12th century AD

8) *Regression period II (the second half of the 11th – the 13th century AD)*. The traces of regression in the population system of Semigallia appeared in the 11th – the 1st half of the 12th century AD. In the 10th century, Semigallia was more densely populated than in the 11th and, in particular, in the 12th century (Fig. 19). The regression of Semigallian population system started earlier and was more intensive than in Samogitia. According to available data, the majority of explored Semigallian cemeteries of the Middle and Late Iron Age were not used in the 12th century: Jauneikiai (783), Linksmučiai (1163), Kyburiai (1155), Šukioniai (1201), Valdomai (1204) and others. The present study does not deal with the later centuries yet it is known from other sources that the population system of the Lithuanian part of Semigallia was destroyed in the 13th–14th century. It was repopulated only in the 15th century after the end of Crusades.

At the beginning of the 2nd millennium AD as in the middle of the 1st millennium AD, Semigallians lived in the Middle Venta, Mūša and Žiemgala morainic plains. The central part of the Žiemgala Plain was more densely populated. The eastern

and western parts were scarcely populated. Yet at the beginning of the 2nd millennium AD, in the peripheral parts of the Lithuanian part of Semigallia (except its southern part) it is possible to distinguish groups of settlements which can be regarded as volosts of the time. Meanwhile, distinguishing of these territorial units in the densely populated central part and in the south-western part partly superposed with the territories inhabited by Samogitians is less easy.

Evolution of population system in the territory of South Selonia. Selonians as Samogitians and Semigallians originated from the same NLBC. Yet there were two causes why the evolution of Selonia considerably differed from the evolution of Semigallia and Samogitia:

1) As distinct from the Žemaičiai Upland and Mūša Plain, the Sėliai Upland and the neighbouring regions before the spread of NLBC in the second half of the 2nd–4th century AD was rather densely populated. In the 1st millennium BC – 1st millennium AD, the Sėliai Upland had a rather dense network of settlements. From the cultural point of view, this territory belonged to the BPC region (East Balts).

2) As distinct from Samogitia and Semigallia, in Selonia the tradition of burying in barrows did not come to decline at the end of the 4th – the beginning of the 5th century. Yet flat burials also are known.

From the cultural point of view Selonians were closer to Semigallians than Lithuanians (ELBC). The affinity is proved by material artefacts (firstly grave goods) and by the fact that in Selonia as in Semigallia the dead were buried in inhumation graves throughout the 1st millennium and at the beginning of the 2nd millennium AD. Meanwhile, the custom of cremation in East Lithuania (ELBC) took root at the beginning of the 5th century AD.

The Selonian region in the present territory of Lithuania included the basins of Upper Nemunėlis, Upper Lėvuo and Upper Šventoji and smaller rivers of the region. In terms of geomorphology, it is the western part of Sėliai Upland, scarcely populated eastern part of Nemunėlis Plain and NW part of Nevėžis Plain (about 3000–4000 sq km).

The southern part of Selonia belonging to Lithuania has not been thoroughly archaeologically investigated. Yet to Selonian region is devoted one perfect historical-geographical study by archaeologist A. Simniškytė-Strimaitienė which served as a basis for the hypothesis of cyclic cultural evolution of Selonia (Simniškytė, 2004).

As (as distinct from Samogitia and Semigallia) in Selonia the barrow tradition persisted until the historical times (the 13th century) it is difficult to draw the time boundary between the barrows in the Selonian region which belonged to the NLBC and genuinely Selonian barrows. A. Simniškytė-Strimaitienė suggests the middle of the 5th century AD when the number of barrows in Selonia decreased considerably. These barrow cemeteries were used again only at the end of the 6th century. The suggested boundary also is used in the present work.

Analysis of the evolution of population system in the South Selonia region in the 1st–13th century AD allowed distinguishing 8 periods:

1) Development period I (the 1st century AD). The main part of Selonia (its core in the Sėliai Upland) belonged to the main Brushed Pottery Culture (BPC) region of the 1st millennium BC – the beginning of the 1st millennium AD. In this period, Selonia yet did not differ from the remaining part of BPC area with which it comprised an integral

region. As at the beginning of the 1st millennium AD the number of BPC hill-forts in Selonia increased this period is regarded as a development period of population system.

2) Stability period I (the 2nd century AD). This is the time of the use of the same BPC hill-forts. Appearance of the foot settlements is its distinguishing feature illustrating the stability of population system. In the second half of the 2nd century, in the western part of Selonian region there most likely appeared a few first NLBC barrow cemeteries (Pajuostis (860), Bajoriškės (739), Daliečiai (748), Jutkiai (790), Kupriai (811), Nodiejiškiai (845)) yet they barely affected the settled population system and made no complexes with the few peripheral BPC hill-forts. Moreover, their dating to the 2nd century has not been proved (except the Pajuostis barrow cemetery). The first NLBC barrows are reliably dated only to the 3rd century AD.

3) Transformation period I (the 3rd–4th century AD). The situation radically changed in the 3rd century with the rapid spread of NLBC barrows in Selonia. In Semigallia and Samogitia, the 3rd century was the time of development of population system. Yet in Selonia the situation was different. The region already had been densely populated and at the time under consideration the population system was undergoing certain transformations. The ratio between the old BPC residents and the NLBC migrants is not clear. It is also not clear whether the NLBC barrows complexes with the declining BPC hill-forts were widespread. Presumably they were not until the abandonment of BPC hill-forts. Yet it is known that in the 3rd century there were a few complexes of past BPC hill-forts and NLBC barrow cemeteries: Baušiškiai (741), Bryzgiai (806) (Bryzgiai hill-fort and Kiemiškiai barrow cemetery), Sviliškės I (1273) (Sviliškės hill-fort and Maniuliškės barrow cemetery).

4 Regression period I (the 5th – the third quarter of the 6th century AD). In the 5th century, the situation changed. Archaeologist A. Simniškytė pointed out that in the second half of the 5th century the NLBC barrows in the Sėliai Upland were not used any more. Didžprūdėliai (1242), Drūlėnai (757), Nodiejiškiai (845), Skverbai (911), Vainekiai (935) barrow cemeteries were abandoned. Yet peripheral barrow cemeteries of uncertain cultural attribution continued to be used: Butėnai (954), Juostininkai (789), Pajuostis (860), Pamarnakis (959), Šaltiniai (961).

5) Transformation period II (the fourth quarter of the 6th – the 8th century AD). With the beginning of the end of the 6th century, some formerly abandoned NLBC barrow cemeteries were used again (for example the Vaineikiai (935)). At the beginning of this period, when many peripheral Selonia barrow cemeteries of uncertain cultural attribution were abandoned, the boundaries of the region became clearer. The transformation of territory population system is proved by the fact that a few new burial ground cemeteries came into use (Degučiai (1240), Miškiniai (1277), Turdvaris (1274)) and a few barrow cemeteries were abandoned (Norkūnai (1263), Skrebiškiai (908), Vainekiai (935)).

6) Development period II (the 9th – the 10th century AD). In this period, the number of communities increased. Some new burial ground cemeteries appeared: Gykiai (1248), Pelyšėliai (1288), Pyragiai (1267) and others. The older Juostininkai (789), Kuokšiai (810) and Stuburiai (1272) barrow cemeteries were used anew.

7) Stability period II (the 11th – the first half of the 12th century AD). At the beginning of the 2nd millennium AD, the Selonian population system entered into the period of stability. The stability was not absolute. In the 11th century, new burial ground cemeteries appeared in Antkriaunis (1236) and Garšvai (1247). The older cemeteries

also were used (Fig. 20). Some older Selonian barrow cemeteries (Pajuostis (860), Stuburiai (1272) and others) were used till the 12th century AD. A few Selonian volosts and even the embryos of land comprised of a few volosts are localized in South Selonia (alike as Simniškytė, 2004). The Selonian volosts were noticeably smaller than the already discussed volosts of other ethnic groups of the beginning of the 2nd millennium AD.

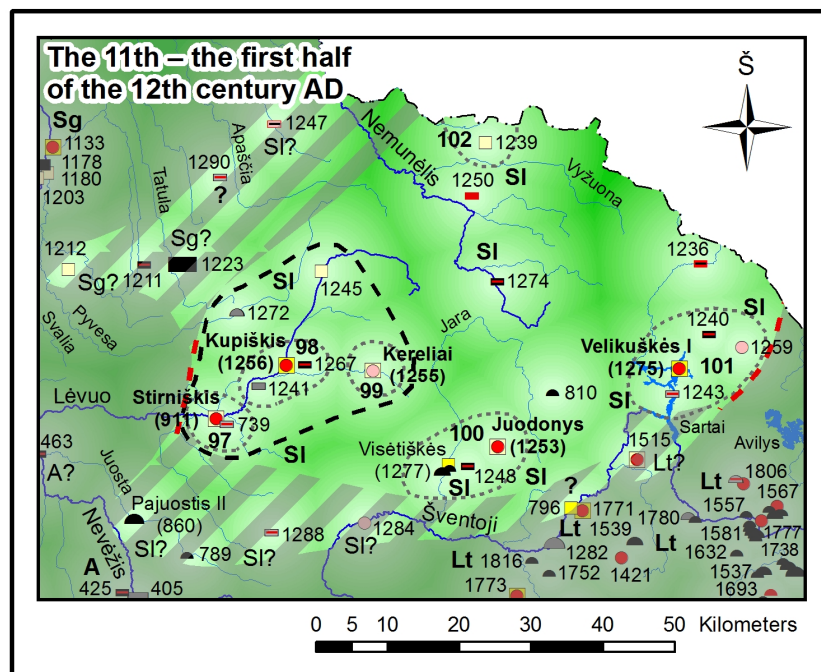


Fig. 20. The South Selonia in the 11th – the first half of the 12th century AD

8) Regression

period II (the second half of the 12th – the 13th century AD). This period was especially well expressed in Seonia. During this period, all Selonian cemeteries were completely abandoned. The territory was occupied by Lithuanian communities which took control of the formerly used Selonian hill-forts.

Evolution of territory population system in the East Baltic Culture Region

As distinct from the Middle Lithuania and Samogitia, East Lithuania (its northern part and Nemunas and Neris banks in particular) was a densely populated region even at the end of the 1st millennium BC – the beginning of the 1st millennium AD. In the 1st millennium AD, the East Lithuanian region was not culturally homogeneous. Throughout the 1st millennium BC and in the 1st millennium AD, there existed an integral **Brushed Pottery Culture (BPC)** region yet its cultural stability was disturbed by cultural transformation processes taking place in the 3rd–4th century AD when brushed pottery abruptly declined, many hill-forts of the region were abandoned, and barrow tradition took root. In the 3rd/4th–6th/7th century AD, the southern part of the region was occupied by Dainavians. When in the 7th century **East Lithuania Barrows Culture (ELBC)** (Lithuanians) barrows spread in the southern part of the region it restored its cultural integrity. About $\frac{3}{4}$ of the ELBC territory with its main centres are localized in the present territory of Lithuania and only about $\frac{1}{4}$ in the territory of Byelorussia. The large BPC and ELBC regions extended in NW–SW directions from the Šėliai Upland in the north till the Ūla–Katra limnoglacial plain in the south including the morainic uplands of Baltic Ridge (except the left Nemunas bank), East Lithuanian and Dainavian plains and areas of Švenčionys (North Naššia) and Ašmena (South Naššia) uplands.

The East Lithuanian Region is rather well archaeologically explored. Hill-forts of the region (Aukštadvaris (1536), Kernavė (1624), Narkūnai (1433), Nemenčinė (1677), Nevieriškė (1436), Sokiškiai (1354), etc.) and settlements have been thoroughly investigated. Yet since the 19th century, the ELBC barrow cemeteries have been the

ones most intensively investigated. According to GDB data, even 132 ELBC barrow cemeteries have been investigated. The total of known investigated barrows amounts to 1050. The greatest number of barrows has been investigated in Rokantiškės (1729) (74 barrows), Žvirbliai (1826) (64 barrows), Dovainionys (Kapitoniškės) (1573) (62 barrows) barrow cemeteries. Among the newest generalizing works devoted to the ELBC region can be mentioned L. Kurila (barrows) and R. Vengalis (settlements) publications and dissertations.

Analysis of the evolution of population system in the BPC-ELBC region in the 1st–13th century AD allowed distinguishing 8 periods:

1) Development period I (the 1st century AD) and 2) Stability period I (the 2nd – first half of the 3rd century AD). In the 1st – the first half of the 3rd century, the territory of BPC region included the greater part of East Lithuania. The BPC hill-forts and settlements are localized in East Lithuania till the Šventoji River. The thickest network of hill-forts and settlements is localized in the northern part of the BPC region: Sėliai and Aukštaičiai uplands. The Dzūkai Upland was less densely populated. The population network in the limnoglacial and glaciofluvial plains was rather thin – isolated communities are localized only on the river banks. Presumably the 1st – the first half of the 3rd century AD should be regarded as one period of population of the East Lithuanian territory. Yet at the beginning of the 1st millennium AD, the number of hill-forts and settlements in the BPC region increased by one third (from 213 to 316). This is the main reason why development and the following stability periods are distinguished. There is an interesting feature of the densely populated northern part of the BPC region (Sėliai and Aukštaičiai uplands): the **distribution of hill-forts** dated to the beginning of the 1st millennium AD **in pairs** at small distances of 0.5–2 km: Asavytai (1308) and Mineikiškės (1428), Aučynos (1309) and Stūgaliai (1486), Avilčiai (1310) and Gaigalai (1358), Kamša (1390) and Papirčiai (1446), etc. This pattern of communities grouping may have two explanations: 1) Cooperation of neighbouring communities. Living in the neighbourhood with other communities was convenient in terms of land use and defence; 2) Semi-settled way of life (“wandering” villages) was predetermined by low productivity of soils and practiced shifting agriculture. This phenomenon also was characteristic of East Lithuania in later years what is proved by the frequency of grouped arrangement of barrows.

3) Transformation period I (the second half of the 3rd century AD). The situation dramatically changed in the 3rd century when in the BPC region the brushed pottery was in short time replaced by rusticated pottery. Pottery of transitional type, manufactured combining brushed and rusticated pottery technologies, is known. This fact together with the abrupt decline of brushed pottery and the spread of barrow tradition in the second half of the 3rd century AD allows assuming that the process of cultural transformation was rather intensive. According to the previous common opinion, the earliest East Lithuanian barrows with inhumations were related with the BPC communities (R. Volkaitė–Kulikauskienė). Yet today, the cultural transformation is first of all associated with the immigrants from the NLBC Region (M. Michelbertas) and Wielbark Culture (which firstly reached the Suvalkai Region and then Dainavians and eventually East Lithuania) (L. Kurila, V. Vaitkevičius) or from the both regions (NLBC and Sudovia) simultaneously (A. Tautavičius). It is hard to tell whether these transformations were related with migration possibly coming into conflict with the local BPC or were just a result of diffusion of traditions. Yet there are no doubts that the BPC substratum strongly

influenced the formation of ELBC. The first barrow cemeteries of ELBC region with inhumations under the piled earth are dated even to the second half of the 3d century: Graužiniai (1322), Gudėniškės (1595), Pavajuonis (1711) and other. The first ELBC barrow cemeteries are localized in the central part (core) of the region. This can be taken as a proof of chain diffusion of innovations which firstly take root in the core of a region and later are transmitted to its peripheries. This trend of the ELBC territory population takes place throughout the 4th century and only in the 5th century barrow tradition becomes dominant in the peripheries.

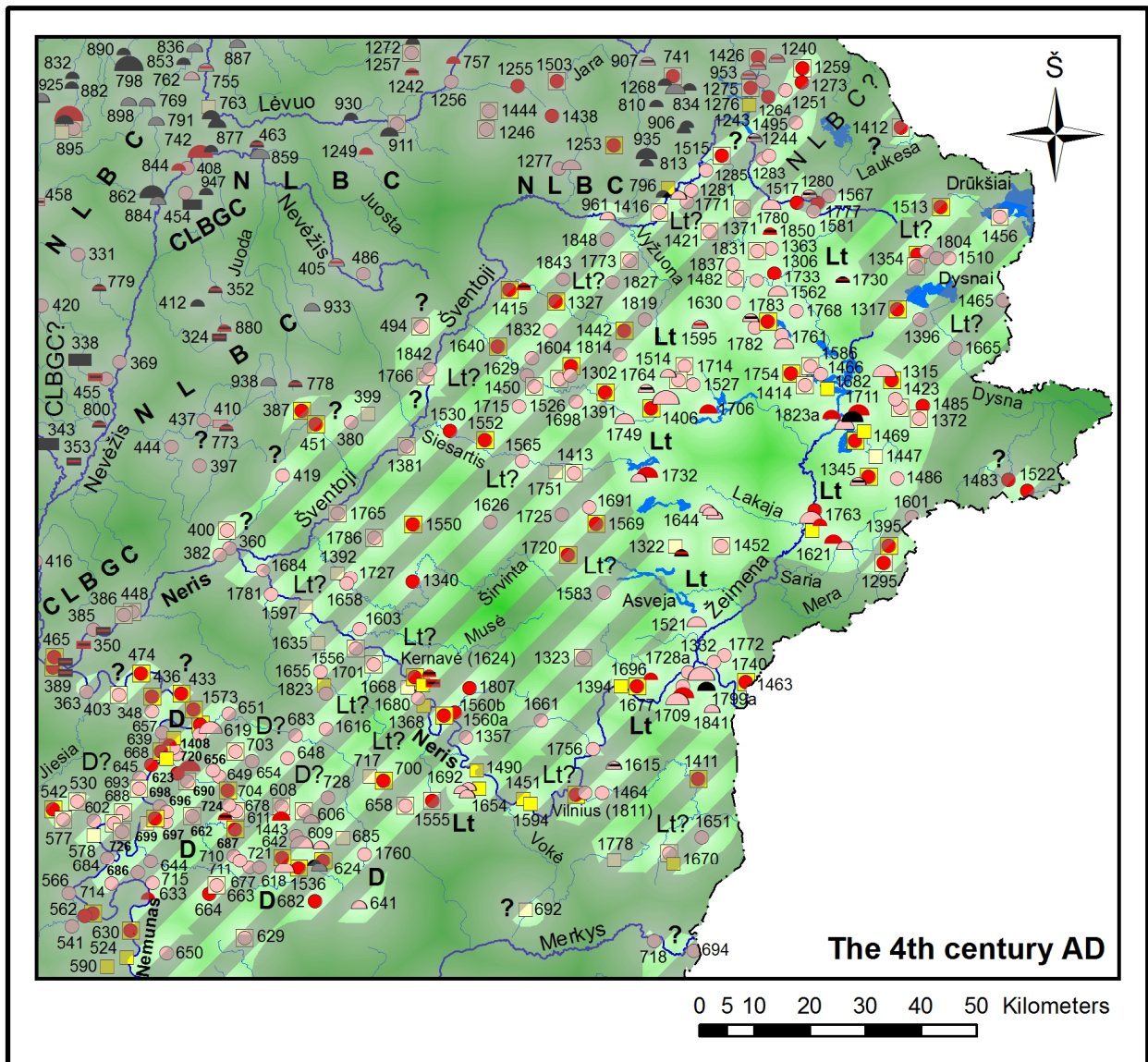


Fig. 21. The ELBC region in the 4th century AD

4) Development period II (the 4th–6th century AD). In this period, the population system in the ELBC territory developed intensively. In the 4th century as in the second half of the 3rd century, the number of barrow cemeteries rapidly increased in the lake Aukštaičiai ridge and in the plain areas of East Lithuania (Fig. 21). In the 4th century, there appeared even 37 new barrow cemeteries: Pakalniai (1709), Pavajuonis (1711), Poviliškė (1315), Rėkučiai (1711), Santaka (1740), etc. In the 3rd–5th century AD, the majority of ELBC barrow cemeteries were located along rivers and lakes. This only

proves that river banks and lake shores as well drained areas favourable for agriculture and communication were the first intensively assimilated ones. Isolated ELBC barrow cemeteries have been localized along the Neris River (Padvariškiai (1692)). Meanwhile, ELBC barrow cemeteries dated to the 4th century have not been found along the Šventoji River. In the 5th–6th century AD, the development of ELBC population system was even more intensive. According to GDB data, 110 barrow cemeteries came into use in the 5th century (only 12 were abandoned) and another 158 in the 6th century (34 were abandoned). The number of individual barrows in the barrow cemeteries also increased. In the 7th century, the development in the northern part of the ELBC region slowed down but intensified in the Dzūkai Upland (except the left Nemunas bank) and neighbouring South Lithuanian regions.

5) Transformation period II (the 8th century AD) and 6) Development period III (the 9th century AD). Neither the dating of ELBC barrows to the second half of the 1st millennium AD nor the linking of their beginning or end with concrete ages are sufficiently reliable. In the present dissertation, the inconspicuous decline of barrow cemeteries of the second half of the 1st millennium AD followed by their intensive development are formally linked to the 8th (transformation) and 9th (development) centuries. At least these data usually were given in the sources used for compilation of the GDB. According to GDB data, in the 8th century some barrows were abandoned (30) and some new appeared (42). For this reason, the period is referred to as a transformation period. In the 9th century, 48 barrow cemeteries were abandoned and even 162 new barrow cemeteries appeared. Therefore, this time frame is referred to as a development period.

7) Stability period II (the 10th – the first half of the 12th century AD). The 10th century presumably was the time of development. There is a high probability that barrow cemeteries which formally appeared in the 9th century were actually used only from the 10th century. Yet the data available in the GDB do not support this presumption. They rather indicate a period of stability. Since the 7th–8th century AD, the boundaries of the ELBC region had not changed (Fig. 22). At the beginning of the 2nd millennium AD, ELBC barrows were spread over an area of about 17 000 sq km. The administrative structure of East Lithuania at the beginning of the 2nd millennium AD has been many times discussed in historical, archaeological and geographical studies. Almost all researchers agree upon the **Deltuva** and **Nalšia** lands localized in the northern part of the region. Based on the territorial distribution of archaeological objects of the beginning of the 2nd millennium AD, these lands and their volosts were apparently best defined by archaeologist G. Zabiela and historian T. Baranauskas. Meanwhile, the central (in the present work referred to as **Lietuva** (Lithuania) (or Neris (?)) Land) and the southern parts (in the present work – **Dainava** (or Deremela (?)) Land and **Alšia** (?) Land) of the ELBC region have not received researchers' attention. In the present dissertation, the five lands (Deltuva, Nalšia, Lietuva (Lithuania) (or Neris (?)), Dainava (or Deremela (?)) and Alšia (?) and a few outlying volosts and individual communities (mainly localized in the southern part of the region) are distinguished in the ELBC region (Fig. 22). They are distinguished not only for concentration of communities and groups of volosts but also for some specific features characteristic of population systems. Nalšia (and partly – Alšia (?)) is distinguished for large barrow cemeteries and groups of barrow cemeteries and a relatively small number of hill-forts (they even were not found near the large Nalšia

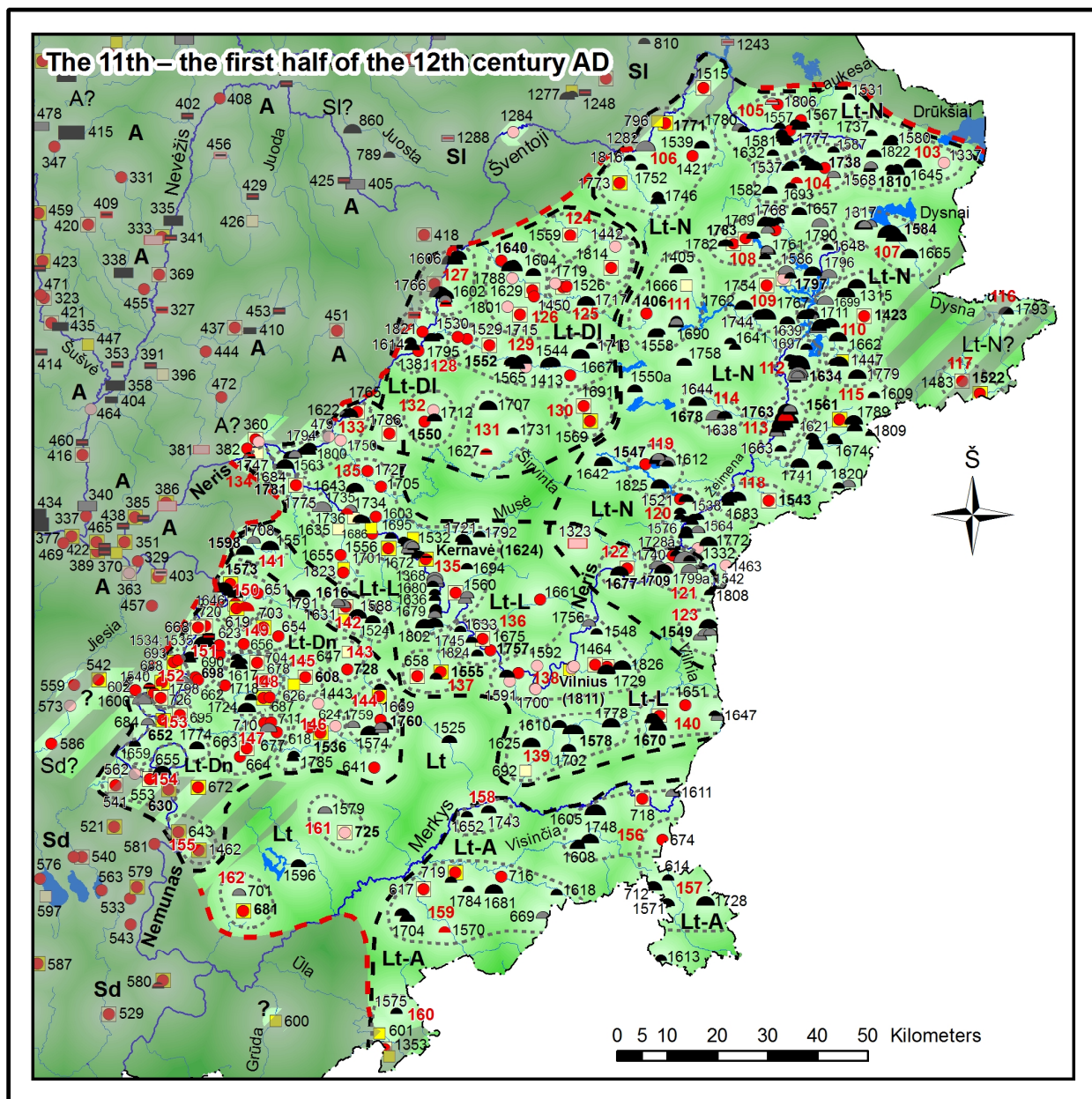


Fig. 22. The ELBC region in the 11th – the first half of the 12th century AD

barrow cemeteries). Deltuva, Lietuva and Dainava are characterized by smaller barrow cemeteries and a relatively large number of hill-forts built along rivers.

8) Regression (?) period (the second half of the 12th – the 13th century AD). Distinguishing of this period is rather doubtful. The GDB data show rapid decline of barrow cemeteries whereas the known burial grounds cemeteries that replaced them are few. Yet many hill-forts continued to be used. Moreover it is known that Lithuanian state emerged and expanded into the territories of other Baltic tribes. Thus undoubtedly the decrease of the number of burial grounds first of all is related with subjective methodical causes and lack of data about the burials of the 12th–13th century AD.

Comparison of the structures and evolution of the population systems in the Lithuanian cultural regions

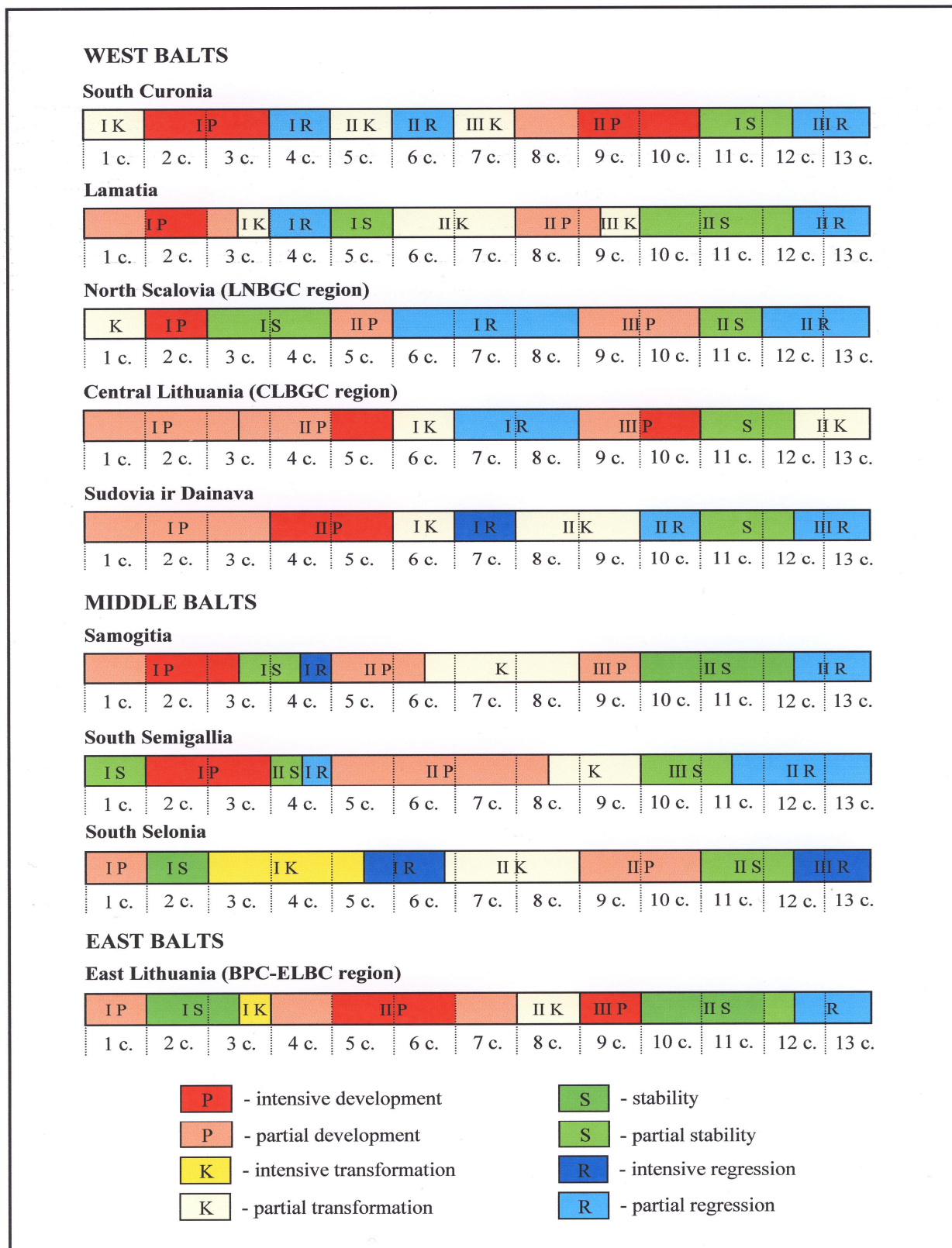


Fig. 23. Comparison of the evolution of population systems in Lithuanian cultural regions 1st-13th century AD

Regional patterns of the evolution of population systems. The evolution of population systems in the cultural regions localized in Lithuania was uneven. Along many similarities certain differences can be pointed out. During the two distinguished periods – 1) the beginning of the 1st millennium AD, 2) the end of the 1st millennium AD – the evolution of population systems in most of the regions was similar. During the third distinguished period – the middle and the second half of the 1st millennium AD – the development of population systems bore distinct regional differences (Fig. 23).

At the end of the 1st millennium BC, the territory of contemporary Lithuania was very unevenly populated. The northern part of the BPC region (Sėliai and Aukštaičiai

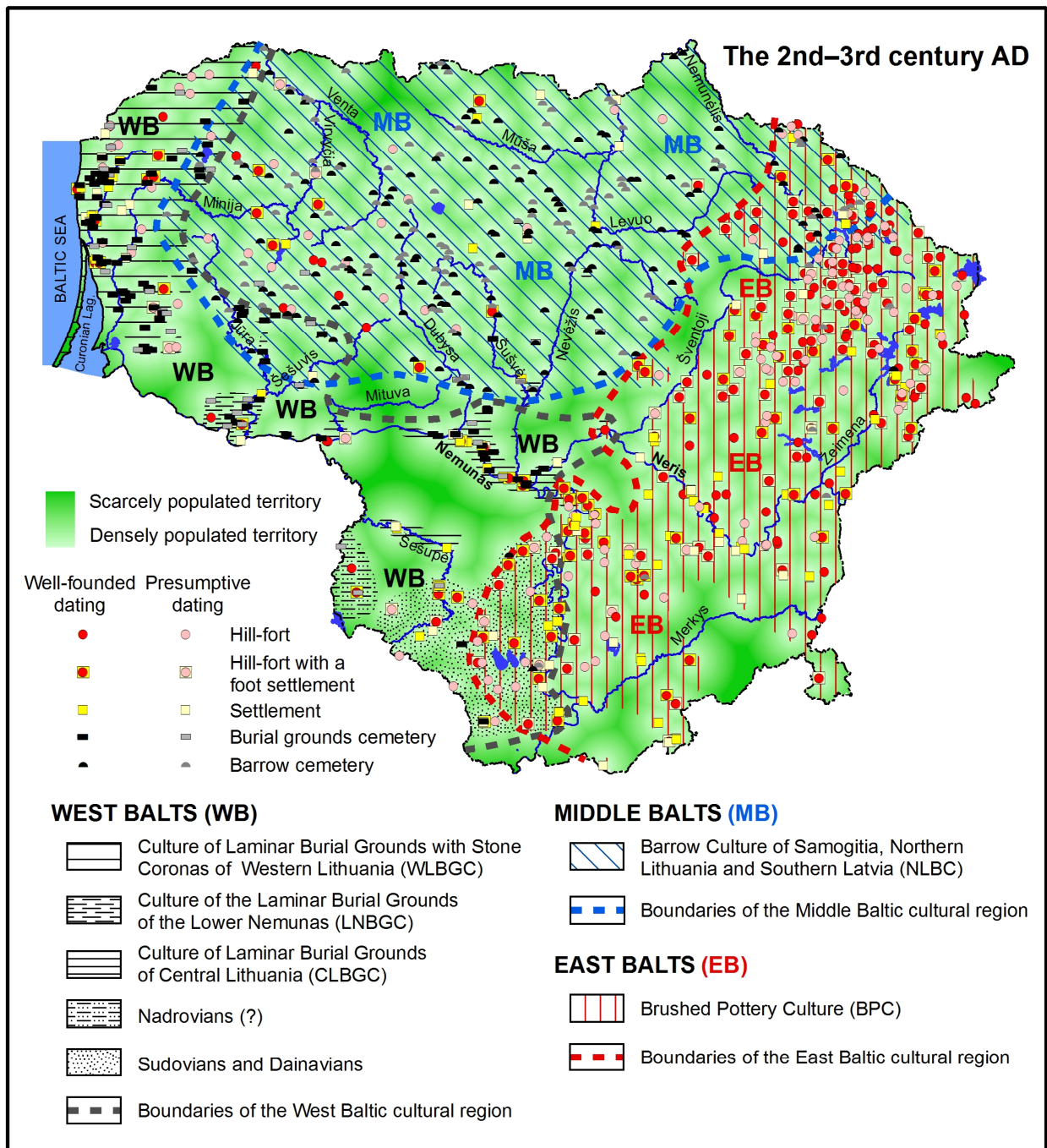


Fig. 24. Population of the territory of Lithuania in the 2nd-3rd century AD

uplands) and the north-western part of WBBC region (northern parts of the Baltic Coastal plains and West Žemaičiai Plain) were most densely populated. In other parts of West and East Baltic cultural areas the network of settlements was thinner. It was thinnest in the Middle and North Lithuanian lowlands, Žemaičiai Upland, Dainava Lowland and Ašmena old uplands.

At the beginning of the 1st millennium AD (the 1st–3rd century), in most of cultural regions the network of settlements was obviously expanding (Fig. 24). The expansion was especially intensive in the West and Middle Baltic cultural regions (except Selonia). In the BPC region (East Lithuania and the central and eastern parts of Selonia) the expansion was slow and rather resembled at first the stability period (the

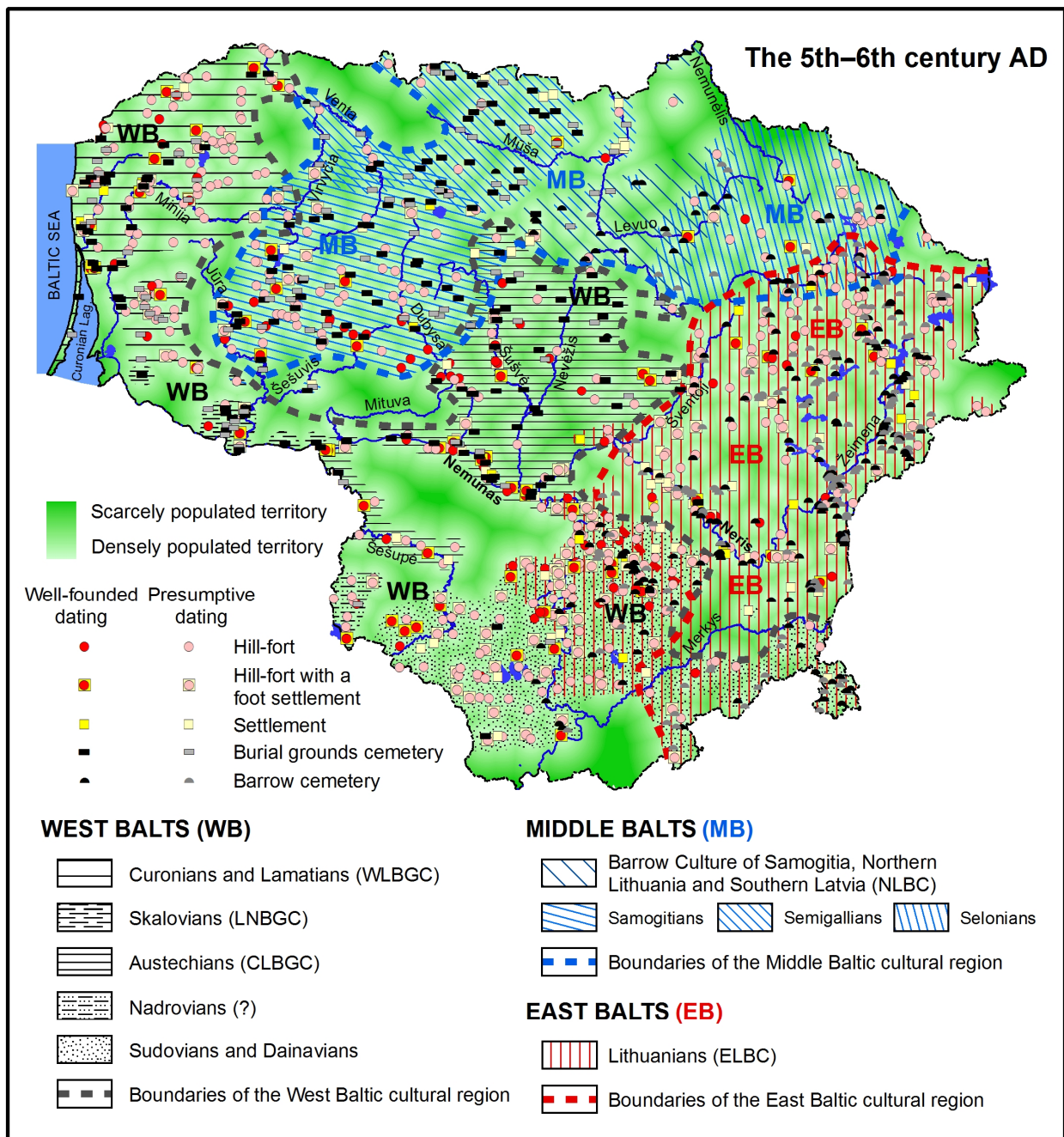


Fig. 25. Population of the territory of Lithuania in the 5th-6th century AD

2nd – the first half of the 3rd century AD) and later, with the spread of barrow cultures (in Selonia NLBC and in East Lithuania ELBC) and abandonment of many BPC hill-forts and settlements, the transformation period (the 3rd century). In the 1st–3rd century AD, Samogitia, North and Middle Lithuania were rapidly populated presumably by immigrants from the west. The thickest network of settlements developed in the Žemaičiai Upland and southern part of Mūša Plain and somewhat thinner network in the North Lithuanian and Middle Lithuanian plains. At the same time, the Nemunas sector between the Dubysa–Nemunas and Neris–Nemunas confluences was rather intensively populated. In the 2nd–3rd century depopulated territories were few. They were mostly the territories unfit for agriculture: limnoglacial and glaciofluvial waterlogged plains with heavy clay and loam soils (Lower Nemunas, Dainava and Dysna plains).

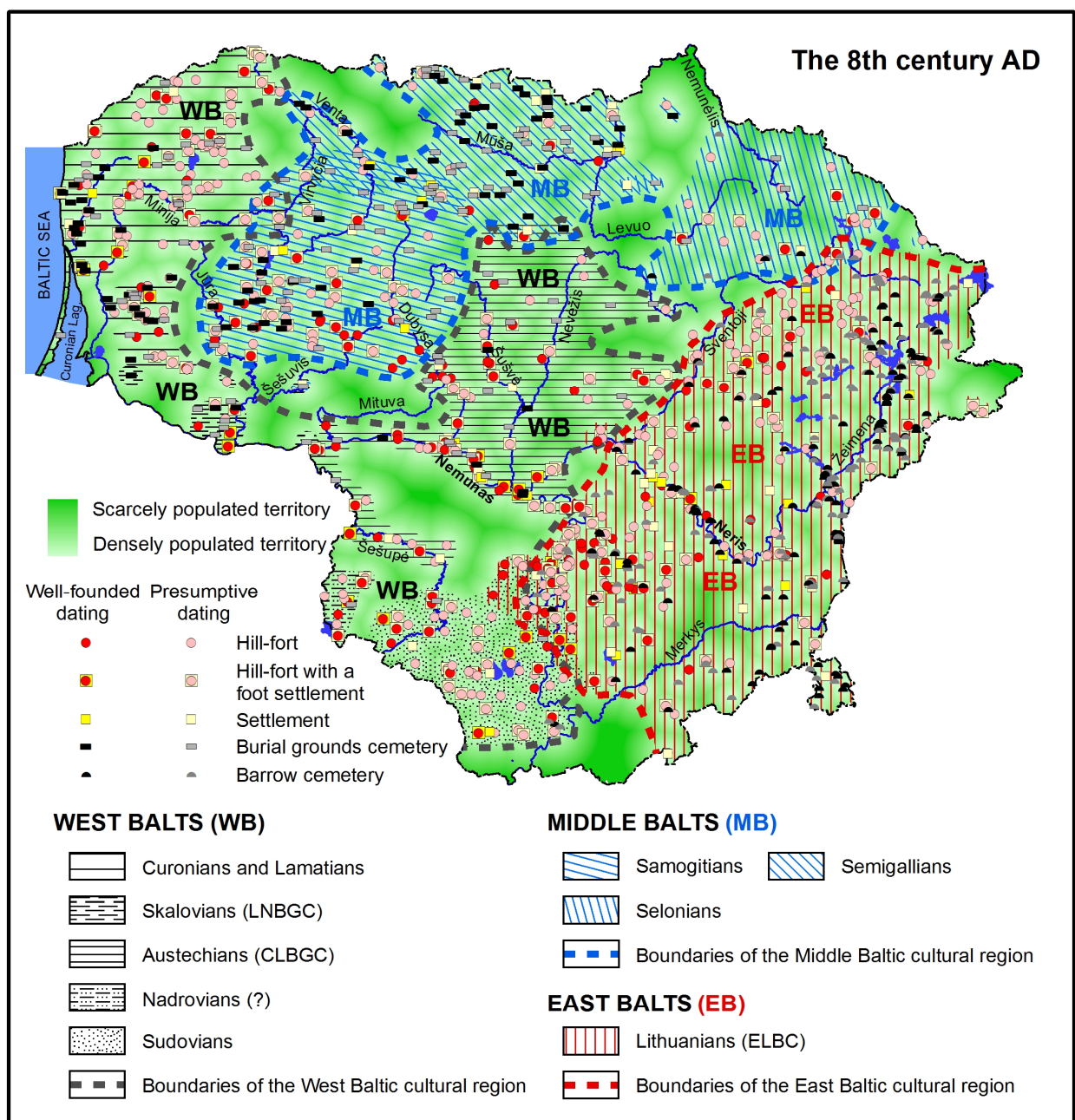


Fig. 26. Population of the territory of Lithuania in the 8th century AD

During the Migration Period (the end of the 4th – the 6th century AD), the development of population systems was marked by great regional differences (Fig. 25). East Lithuania, where ELBC barrow cemeteries were widespread in the 4th–6th century, stood out for especially intensive development. The territorial expansion of Middle Baltic regions was slower. In the 5th–6th century, development took place only in Samogitia and Semigallia whereas Selonia obviously was in a state of regression. The transformations in Samogitia and Semigallia were based on the thickening of the network of settlements. In the 4th century, with the spread of West Balts in the Nevėžis Plain and some other territories, the area of the Middle Baltic territory shrank considerably whereas the area of the territories populated by West Balts expanded. Yet the territorial development was characteristic only of Dainavians and CLBGC regions. In Curonia, Lamatia and Scalovia, the territory population system took a rather sophisticated pattern of development: alternation of short-lasting development, stability, transformation and regression periods. In the 3rd–4th century AD, Dainavian stone barrows spread in the southern part of the BPC Region (Dzūkai Upland). The network of CLBGC communities intensively developed in Middle Lithuania (Nevėžis Plain and SE part of the East Žemaičiai Plateau) which earlier was scarcely populated by NLBC communities.

In the 7th–8th century AD, with the slackening of migration the development processes in the East and West Baltic regions halted. Only transformation processes took place. Meanwhile the evolution of population systems in West Baltic regions was very uneven even opposite. In some cultural West Baltic regions, the development of population systems was opposite to the processes that took place in 4th–6th century AD. In the Dzūkai Upland, Dainavian barrow cemeteries disappeared in short time and were replaced by ELBC barrow cemeteries (Fig. 26). The boundaries of the CLBGC region did not change but in the Nevėžis Plain and other parts of CLBGC region the network of settlements thinned out considerably. The regression of population system which began in the 6th century continued in the 8th century in Scalovia whereas Curonia and Lamatia entered a new stage of development.

At the end of the 1st millennium – the beginning of the 2nd millennium AD (the 9th–12th century), the evolution of population systems in most of cultural regions localized in the territory of Lithuania was in a stage of development. Semigallia and Sudovia make an exception. Semigallia was in a stage of transformation and Sudovia in a stage of regression. In the 11th century, population systems of all regions were in a stage of stability (Fig. 27).

It should be pointed out that in the periods of development, regression or transformation the boundaries of cultural regions markedly changed only in the 1st–7th century AD. In the 8th–12th century AD, the processes of development, regression and transformation often took place only within the regions, through disappearance of old and appearance of new communities. The boundaries of regions remained stable.

It should be observed that in the 1st–12th century AD a few very scarcely populated or depopulated territories were localized in Lithuania. As was mentioned, they are firstly the territories unsuitable for agricultural activity. They are represented by limnoglacial and glaciofluvial plains with clay and loam waterlogged heavy soils (Lower Nemunas, Dainava and Dysna plains). Settlements existed only on the drained banks of rivers. The natural rather than social-political (e.g. discord between ethnic groups) causes of long-lasting existence of depopulated areas are proved by the fact that

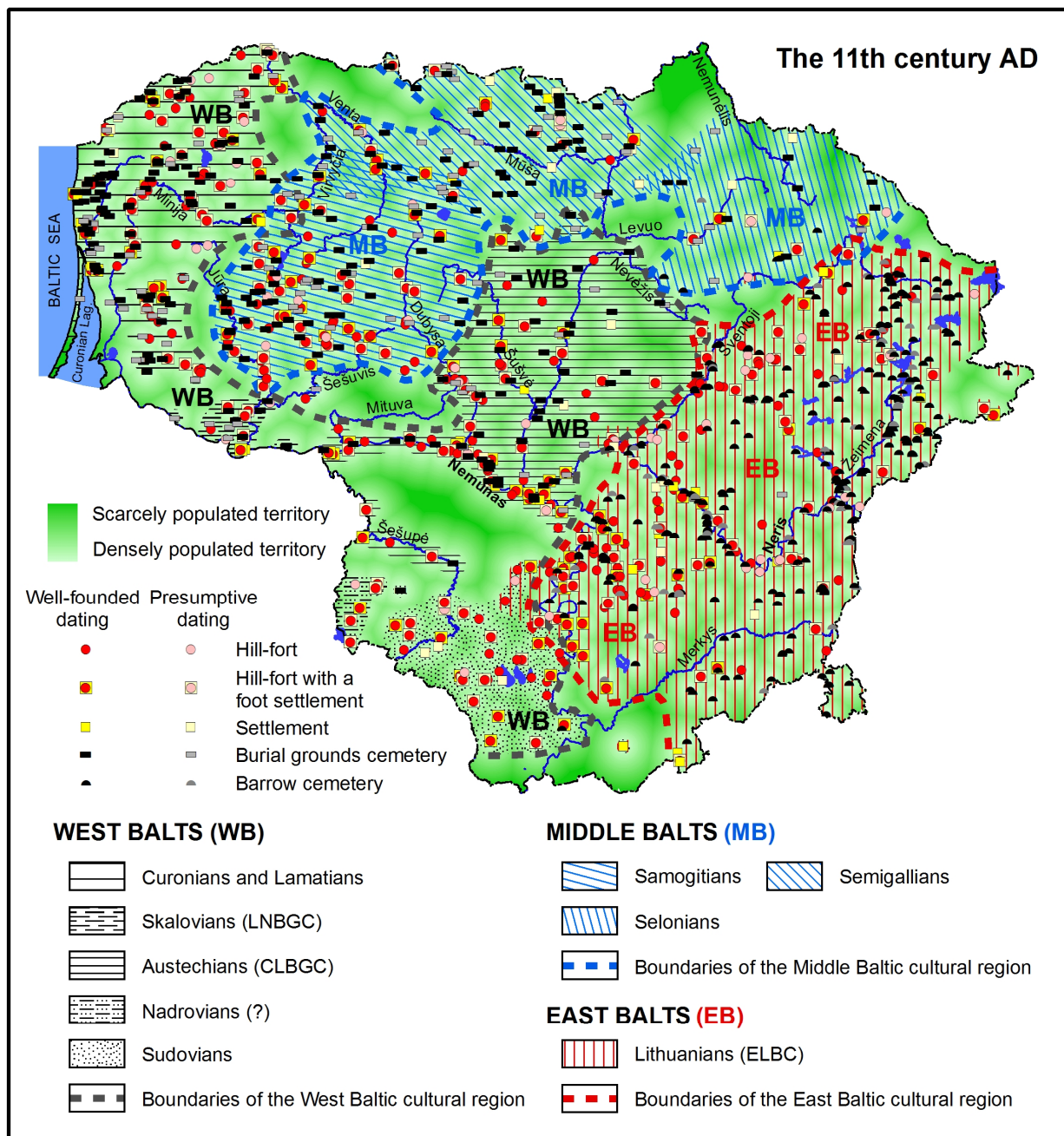


Fig. 27. Population of the territory of Lithuania in the 11th century AD

territories of mixed cultural attribution existed in the peripheral parts of cultural regions. Their number was biggest in the first half and the middle of the 1st millennium AD. In the second half of the 1st millennium – the beginning of the 2nd millennium AD, their number considerably decreased. At the beginning and in the middle of the 1st millennium AD, the NW part of Karšuva Plain (Scalovians and NLBC), environs of Plateliai Lake (Curonians and NLBC), eastern part of Selonian Plain (BPC and NLBC), and the eastern part of the left Nemunas bank (BPC and Sudovians) were multicultural. In the second half of the 1st millennium AD, the Dzūkai Upland and other South Lithuanian regions (Dainavians and ELBC) and the western part of Mūša Plain (Semigallians, Samogitians and Curonians) also were multicultural. In the mentioned regions, archaeological objects (burial grounds cemeteries and barrow cemeteries)

attributed to different cultural groups were localized. The same can be said about burial items which bore features typical of a few neighbouring archaeological cultures. The reported transitory burial objects with features of mixed cultural attribution are: Kalniškės and Piepaliai (CLBGC (dominant) and Samogitian), Lieporiai (Samogitian (dominant) and Semigallian), Maudžiorai (Samogitian (dominant), Curonian and Semigallian), Pavirvytė–Gudai (Semigallian inhumations (dominant) and Curonian cremations), Sauginiai (Samogitian (dominant), Semigallian and CLBGC) and other burial grounds cemeteries and Eikotiškis (unique barrow cemetery with features characteristic of ELBC (Lithuanian) and NLBC/Selonian cultures), Pilviškės and Kaktuškės (ELBC and Dainavian) and other barrow cemeteries. The outlying burials used by isolated communities (e.g. Nendriniai (CLBGC), Upytė (CLBGC), Viešvilė (Scalovians) burial grounds cemeteries) sometimes are regarded as specific variants of these archaeological cultures.

Singularity of East Lithuania and its causes. Mapping of individual archaeological objects and their complexes from the 5th–12th centuries AD shows rather marked differences not only of their types and forms but also regional and chronological differences of their spatial distribution. The East Lithuanian region of the 5th–12th centuries stands out against the remaining part of Lithuania's territory. It is assumed that the tradition of burying in barrows was transmitted to inhabitants of this region in the 1st–4th century AD by West and North Lithuanian and/or South Lithuanian populations. Yet the population of East Lithuania was distinguished by a very specific lifestyle illustrated by the territorial distribution of archaeological objects and their contemporaneous complexes (Fig. 28). In West Lithuania, the uncovered complexes of archaeological objects (composed of the objects designed for economic activity and defensive, living and inhumation purposes) are more complete. The complexes of archaeological objects found in East Lithuania are considerably fewer. The cultural region of East Lithuanian barrows (Nalšia land in its eastern part in particular) is characterized by groups of barrows spaced a few hundred metres and sometimes extending as a few kilometres long chains: Ardiškis (1532), Ažušilė (1315), Baravykinė (1549), Galminiai (1581), Geidžiūnėliai (1584), Grabijolai (1368), Jakšiškis (1602), Judinys (1606), Jutonys (1612), Kasčiukai (1621), Kretuonys – Veikūnai (1634), Mintaučiai (1666), Mūrininkai – Svironys (1670), Pavajuonis – Rėkučiai (1711), Rusių Ragas (1734), Sudota – Paduobė (1763), Šeimatis – Minčia (1768), Vaisgėliškis (1795), Varliškės – Vievis (1802), Vigodka (1810), Ziboliškė (1820)), etc. According to the GDB data, the number of this kind of barrow groups in Lithuania amounts to 100. In the majority of cases, archaeological objects designed for defensive and living purposes (hill-forts and settlements) are absent in the surroundings of these rather large barrow complexes.

The late hill-forts and unfortified settlements are mainly situated in the western part of the ELBC region: Sėliai, Aukštaičiai and Dzūkai uplands and along the Neris River. Meanwhile, in the eastern part of the ELBC region (eastern part of Selonian Upland, Švenčionys (Northern Nalšia) and Ašmena (Southern Nalšia) uplands, Žeimena, Vilija and Vokė plains), the number of known hill-forts and settlements is considerably smaller and they are scarcely distributed over the territory. It is an interesting fact that the late hill-forts and unfortified settlements have not been found in the proximity of the large East Lithuanian groups of barrows (Geidžiūnėliai (about 800 barrows), Kretuoniai–

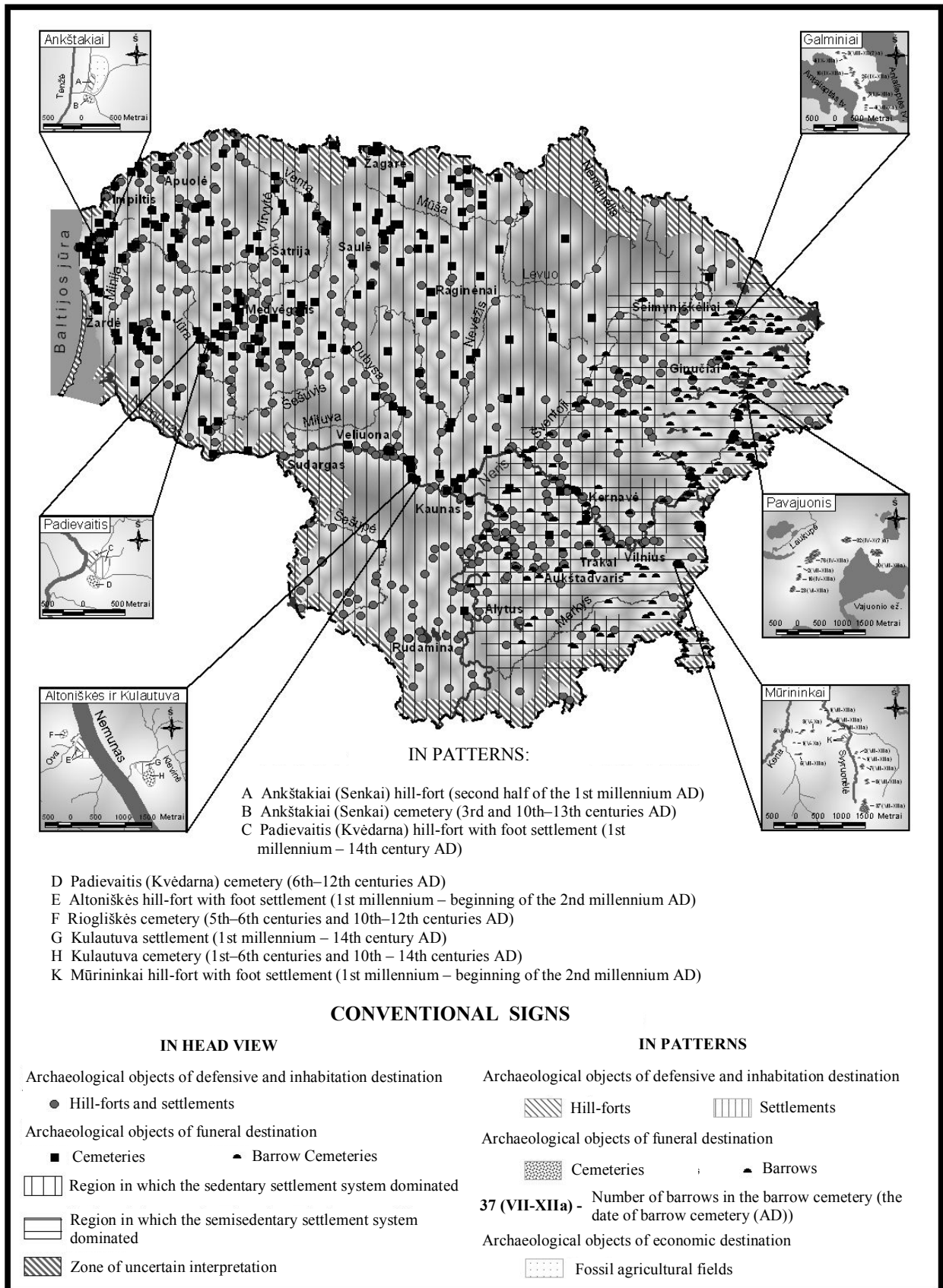


Fig. 28. Differences of territorial settlement of Eastern and Western Lithuania in the 5th–12 centuries AD

Veikūnai (about 350), Jakšiškis–Knitiškiai (about 320), Jutonys–Purviniškės (about

200), Baravykinė–Puntuzai (about 120), etc.) located in the eastern part of the ELBC region. The few known ones are of disproportionally small defensive power. They are dated to the 1st millennium AD and attributed to the category of poorly fortified hide-out hill-forts. For example, a small hide-out Paduobė hill-fort has been localized in the Sudota–Paduobė barrow group (about 576 barrows) and a small Pašventis hide-out hill-fort has been found in the Kretuoniai–Veikūnai barrow group (about 550 barrows).

The known late hill-forts localized in these groups of barrows are few: Buivydai (Karmazinai) (1560), Daubariškės (1563), Dovainoniai (1573), Mūrininkai (1670), Pašulniškiai (1709) Salakas (1738) and few another. These complexes with hill-forts only were composed of medium size barrow cemeteries and groups of barrows.

In the western part of the ELBC region and along the Neris River, the number of known complete complexes of archaeological objects of the Late Iron Age is considerably higher. Moreover, the barrows in this part of the region usually compose small compact barrow cemeteries rather than groups of barrows. The barrow cemeteries of this type obviously were used by militant communities which controlled the hill-forts: e.g. the Taurapolis (1783) barrow cemetery built near the Taurapolis hill-fort. A few more similar complexes of contemporaneous archaeological objects are known in the western part of the region and along the Neris River: Bagdoniai hill-fort and barrow cemetery (2 barrows) (1669), Baliuliai hill-fort and barrow cemetery (18 barrows) (1543), Bražuolė hill-fort and barrow cemetery (few barrows) (1555), Ginučiai hill-fort and barrow cemetery (19 barrows) (1586), Janonys hill-fort and barrow cemetery (23 barrows) (1604), Kalniniai Mijaugonys hill-fort and barrow cemeteries (17 barrows) (1616), Nemenčinė hill-fort and Pučkalaukis barrow cemetery (45 barrows) (1677), Tauragnai hill-fort and barrow cemetery (1782), Zujai hill-fort and barrow cemetery (9 barrows) (1821) and other.

Thus, the complexes of late hill-forts and barrow cemeteries localized in the western part of the ELBC region make this region akin to the West and Middle Lithuanian regions (Fig. 28). Yet in the western part of the ELBC region, the distribution of barrows in groups typical of the eastern part of the ELBC region also can be found: Ardiškis (1532), Daubariškiai (1565), Dovainonys (1573), Gojus (1588), Jakšiškis (1602), Kalviai (1617), Mintaučiai (1666) Rusių Ragas (1734) Vaisgėliškis (1795), etc.

The differences of population systems in the eastern (Nalšia Land) and western parts of the ELBC region presumably were predetermined by natural causes and related social and political circumstances. The uplands of the western part of the ELBC region were more suitable for hill-forts than the plains or flat old uplands of the eastern part of the region. The processes of feudalization in the western part of the region were more intensive than in the eastern (Nalšia Land) part. It is most likely that the western part of the region stood out at the end of the 1st millennium – the beginning of the 2nd millennium AD (at the time to which most of the late hill-forts of the region are dated). This can be related with the early rudiments of the Lithuanian statehood. Intensive centralization processes, consolidation of military power, emergence of warrior and nobility estates, trade relations and assaults on the neighbouring richer regions (Semigallia, Middle Lithuania, etc.) transformed the traditional way of life of communities of the western part of the ELBC region. The first Lithuanian statehood centres (Vilnius, Kernavė, Šeimyniškeliai, Tauragnai, etc.) emerged namely in this part of the ELBC region at the beginning of the 2nd millennium AD. Meanwhile, the transformation processes in the eastern part of the region (Nalšia Land; present environs

of Zarasai, Ignalina, Švenčionėliai and Pabradė) were weaker. The large barrow cemeteries of Nalšia Land (Geidžiūnėliai–Polianka (about 800 barrows), Kretuoniai–Veikūnai (about 550 barrows), Sudota–Paduobė (about 576 barrows), etc.) show that it had been long ago densely populated by large communities. Yet the absence of important defensive centres implies a relatively smaller defensive power (if compared with the western part of the ELBC region). This is rather strange bearing in mind that the majority of the known early Lithuanian hill-forts (dated to the 1st millennium BC – the beginning of the 1st millennium AD) are concentrated in the North Eastern Lithuania. Yet most of them were abandoned at the beginning of the 1st millennium AD and never used again.

Analysis of the main systemic differences of population of the ELBC region and the remaining part of Lithuania's territory leads to the following alternative hypotheses:

1. In 5th–12th centuries AD, the population of West and Central Lithuania was more sedentary than the population of East Lithuania. The existence of barrow chains characteristic of East Lithuania and the absence of hill-forts and settlements dated to the mentioned time frame or their tenuous traces imply that the population of this region was semi-sedentary. Homesteads would be moved from place to place („wandering villages“, „migrating villages“) within an area of a few square kilometres. This way of life might have been predetermined by unfavourable for farming natural conditions (low productivity soils, etc.), important role of stock breeding in the structure of economy and archaic shifting and forest-virgin soil agricultural systems which might have persisted in the East Lithuanian region even till the 13th century. Similar hypotheses also are suggested by researchers of other territories of the Baltic Region of metal ages (H. Hamerow, M. Kuna, A. Simniškytė-Strimaitienė, Ch. Tilley and others). The tradition of building barrows applies in this context. Barrows not only had a sacral purport but also served as landmarks of territories periodically used by communities. As landmarks they indicated the birthright of concrete communities to the territories of their progenitors and forewarned the aliens that the territories were occupied (Ch. Tilley). While in the remaining part of Lithuania, the population was not in need of periodical changing of its place of residence because of the more advanced farming forms (fallow farming systems) that took root in the 1st half of the 1st millennium AD.

2. In the 5th–12th centuries AD, the population of East Lithuanian region resided in individual farmsteads or groups of small villages. Their residents buried their fellow-mens in the neighbouring barrow cemeteries. The traces of small homesteads can be hardly identified today and are rarely found near barrow cemeteries. This way of life also could have been predetermined by dominance of pasture stock breeding in the economic structure and extensive shifting and forest-virgin soil farming in temporary fields. Yet this hypothesis seems less plausible because it does not explain the purpose of building barrows and chain distribution of barrow cemeteries as if indicating the direction of movement of migrating population. In the remaining part of Lithuania, the population lived as more concentrated communities because more favourable natural conditions for farming and closer relations with the western European countries created preconditions for adoption of more advanced farming forms.

The differences of territory population are most vivid by comparison of the eastern part of ELBC region with West and Middle Lithuania (Fig. 28). The Western part of ELBC region occupies an intermediate position between the mentioned two systems. Chain distribution of barrows characteristic of eastern part of the ELBC region

and complexes of archaeological objects typical of the rest of Lithuania are found in this part of ELBC region.

Which of the two hypotheses is more plausible can be answered by more exhaustive archaeological, anthropological and natural sciences investigations which would allow a more precise dating of barrows and their groups and determining the genetic links between the buried. Yet both hypotheses generate the principal conclusion: the natural conditions of East Lithuania not as favourable for intensive farming in permanent fields as in the rest of Lithuania predetermined the large portion of stock breeding in the structure of economy and persistence of archaic shifting fields (slash-and-burn and forest-virgin soil agriculture) until the emergence of Lithuanian state. This form of land use affected the structure of population system of East Lithuanian region which in the 5th–12th centuries differed from the population system in the remaining part of Lithuania where more favourable natural conditions for farming and closer links with other countries predetermined considerably earlier consolidation of crop-rotation in permanent fields and its dominance in the structure of economy. This conclusion partly is not consistent with the common opinion that at the end of the 1st millennium AD farming in permanent fields was the dominant agricultural system everywhere in the territory of Lithuania. Beginning with the 3rd millennium BC, the East Lithuanian region was distinct from the remaining part of the territory of Lithuania for conservativeness and stability of substratum ethnogeocoenoses. In other Lithuanian regions, innovations took root and developed more intensively. This was predetermined by the factor of neighbourhood and also by the factor of natural environment discussed in the first section of the present dissertation.

CONCLUSIONS

1. The application of GIS technologies in the development of the scientific database of archaeological sites has its peculiar characteristics. The indefinite character of archaeological data, the ambiguity and incompleteness of their evaluations can hardly combine with traditional principles of database development (ensuring of data integrity, etc.). But the area of archaeology determines the necessity to work with a wide range of data of spatial distribution, the accumulation, systemisation, summary and analysis of which make GIS technologies truly irreplaceable.

2. In the course of time, ethnic formations would develop into integral and often spatially differentiated systems – ethnogeocoenoses. The degree of integration of ethnos and physical environment was directly responsible for reliability and plasticity of ethnogeocoenosis. Also it predetermined the sorptive capacity of ethnogeocoenosis. The variance of ethnogeocoenosis can be regarded as an index of its integrity. The variance of ethnic groups manifesting in the process of integration into heterogenic environment often was directly related with the variance of the landscape.

3. The splitting of the NLBC at the end of the 4th – the 5th centuries AD into Samogitians, Semigallians and Selonians and settling of LNBGC (Scalovians) and CLBGC (Austechians) in the Lower Nemunas and Nevėžis plains must be first of all related with the factor of physical environment. In the course of time, the NLBC inhabitants somewhat differently accommodated to uplands (Samogitians to the Žemaičiai Upland and Selonians to the Augšzeme Upland) and plains (Semigallians to

the plains of Lielupė basin) whereas in the 5th century LNBGC (Scalovians) and CLBGC (Austechians) outspread only in the “own” plain landscape.

4. The evolution of territory population systems of different cultural groups had some common features yet differed in essence. All territory population systems of cultural groups had reiterating periods of development, stability, transformation and decline.

5. In the 1st–12th century AD, the territory of Lithuania was unevenly populated. Mapping of archaeological sites of different periods revealed densely and scarcely populated (or unpopulated) territories. In most cases, the scarcely populated territories separated different cultural regions yet also they existed within cultural regions. The scarcely populated territories usually were represented by poorly drained boggy limnoglacial plains and low productivity sandur sandy plains unfit for land use. In such regions, only the better drained banks of larger rivers (Nemunas, Šešupė, Merkys, Šešuvis, Dysna, etc.) were inhabited.

6. Different cultural regions were separated not only by scarcely populated or unpopulated territories but also territories of mixed ethnical possession. This fact proves the hypothesis that the long-lasting existence of scarcely populated territories can be in the first place accounted for by their unfitness to the existing forms of land use. The other causes, such as ethnic discord, sanctification of unpopulated areas or uneven levels of archaeological knowledge about different regions of Lithuania, are of secondary importance.

7. All cultural regions which existed in the territory of Lithuania in the 1st–12th century AD had the territorial structure core–periphery. Smaller regions had one core and bigger ones had a few cores. Peripheral parts were more scarcely populated than the cores. The role of the cores in the processes of ethnogenesis was very uneven. In some regions, they acted as liberal centres of new traditions and innovations (SW Samogitia; Žardė, Palanga and Apuolė in Curonia; the central part of the ELBC region) in other regions they were conservative centres of old tradition (in the 5th–6th century, Raginėnai of NLBC region).

8. The persistence of NLBC culture and even its advance in the 4th–5th/6th century AD in the southern part of Mūša plain and in the northern part of Nevėžis plain (Raginėnai, Plaučiškiai, Daujėnai, Berčiūnai, Pajuostis, etc. barrow cemeteries) and its conservative character may be related with migration of NLBC cultural group to the southern part of Mūša and northern part of Nevėžis plains forced by northward migration of CLBGC cultural group from the eastern part of Lower Nemunas plain and southern part of Nevėžis plain.

9. East Lithuania (ELBC region) stands out in the Lithuania’s context by the run of long-lasting ethnogenetic processes, use of the territory and related structure of population. The number of known complexes of archaeological objects in East Lithuania is considerably smaller than in the rest of Lithuania. The cultural region of East Lithuanian barrows (ELBC), especially its eastern part – Nalšia land, is characterized by groups of barrows spaced a few hundred metres and sometimes extending as chains a few kilometres long. Hill-forts and settlements usually were absent near these large barrow cemeteries (Geidžiūnėliai, Jakšiškis, Jutonys, Sidariškės, Baravykinė, etc.). The discovered hill-forts often are of disproportionately (bearing in mind the size of the

barrow area) low defensive capacity (Galminai, Paduobė, Pašventis (Kretuonys) and other small hill-forts of the middle and the second half of the 1st millennium AD).

10. The survey of the main differences of territory population systems of ELBC Region and the rest of Lithuania leads to the following possible hypotheses:

➤ The existence of barrow chains characteristic of East Lithuania and the absence of settlements dated to the mentioned time frame or their tenuous traces imply that the population of this region was semi-sedentary. Farmsteads would be moved from place to place (“wandering villages“). The barrows remaining in the former living areas served as landmarks of territories periodically used by certain communities.

➤ The population of East Lithuanian region resided in individual farmsteads or groups of small villages. Their residents buried their fellow-men in the neighbouring barrow cemeteries. Traces of small homesteads can be hardly identified today and are rarely found near barrow cemeteries.

In the remaining part of Lithuania, the population lived in more concentrated communities because more favourable farming conditions and closer relations with West European countries created preconditions for adopting more advanced forms of farming.

10. In the 9th–12th century AD a transformation of the population system in the western part of the ELBC region took place related with the first seats of statehood and marked growth of military power of communities. This part of the region attained many features characteristic of Middle and West Lithuania. This is why both the chains of barrow cemeteries characteristic of the eastern part of ELBC region and full complexes of archaeological objects with well fortified hill-forts characteristic (Vilnius, Kernavė, Šeimyniškeliai, Tauragnai, Taurapolis, etc.) of the remaining part of Lithuania are found in it.

11. The natural conditions of East Lithuania not as favourable for intensive farming in permanent fields as in the rest of Lithuania predetermined the large portion of stock breeding in the structure of economy and persistence of archaic shifting fields (slash-and-burn and forest-virgin) until the emergence of Lithuanian state in the 13th century. This form of land use affected the structure of population system of East Lithuanian region which in the 5th–12th centuries AD differed from the population system in the remaining part of Lithuania where more favourable natural conditions for farming and closer links with other countries predetermined considerably earlier consolidation of crop-rotation in permanent fields and its dominance in the structure of economy.

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SANTRAUKA

IVADAS

Temos aktualumas

Teritorijos apgyvenimas, žmogaus ir jo aplinkos sisteminiai ryšiai visada domino įvairių mokslo sričių tyrinėtojus. Tirti dabartines teritorijos apgyvenimo sistemas yra gana patogu. Informacijos gausa, išsamios duomenų bazės, pasirinkta tinkama metodika, išaugusios techninės galimybės (GIS technologijos, duomenų bazių kūrimo ir valdymo technologijos ir kt.) gerokai išplečia mokslinių tyrimų galimybes. Šiuo požiūriu žymiai sudėtingiau tyrinėti priešistorines teritorijos apgyvenimo sistemas. Laikas sekina žmonių atmintį, vėlesnių nuogulų klodai paslepia jų veiklos pėdsakus. Žinoma, daugelio dešimtmečių archeologų, kraštotyrininkų darbai šiek tiek praskleidžia šią uždangą. Tačiau daug kas, žmogaus vėlesnės veiklos ar gamtos, jau negrįžtamai sunaikinta, daug ką vis dar dengia stori nuogulų klodai. Galima konstatuoti, kad turimi duomenys apie priešistorinę, rašytiniuose šaltiniuose nefiksuotą, žmonių veiklą nėra išsamūs. Todėl archeologijoje ar istorinėje geografijoje apstu prielaidų, prieštarų hipotezių. Tačiau šiandien sukauptos didelės archeologinių tyrimų duomenų bazės, pradėtos įsisavinti juos sparčiai apdoroti padedančios technologijos įgalina atlikti platesnių apibendrinančių darbų, kurie dar prieš porą dešimtmečių atrodė neįveikiamais. Pastaruoju metu vis daugiau Lietuvos archeologų savuose tyrimuose sėkmingai naudoja GIS technologijas, yra sukūrę savo tyrimams reikalingas duomenų bases. Tačiau svarbu pastebėti, jog jų sukurtos duomenų bazės yra gana siauro pobūdžio (apima tik nedidelius jų tiriamus regionus ar chronologiniu požiūriu gana siaurus laikotarpius) ir kitiems vartotojams yra neprieinamos. Todėl, rengiant šį darbą, iškilo būtinybė parengti išsamią visos Lietuvos teritorijos I t. pr. Kr. – II t. po Kr. pradž. mokslinę GIS geoduomenų bazę (GIS GDB), kurios pagrindu atlikti detalią Lietuvos teritorijos apgyvenimo sistemų analizę.

Pastaruoju metu vis labiau populiarėja tarpdisciplininiai tyrimai. Į kiekvieną reiškinį, tarp jų ir į archaišką antropogeniškai pakeistą kraštovaizdį, jau žvelgiama sistemiškai. Archeologai vis dažniau tyrimuose naudoja kartografinės analizės, matematinius statistinius, gamtos moksluose taikomus tyrimo metodus. Antra vertus, vis dažniau iki šiol tradiciniais archeologijos mokslo tyrimo objektais buvę praeities žmonių veiklos pėdsakai patraukia ir kitų sričių mokslininkų dėmesį. Ši visuotinė tendencija, per kelis pastaruosius dešimtmečius išpopuliarėjusi Vakaruose, jau pamažu ryškėja ir Lietuvos moksle. Tam turi įtakos ir regioninės politikos įtakotas teritorijos rajonavimo poreikis. Todėl dažnai tokie, ypač nedidelių teritorijų tyrimai yra ir taikomojo pobūdžio. Gaila tik, kad už optimalaus šalies regionalizavimo įteisinimą atsakingos valstybės valdymo institucijos dažniausiai ignoruoja mokslinių tyrimų rezultatus ir regionalizuoja Lietuvą nepaisydamos natūraliai susiformavusių geosisteminį integralumą turinčių gamtinių-socialinių-kultūrinių regionų. Nežiūrint įvardinto konteksto, geosistemų išskyrimo ir jų integralumo tyrimus būtina vykdyti, tikintis jog ateityje atsakingų valstybės valdymo institucijų požiūris į Lietuvos teritorijos regionalizavimą keisis geosisteminiais ryšiais pagrįstų regionų įteisinimo naudai.

Tyrimo objektas

Plačiąja prasme šio tyrimo objektas yra integralios gamtinės – socialinės – kultūrinės geosistemos (*etnogeocenožės*). *Siaurąja prasme* – Lietuvos teritorijos apgyvenimo sistemų raida geležies amžiuje (I–XII a.).

Darbo tikslas ir uždaviniai

Strateginis šio darbo tikslas – panaudojant GIS technologijų teikiamas galimybes prisidėti prie Lietuvos teritorijos archaiškų apgyvenimo sistemų tyrimų plėtros. *Konkretus tikslas* – atlikti I–XII a. Lietuvos teritorijos apgyvenimo sistemų palyginamąją priežastinę analizę.

Siekiant įgyvendinti iškeltą darbo tikslą, suformuluoti šie *darbo uždaviniai*:

- 1). sukurti I–XII a. archeologinių vietų mokslinę GIS GDB,
- 2). atlikti duomenų patikimumo analizę,
- 3). parengti I–XII a. archeologinių vietų GIS GDB panaudojimo teritorijos apgyvenimo sistemų tyrimams metodiką,
- 4). atlikti genealoginę etnogeocenozių raidos bei jų variantiškumo analizę,
- 5). archeologinių vietų naudojimo raidos analizės pagrindu išskirti skirtingus teritorijos apgyvenimo sistemos raidos etapus (kiekvienam kultūriniam dariniui atskirai),
- 6). kartografuoti bei tekste apibūdinti kiekvieno kultūrinio darinio svarbiausius teritorijos apgyvenimo sistemos raidos etapus,
- 7). atskleisti teritorijos apgyvenimo sistemų struktūrinių elementų (branduolinių bei periferinių) svarbiausius, etnogenezės procesus įtakojusius, bruožus,
- 8). išryškinti esminius Rytų Lietuvos ir likusios Lietuvos dalies teritorijos apgyvenimo sistemų skirtumus bei pagrįsti jų priežastingumą.

Darbo naujumas ir reikšmė

Neabejotiną šio darbo naujumą ir jo reikšmę geriausiai apibūdina šie teiginiai:

➤ Sukurta išsami I t. pr. Kr. – II t. po Kr. pradž. archeologinių vietų ir radimviečių GIS GDB, kurioje kartografuoti ir vektorinių sluoksnių atributinėse lentelėse fiksuoti tyrimui reikalingi duomenys apie 2,4 tūkst. tiriamojo laikotarpio žinomas, šaltiniuose minimas ir sunaikintas archeologines vietas bei archeologinių dirbinių radimvietes. Šios GIS GDB kūrimas truko šešerius metus (2003–2009 m.). Tokios didžiulės apimties mokslinės archeologinių vietų GDB iki šiol Lietuvoje sukurta nebuvo, todėl šis faktas vertintinas kaip svarus indėlis į archeologijos bei gretutinių mokslų plėtrą.

➤ Atlikta I t. pr. Kr. – II t. po Kr. pradž. archeologinių vietų ir radimviečių GIS GDB sukauptų duomenų atranka ir jų patikimumo analizė. Šioje, tyrimui skirtoje GIS GDB saugomi duomenys buvo susisteminti bei standartizuoti – t.y., pritaikyti GIS analizei.

➤ Modifikuotas ir chronologiškai praplėstas (į akmenis, ankstyvųjų metalų ir viduramžių laikotarpius) šios GDB išvestinis variantas – „*Proistorinių Lietuvos objektų GIS sluoksnis (PROLIGIS)*“ (Lietuvos mokslo tarybos finansuoto projekto (sutarties Nr. C-08029) „*Kultūrinio kraštovaizdžio raida archeologijos ir gamtos mokslų duomenimis (ARCHEOKRAŠTOVAIZDIS)*“ dalis; projekto vykdytojai – Lietuvos istorijos institutas (LII), Vilniaus universitetas (VU) ir Valstybinis Kernavės kultūrinis rezervatas (VKKR)) tapo prieinamu ir kitiems I–XII a. laikotarpio tyrinėtojams ir nuo 2011 m. naudojamas VU IF Archeologijos katedros bei ketinamas naudoti VU GMF Geografijos ir kraštovarkos katedros studentų moksliniuose tyrimuose.

➤ Darbe daug dėmesio skirta GIS technologijų panaudojimui GDB sukauptų duomenų vizualizavimui bei kartografinėi I–XII a. Lietuvos teritorijos apgyvenimo sistemų analizei. Tai taip pat išskirtinis šio darbo bruožas, nes iki šiol tokio pobūdžio

tyrimuose kartografiniam duomenų atvaizdavimui bei kartografiniai analizei dėmesio buvo skiriama gerokai mažiau.

➤ Parengta gamtinės aplinkos ir kultūrinių darinių integralumo (*etnogeocenozių*) koncepcija, šiame darbe tapusi teoriniu pagrindu atliekant tolimesnę teritorijos apgyvenimo sistemų struktūrinę analizę. Apgyvenimo sistemų skirtingumas bei jų raida taip pat vertinta neatsiejant nuo gamtinės aplinkos – kaip itin svarbaus jų raidą determinuojančio faktoriaus, įtakos vertinimo.

➤ Panaudojant GIS technologijų teikiamas galimybes, atlikta išsami skirtingų I–XII a. Lietuvos teritorijoje lokalizuojamų kultūrinių regionų teritorijos apgyvenimo sistemų chronologinės raidos analizė (skiriant jų plėtros, kaitos, stabilumo bei regresijos laikotarpius). Tokio detalumo visos Lietuvos teritorijos I–XII a. apgyvenimo sistemų analizės dar nebuvo atliekama.

➤ Papildyti ir patikslinti iki šiol kitų tyrinėtojų atlikti tyrimai, vertinant kultūrinių arealų struktūrinį nevienalytiškumą, išskiriant juose branduolius, periferiją, tarpgentines ir vidujgentines neapgyventas teritorijas bei mišrios kultūrinės priklausomybės periferines teritorijas. Daug dėmesio skirta kultūrinių arealų riboms, jų kaitai. Atkreiptas dėmesys į inovacijų plitimo procesų teritorinį netolygumą, išskiriant jų židinius bei konservatyvius senųjų tradicijų centrus (įdomiausias iš jų – Žemaitijos, Šiaurės Lietuvos ir Pietų Latvijos pilkapių kultūros (ŠLPK) V–VI a. konservatyvusis centras Raginėnų – Laimučių – Berčiūnų apylinkėse).

➤ Išryškinti Rytų Lietuvos (Rytų Lietuvos pilkapių kultūrinis (RLPK) regionas) ir likusios Lietuvos dalies apgyvenimo sistemų struktūros bei raidos sisteminiai skirtumai. Jiems paaiškinti suformuluotos dvi alternatyvios, tačiau bendrą vardiklį – tą patį priežastingumą (gamtinės aplinkos nulemtos skirtingos žemėnaudų formos) turinčios, hipotezės. Ši problematika Lietuvos mokslininkų darbuose plačiau aptarta dar nebuvo.

Ginami teiginiai

Ginamo darbo esmę geriausiai atskleidžia šie *ginami teiginiai*:

1). Etninių darinių adaptacijos aplinkoje rezultatas – integrali ir dažnai erdviškai diferencijuota sistema – etnogeocenoze. Etnogeocenozės integracijos laipsnis tiesiogiai įtakojo jos patikimumą, plastiškumą bei sorbcines galias. Etnogeocenozės variantiškumas tiesiogiai sietinas su integralaus kraštovaizdžio variantiškumu.

2). Kultūrinių darinių teritorijų apgyvenimo sistemų raidai buvo būdingi jų plėtros, stabilizacijos, kaitos ir nykimo periodai, kurių eiga skirtingų kultūrinių regionų atvejais buvo nevienoda.

3). Lietuvos teritorijos apgyvenimo struktūra I–XII a. buvo netolygi. Išskiriamos tankiai apgyventos teritorijos bei retai apgyventos ar iš viso negyvenamos teritorijos (ir tarpkultūrinės ir esančios atskirų kultūrinių darinių teritorijų viduje). Jomis dažniausiai tapdavo to meto žemėnaudai netinkamos limnoglacialinės kilmės lygumos. Kultūrinius darinius vieną nuo kito dažnai skyrė ir mišrios kultūrinės priklausomybės teritorijos. Šis faktas tik patvirtina teiginį, jog ilgalaikė neapgyventų teritorijų egzistencija pirmiausia sietina ne su tarpetniniu priešišku, o su jų netinkamumu to meto žemėnaudai.

4). Kultūrinimas regionams buvo būdinga teritorinė branduolio-periferijos struktūra, kartais turėjusi ne vieną, o kelis branduolius. Branduolių vaidmuo etnogenezės procesuose reiškėsi labai nevienodai. Vienur jie tapdavo liberaliais plintančių naujų

tradicijų bei inovacijų židiniais, kitur atvirkščiai – konservatyviais senųjų tradicijų puoselėjimo centrais.

5). Visą I–XII a. laikotarpį teritorijos apgyvenimo sistemos struktūra Rytų Lietuvoje gerokai skyrėsi nuo likusios Lietuvos dalies. Tai sietina su gamtinės aplinkos nulemtų archaiškų žemėnaudos formų ilgesniu išsilaikymu šiame regione bei adaptacijos sąlygotu ženkliai mažesniu imlumu inovacijoms.

Rezultatų aprobacija

Darbo tema paskelbti ir publikuoti 7 moksliniai straipsniai. Detalus su darbo tema susijusių publikacijų sąrašas pateikiamas po darbo išvadų (anglų kalba).

Darbo apimtis ir struktūra

Pagal Lietuvos mokslo tarybos 2003 m. nutarimą Nr. VI-4, šis darbas sudarytas iš šių rekomenduojamų pagrindinių dalių: įvado, tyrimų apžvalgos, darbo metodologijos, tyrimų rezultatų, išvadų, naudotos literatūros sąrašo ir priedų. Darbe yra 81 originalūs paveikslai (kartoschemos ir schemas), 2 lentelės, 998 literatūros šaltiniai. Visą darbą sudaro 641 puslapis (437 puslapiai pagrindinio teksto ir 204 puslapiai priedų).

IŠVADOS:

1. GIS technologijų panaudojimas, kuriant archeologinių vietų mokslinę duomenų bazę, turi savų ypatumų. Archeologinių duomenų neapibrėžtumas, jų vertinimų daugiaprasmiškumas bei neišbaigtumas sunkiai dera su tradiciniais duomenų bazių formavimo principais (duomenų vientisumo užtikrinimu ir kt.). Tačiau, nežiūrint įvardintų trūkumų, GIS technologijos yra nepakeičiamos atliekant archaiškų teritorijos apgyvenimo sistemų tyrimus.

2. Etniniai dariniai ilgainiui su aplinka sudarydavo integralią ir dažnai erdviškai diferencijuotą sistemą – etnogeocenozę. Etnoso ir gamtinės aplinkos integracijos laipsnis tiesiogiai veikė etnogeocenezės patikimumą, jos plastiškumą. Nuo jo priklausė ir substrato etnogeocenezės sorbcinės galios. Etnogeocenezės integralumo rodiklis – jos variantiškumo išryškėjimas. Nehomogeniškoje aplinkoje išplitusiems etniniams dariniams integruojantis į aplinką išryškėdavęs jų variantiškumas dažniausiai tiesiogiai buvo susijęs su kraštovaizdžio, į kurį integruojamasi, variantiškumu.

3. ŠLPK kultūros skilimas IV a. pab. – V a. į žemaičius, žiemgalius ir sėlius bei skalvių ir aukštaičių plitimas Nemuno žemupio ir Nevėžio lygumose pirmiausia sietinas su gamtinės aplinkos veiksmu. Ilgainiui ŠLPK gyventojai kiek skirtingai adaptavosi aukštumose (žemaičiai – Žemaičių aukštumoje; sėliai – Augšzemės aukštumoje) bei lygumose (žiemgaliai – Lielupės baseino lygumose), o aukštaičiai ir skalviai V a. plito tik „savame“ lygumų kraštovaizdyje.

4. Skirtingų kultūrinių darinių teritorijų apgyvenimo sistemų raida, nors ir turėjusi bendrų bruožų, nebuvo vienoda. Visoms Lietuvos teritorijoje buvusių kultūrinių darinių teritorijų apgyvenimo sistemoms buvo būdingi atsikartojantys jų plėtros, stabilumo, kaitos bei nuosmukio periodai.

5. Lietuvos teritorija I–XII a. buvo apgyventa netolygiai. Kartografuojant skirtingų laikotarpių archeologines vietas išryškėjo buvusios tankiai apgyventos bei retai apgyventos (ar iš viso negyvenamos) teritorijos. Dažnai retai apgyventos teritorijos skyrė skirtingus kultūrinius regionus, tačiau jų būta ir kultūrinių regionų viduje. Dažniausiai

jomis tapdavo to meto žemėnaudai netinkamos sunkaus dirvožemio prastai drenuojamos pelkėtos limnoglacialinės kilmės lygumos bei nederlingi zandriniai smėlynai. Tokiuose regionuose buvo gyvenama tik geriau drenuojamose didesnių upių (Nemuno, Šešupės, Merkio, Šešuvio, Dysnos ir kt.) pakrantėse.

6. Skirtingus kultūrinius regionus skyrė ne tik retai apgyventos ar negyvenamos, bet ir mišrios kultūrinės priklausomybės teritorijos. Šis faktas tik patvirtina hipotezę, jog ilgalaikė retai apgyventų teritorijų egzistencija pirmiausia sietina su jų buvusiu netinkamumu to meto žemėnaudai. Kitos priežastys – tarptininis priešiškas, negyvenamų teritorijų sakralizacija, ar netgi nevienodas archeologinis atskirų Lietuvos kraštų ištirtumas buvo ir yra antraeilės.

7. Visiems I–XII a. Lietuvos teritorijoje buvusiems kultūriniais regionams buvo būdinga teritorinė branduolio-periferijos struktūra. Mažesniems regionams – vieno branduolio, didesniems – kelių branduolių. Periferija buvo apgyventa rečiau, branduoliai – gerokai tankiau. Branduolių vaidmuo etnogenezės procesuose buvo labai nevienodas. Vienur jie tapdavo liberaliais plintančių tradicijų bei inovacijų židiniais (PV Žemaitija; Žardė, Palanga, Apuolė Kurše; RLPK regiono centrinė dalis), kitur atvirkiškieji – konservatyviais senųjų tradicijų centrais (V–VI a. Raginėnai ŠLPK regione).

8. ŠLPK kultūros ilgesnis išlikimas ir net jos plėtra IV–V/VI a. Mūšos lygumos pietinėje bei Nevėžio lygumos šiaurinėje dalyse (Raginėnų, Plauciškių, Daujėnų, Berčiūnų, Pajuosčio ir kt. pilkapynai) bei išryškėjęs to krašto gyventojų kultūrinis konservatyvumas gali būti sietinas su į šiaurę iš Nemuno žemupio lygumos rytinės dalies bei Nevėžio lygumos pietinės dalies migravusių CLKK (aukštaičiai) gyventojų stumiamų ŠLPK kultūros gyventojų migracija bei jų įsitvirtinimu pietinėje Mūšos ir šiaurinėje Nevėžio lygumų dalyse.

9. Iš viso Lietuvos kultūrinio konteksto ir ilgalaikių etnogenezės procesų eiga, ir teritorijos panaudojimo bei su tuo glaudžiai susijusia jos apgyvenimo sistemos struktūra itin išsiskyrė Rytų Lietuva (RLPK regionas). Rytų Lietuvoje archeologinių objektų kompleksų žinoma nepalyginamai mažiau, nei likusioje Lietuvos dalyje. V–XII a. Rytų Lietuvos pilkapių kultūriniam (RLPK) regionui (ypač rytinei jo daliai – Nalšios kraštui) būdingos po keletą šimtų metrų viena nuo kitos nutolusios pilkapių grupės, kartais išsidėsčiusios net po kelis kilometrus nutįsusiomis virtinėmis. Dažniausiai šalia tokių, paprastai gana didelių, pilkapynų (Geidžiūnėlių, Jakšiškio, Jutonių, Sidariškių, Baravykinės ir kt.) gynybinės ir/ar gyvenamosios paskirties archeologinių objektų (piliakalnių bei senovės gyvenviečių) neaptikta. O aptikti piliakalniai dažnai yra neproporcingai (lyginant su pilkapynų dydžiu) menko gynybinio pajėgumo (Galminių, Paduobės, Pašvenčio (Kretuonys) slėptuvinio tipo I t. po Kr. vidurio – II pusės piliakalniai).

10. Aptariant esminius Rytų Lietuvos pilkapių kultūrinio regiono ir kitos Lietuvos dalies teritorijos apgyvenimo sisteminius skirtingumus, peršasi dvi hipotezės:

➤ Rytų Lietuvai būdingos pilkapynų virtinės bei vienalaikių gyvenviečių nebuvimas ar menki jų pėdsakai liudija šiame regione buvus pusiau sėslių gyvenimą. Sodybos būdavo nuolat kilnojamos, o liekantis pilkapių sampilai buvo juos supylusios bendruomenės periodiškai naudotų teritorijų žymekliai.

➤ Rytų Lietuvai buvo būdingos sodybų ar nedidelių kaimelių grupės, kurių gyventojai artimuosius laidodavo gretimuose pilkapynuose. Nedidelių sodybų pėdsakai

šiandien sunkiai identifikuojami, tad šalia pilkapynų buvusių sodybviečių aptinkama retai.

Kitoje Lietuvos dalyje gyventa erdviškai labiau koncentruotomis bendruomenėmis, nes palankesnės žemdirbystei gamtinės sąlygos, tampresni ryšiai su vakariniais Europos kraštais leido gyventojams gerokai anksčiau pereiti prie žymiai pažangesnių ūkininkavimo formų.

11. VEGA laikotarpyje (IX–XII a.) vakarinėje RLPK regiono dalyje išryškėjo apgyvenimo sistemos kaitos tendencijos, sietinos su pirmaisiais valstybingumo židiniais bei itin ryškiu bendruomenių karinės galios išaugimu. Ši regiono dalis VEGA laikotarpyje įgavo nemažai Vidurio ir Vakarų Lietuvai būdingų bruožų. Todėl čia galima aptikti ir rytinei RLPK regiono daliai (Nalšiai) būdingų pilkapių išsidėstymo grupėmis, ir likusiai Lietuvos daliai būdingų pilnų archeologinių objektų kompleksų su gerai įtvirtintais piliakalniais (Vilnius, Kernavė, Šeimyniškeliai, Tauragnai, Taurapilis ir kt.).

Ne tokios palankios intensyviai pastovių laukų žemdirbystei gamtinės sąlygos Rytų Lietuvoje lėmė didelę ganyklinės gyvulininkystės dalį gamybinio ūkio struktūroje bei archaiškų nepastovių laukų lydiminės ir miškinės-dirvoninės žemdirbystės sistemų gyvavimą iki pat Lietuvos valstybės susikūrimo. Tokia žemėnauda stipriai paveikė ir regiono apgyvenimo sistemos struktūrą. Tuo Rytų Lietuvos regionas V–XII a. išsiskyrė iš likusios Lietuvos dalies, kur žemdirbystei palankesnės gamtinės sąlygos ir glaudesni ryšiai su kitais kraštais lėmė gerokai ankstyvesnę pastovių laukų pūdyminės žemdirbystės įsitvirtinimą, jos vyravimą gamybinio ūkio struktūroje.

CURRICULUM VITAE

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|-----------------------------|--|
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