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## STONE AGE IN SOUTH LITHUANIA

(according to geological, palaeogeographical and archaeological data)

### Summary

Correlation of global and regional events, establishment of the period of evolution of material culture of man, formation of local ethnic peculiarities are the main aims of the scientific program „Stone Age in South Lithuania”. This programme was supported by the Lithuanian Science and Studies Foundation. The purposes of the program are:

- investigation of the settling of people and of their living conditions in South Lithuania during the Late Pleistocene and Holocene, relation of the inhabiting of this territory with the global and regional glacial epoch and post-glacial natural phenomena;
- mapping of the Stone Age sites (Paleolithic, Mesolithic and Neolithic), archaeological settlements and estimation of the geological and geomorphological conditions;
- studies into the expression forms and stages of material culture on the territory of Lithuania and its place in the context of European Stone Age culture.

Environmental conditions during the Late Pleistocene and Holocene are summarized in the book. The geological map of the South Lithuanian Quaternary deposits, the map of geomorphological regionalization of South Lithuania, palaeogeographical maps of Merkinė (Eem, Mikulino) Interglacial, of Žiogeliai (Frankfurt) phase (Nemunas glaciation), of Baltija (Pomerania) stage (Nemunas glaciation), of South Lithuania phase (Baltija stage) and of the Boreal (Early Holocene) of South Lithuania to a scale of 1 : 200 000 were compiled (appendixes 1–7). Abundant and valuable new scientific information on geological sections and geomorphological objects is presented.

The last interglacial (Merkinė, Eem) and the last glacial (Nemunas, Weichselian) together form a whole macrocycle in the system of climatic rhythms of the Pleistocene in Lithuania. The last (Merkinė) interglacial in Lithuania started about 120 000 years ago and ended in 70 000 years b.p. The interglacial was warmer and probably also damper than the present period. There are three stages of the Nemunas (Vistulian, Weichselian) glaciation: Early (70–60 thousand years ago), Middle (60–30 kyrs ago) and Late (30–10 kyrs). The glacial activity was different at each stadial stage: Varduva (70–65 thousand years ago), Bičiai (50–45 kyrs) and main glacial advance (25–15 kyrs). These stadials were separated by interstadial warmings of the climate: Rokai – 60–50 kyrs ago, Biržai – 45–30 kyrs and Pavytė – 18–17 kyrs ago (Table 1.1). The ice cover of the Nemunas glaciation in Lithuania reached its maximum about 22 000–18 000 years b.p. in the Late Nemunas time. The extension of the Late Nemunas glaciation was short, certainly less than 10 000 years.

The stratigraphy of the Late Glacial and Holocene deposits was investigated in detail. According to pollen data, the chronozones (Boling, Older Dryas, Allerod, Younger Dryas, Preboreal, Boreal, Atlantic, Subboreal, Subatlantic) were correlated with pollen assemblage zones, and seven diatom complexes were distinguished. The character of the hollows of the lakes and bogs, their origin, structure and composition of deposits, evolution of the lakes and bogs, development of vegetation, climate, water level fluctuations in the lakes and formation of the soils during the Late Glacial and Holocene were discussed.

Lithological and palaeobotanical studies of the Pamerkys outcrop deposits were carried out. New data reflecting the conditions of sedimentation, development of vegetation and climate fluctuations were obtained. Some indications of human activity were noted. A more detailed stratigraphical subdivision of the sediments studied was made. The organogenic and sandy lacustrine deposits in the Ūla-2 outcrop are of Late Weichselian age. On the basis of the stratigraphical position of these deposits and the above-discussed facts the question of the integrity of the outwash plain sandy sequence in South Lithuania cannot be answered, but the history of the Ūla River valley can be elucidated. At the same time the interest in glaciofluvial Ūla River outcrops is increased.

The dynamics of the spread of Pleistocene glaciers was very important for the development of Lithuanian relief and for settlement of people. According to the morphogenesis, the areas where Stone Age camps have been found in Lithuania can be classified into five main groups: 1 – periglacial lakes, upper fluvioglacial terraces, outwash plains, 2 – breakthrough valleys connecting lakes (terraces XIII–VI), 3 – middle fluvioglacial terraces (V–IV) in river valleys, 4 – lower terraces (III–II) in river valleys, and 5 – first and floodplain terraces. Fixation of archeological cultures should be accompanied by compiling spectrograms of terrace bases and alluvium, radiocarbon dating, spore and pollen analysis, decipheration of cycles in sedimentogenesis and other geomorphological studies. Always the northern parts of rinnen are younger, more shallow, wider and clayey, without erosional pits, meanwhile their southern parts are more complex, contain more gravel, are deeper, have recurred erosional pits, their bottoms are more narrow. In Southern Lithuania the Late Paleolithic, Mesolithic and Neolithic camps and settlements have nestled up to glacial rinnen flooded by water of laces.

The widespread aeolian deposits, formed mostly by a drift of limnoglacial sands and somewhat less by alluvial ones, were analyzed, too. The following 11 areas of aeolian massives are most typical and homogeneous: Latežeris, Randamonys, Dūbas, Katra, Musteika, Marcinkonys, Lynežeris, Palkabalis, Varėna, Barčiai and Rūdninkai. They were taken for a correlative analysis of morphological parameters and comparison of its results. The following parameters of 966 dunes were used: absolute height of foot, absolute height of summit, relative height, length of the main ridge, azimuth of the perpendicular of the main ridge, amount of ridge spurs and distance from the same parallel and meridian. On the grounds of prevalence of maximum, minimum and average values of parameters, peculiarities of correlation bonds among the parameters in all areas, connection with gravitation field and neotectonic structures, data of studies of the composition and texture of aeolian sand, the following conclusions were drawn. The aeolian areas studied in South Lithuania differ in age. They were formed on the base of limnoglacial sands, under the influence of winds of different directions and changes in groundwater depth. The areas of Rūdninkai, Barčiai, Varėna, Dūbas and Katra were the earliest to start their formation. The aeolian areas of Marcinkonys, Musteika and Latežeris were the latest ones to be formed. Tectonic structures controlled the location of aeolian deposits and their morphology. In general, aeolian sediments in South Lithuania are confined to the subregional neotectonic uplift and the elevation of the crystalline basement defined by residual anomalies technique. The aeolian relief is more dissected and of larger forms within the most uplifted local tectonic structures.

The surface water flows formed the areal physical and chemical denudation of soils. The following types of gravitational processes causing surface movement in the slopes are distinguished: falls, talus, landslides, detrusions, creeping (defluction), solifluction forming corresponding types of colluvial deposits. Ravines and gullies in Lithuania are classified in the Grūda stage, Žiogeliai phase and Baltija stage. Further they are divided in to lateral, proximal, distal, etc. All ravines and gullies are grouped into those with breakthrough valley sectors and meandering sectors. They were formed on slopes or terraces of the basic rivers valleys. The ravines are attributed to the Late Glacial relief, whereas gullies are related to the Holocene.

The results of detailed palaeoecological investigations of the Stone Age archaeological sites, especially the results of pollen and diatom analysis of the lacustrine and peat from the Dūba, Pelesa, Grūda, Glūkas, Varėnis, Veisiejai, Dusia, Katra sites are interesting. The development of soils, cattle-breeding and agriculture in the places of archaeological monuments according to pollen and diatom data in the lakes and bogs Grūda, Dūba, Glėbas, Varėnis, Veisiejai and Dusia, the human economic activity during the Atlantic, Subboreal and Subatlantic periods is described. The very first inhibitions appeared in Lithuania following herds of reindeers. In Preboreal period, after an expansion of forests, reindeers were replaced by species of forest animals such as elk, red deer, wild boar. Roe deer, aurochs, hare became more numerous after forest rarefaction. There were a lot of fur animals. Domesticated animals appeared only in the 3-rd millennium b.p. The very first of them (sheeps, goats, pigs, cattle, horses) were imported.

The archaeological survey of Lake Grūda environs started in 1990. Thirty five sites and stray find places dated from the Late Paleolithic to the Early Bronze Age were found by author in this area. 65 m<sup>2</sup> were excavated by R. Rimantienė in Grūda III site, and ceramic and flint materials of Nemunas Culture dated to the Middle Neolithic period were found. An area of 206 m<sup>2</sup> was excavated by author in another site, Kabeliai II. Three cultural layers dated to the Late Paleolithic and the Early and Late Mesolithic were

found. Eleven C-14 dating were made. The lower layer with flint materials of Late Paleolithic Swiderian Culture was dated: Ta-2601 – 9820 ± 220 b.p., Ta-2606 – 9910 ± 100 b.p. The middle layer with materials of the Early Mesolithic was dated: Ta-2600 – 9100 ± 180 b.p., Ta-2604 – 8680 ± 90 b.p. The upper layer with materials of Late Mesolithic Janislawice Culture was dated: Ta-2599 – 7250 ± 200 b.p., Ta-2610 – 7060 ± 150 b.p.

The archaeological survey of the environs of Lakes Varėnis and Glūkas started in 1995. Until the autumn of 1997, 37 sites dated from the Late Paleolithic to the Early Bronze Age were found. An area of 170 m<sup>2</sup> was excavated in Glūkas 10 site (Varėnė 5) by a team of the Lithuanian National Museum. Materials of the Final Paleolithic, Early Neolithic, Nemunas Culture and Late Neolithic Corded Ware Culture were collected. A total area of 184 m<sup>2</sup> was excavated in Varėnė II site. Materials of Late Paleolithic Lyngby, Ahrensburg-like and Swidrian cultures as well as Late Mesolithic Janislawice, Early Neolithic Nemunas and dated to the 1-st millennium B. C. Brushed Pottery cultures were found. Three huts and a few pits of a Late Mesolithic winter settlement as well as postconstructed houses of the Brushed Pottery Culture were investigated in the site.

The very first archaeological artefacts were found by W. Szukewicz in the area of Lake Dūba at the end of the 19th century, but investigations of sites started only in the latter period. Here are shortly presented results of investigations of six excavated sites: Margiai I and II, Karaviškės VI, Dubičiai, Barzdžio miškas I, Katros ištakos I. Pottery, stone and flint materials, fireplaces and postholes, mostly of the Neolithic and Bronze Age periods, were found during excavations.

The development of Stone Age cultures in South Lithuania and their place in the cultural context of Stone Age of Lithuania and Europe is a complex problem. Lithuania was being constantly inhabited by people in the 2nd half of Allerod period. The first inhabitants came from the south-west. They belonged to two cultural groups: the Baltic Magdalenian (Lyngby-Bromme, Ahrensburg type) and the Swiderian. Swiderian Culture survived up to the beginning of Preboreal period and transformed into early mesolithic Kunda Culture. Soon the territory of South and Central Lithuania was occupied by people of Kudlajewka Culture originated from Polessye. At the end of Preboreal a new wave of migration from the territory of Maglemose Culture in Southern Scandinavia reached the Eastern Baltic Area. Local late mesolithic Janislawice Culture evolved from Maglemosian groups which flourished during late Boreal and early Atlantic periods. Due to influences from Central European neolithic cultures (adoption of pottery technology, ect.) groups of Janislawice Culture transformed into Nemunas Culture of “forest Neolithic type” in the middle of the 5th millennium B. C. The first traces of producing economy were connected with the influence of Globular Amphora Culture in the Middle Neolithic in South Lithuania. However, local neolithic Nemunas Culture survived until the beginning of the Bronze Age. During all periods of the Stone Age Lithuania was the eastern part of the Circumbaltic archaeological region.

**AKMENSAMŽIUS PIETŲ LIETUVOJE**  
(geologijos, paleogeografijos ir archeologijos duomenimis)  
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**STONE AGE IN SOUTH LITHUANIA**  
(according to geological, paleogeographical and archaeological data)

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