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Environment, settlement and economy of the West Baltic Tribes in the Roman Period. Key studies on two settlement microregions of Bogaczewo and Sudowska Cultures

Maciej Karczewski

INTRODUCTION

Settlement microregions: Osinki – Szwajcaria in the Suwałki Lakeland and on the north shore of former lake Wąż in the Great Masurian Lakes District are among the best known and published lakeland area settlement groups of the Western Baltic circle (fig. 1)[1]. Classical archaeological researches conducted in the area were accompanied by numerous analyses in the sphere of environmental archaeology (Krysiak, 1958, p. 140; Sławiński, Gierasimow, Kościk, 1858, p. 146–147; Kościk, 1963, p. 210–212; Gierasiomow, 1963; Stasiak, 1965; Karczewska, Karczewski, Pirożnikow, ed. 2002; Karczewska, Karczewski, 2003).

A fundamental problem in the comparison of the results of research on both microregions is the insufficient determination of their chronology. There are several reasons for this insufficiency. First of all, the cemeteries of both microregions have not yet been fully studied and published. The chronology of settlements was based on the typological analysis of pottery and isolated metal artifacts. A small series of radiocarbon dates has been obtained exclusively for the settlement in Paprotki Kolonia site 41 (fig. 2) (Goslar, 2004)[2]. As a consequence, the obtained picture of the functioning of the settlement microregion Osinki – Szwajcaria and the microregion on the north shore of former lake Wąż is static, which in an obvious way does not correspond to past realities[3].

ENVIRONMENT

Great credit must be given to the Complex Sudovian Expedition for the reconstruction of the ancient landscape of the area around the cemetery in Szwajcaria near Suwałki (Stasiak, 1965). The basic rules for this type of research were set at that time. They included three stages: 1. familiarization with the characteristic features of the contemporary geographical environment of the microregion, 2. palynological and paleobotanical studies, 3. reconstruction of the geographical environment existing in the past on the basis of full data collected earlier (Stasiak, 1964, p. 7–8). These rules were applied in unchanged form for the study of the microregion on the north shore of former lake Wąż.

Important differences between the compared microregions consisted in the availability of individual sources of information. In the case of the Osinki – Szwajcaria microregion palynological researches provided the basic source of information concerning the landscape in the past (fig. 3) (Stasiak, 1964, p. 23–36). To a small extent, the results of species analysis of macroscopic plant remains from pits discovered in the settlement in Osinki were also taken into consideration (Kościk, 1963, p. 210–212; Stasiak, 1964, p. 31).

[1] Other well recognized microregions of the Roman Period in the lakeland area include: the microregion in the area around lake Salęt (Nowakowski, 1980; Szymański, 2001), the microregion of lake Rajgrodzkie (Iwanicki, 2004), as well as the settlement complex in Osowa (Jaskanis, Jaskanis, 1966).

[2] Dating was carried out within the frames of research project H01H05625: "Pottery of the Bogaczewo culture from the settlement microregion of lake Nietlice in the Great Masurian Lakes District".

[3] The dynamic changes in the geographical environment seem to be presented in the palynological diagram from the Osinki deposit (Stasiak, 1964, table II). The author of the analysis aimed to present changes in the environment over fifty-year periods. As the basis for the determination of these periods, she used a somewhat debatable method of measuring the thickness of gyttja layers (Stasiak, 1964, p. 27–28).

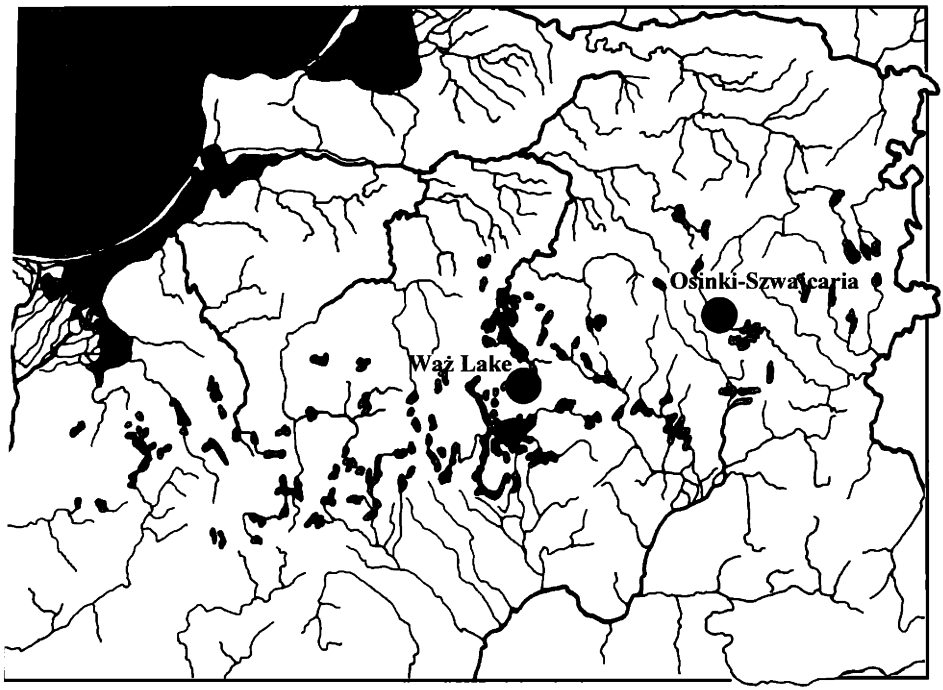


Fig. 1. **Settlement microregions: former Lake Wąż** (Great Masurian Lakes District) and Osinki-Szwajcaria (Suwałki Lakeland).

1 pav. Gyvenviečių mikroregionai: buvęs Wąžo ežeras (Mozūrų Didžiųjų ežerų regionas) ir Osinki – Švajcarija (Suvalkų ežerynas)

In the palynological diagrams prepared for the Nietli- : peat bog, a remnant of former lake Wąż, a sediment atus corresponds to the Roman Period (Kupryjanowicz,)02, p. 61, 65). As a result of the lack of pollen in the eposit, macroscopic plant remains discovered in stora- : pits in the settlement and two horse burials – graves 15 and 221 in the cemetery, as well as species delinea- on of charcoal from storage pits, became the basis for ıe reconstruction of vegetation near the settlement and emetery in Paprotki Kolonia (Pirożnikow, 2002; Tom- zyńska, 2001).

The study of the ancient landscape in the Szwajcaria egion resulted in the preparation of a map of the land- cape of the area in the Roman Period and the Great Migration Period (fig. 4) (Stasiak, 1965, p. 35–36, fig. 5). t has been determined that in slightly warmer and humid onditions, compared to the contemporary climate, the Osinki – Szwajcaria microregion was nearly completely covered with forests. The southern, eastern, central and western part was covered with oak, horn beam and lime and partly with elm, while the north – western sandr part was covered with deciduous forests with beech. In the west and north – west there was a fresh or mixed forest with pine and spruce. Marshy forests and alder forests grew on the shores of lakes and on peat bogs (Stasiak, 1965, p. 28–29, 30, 35–36; Antoniewicz, 1979, p. 179). Small deforested areas occupied by till fields could have been located near the settlement and cemetery on the lakeshores. They occupied sandy soils, some of which, located on lake Osinki, contained a large amount of carbonates (Stasiak, 1965, p. 35, fig. 5). Forest areas destroyed as a result of human economic activity were overgrown by birch (Stasiak, 1965, p. 35; Antoniewicz, 1979, p. 179).

The hydrographic conditions of the Osinki – Szwajcaria microregion were also different from those today.

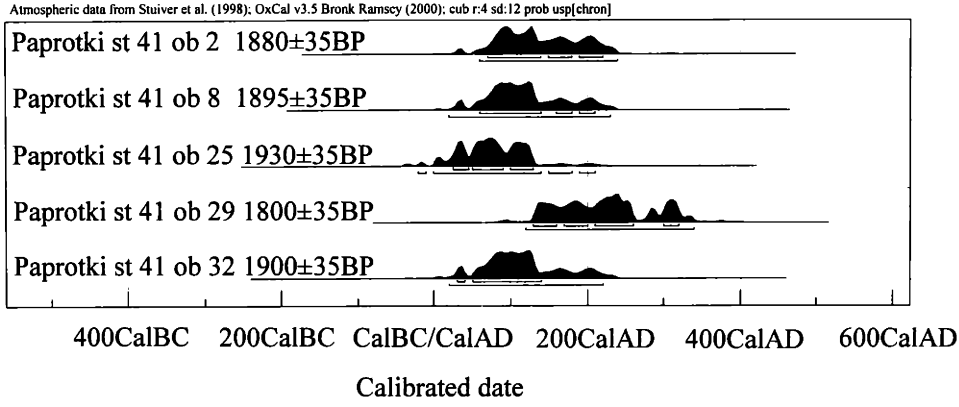
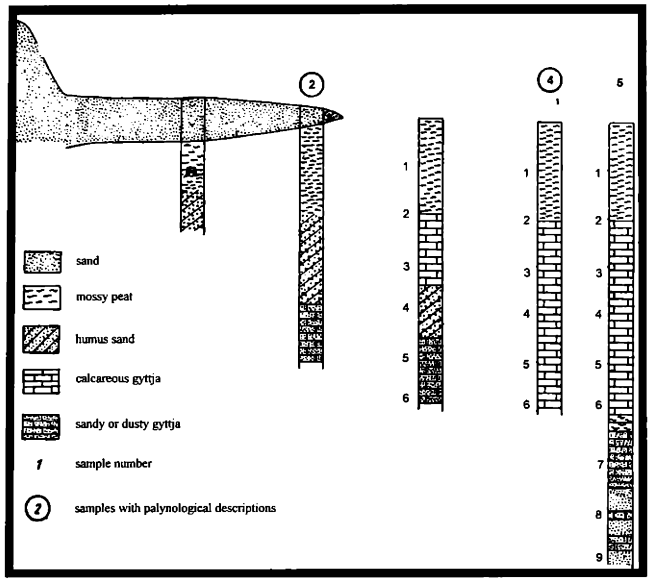


Fig. 2. **The radiocarbon dates for the settlement in Paprotki Kolonia site 41** (Great Masurian Lakes District).
2 pav. Radiokarbono datos iš Paprotki Kolonia gyvenvietės 41 (Mozūrų Didžiųjų ežerų regionas)

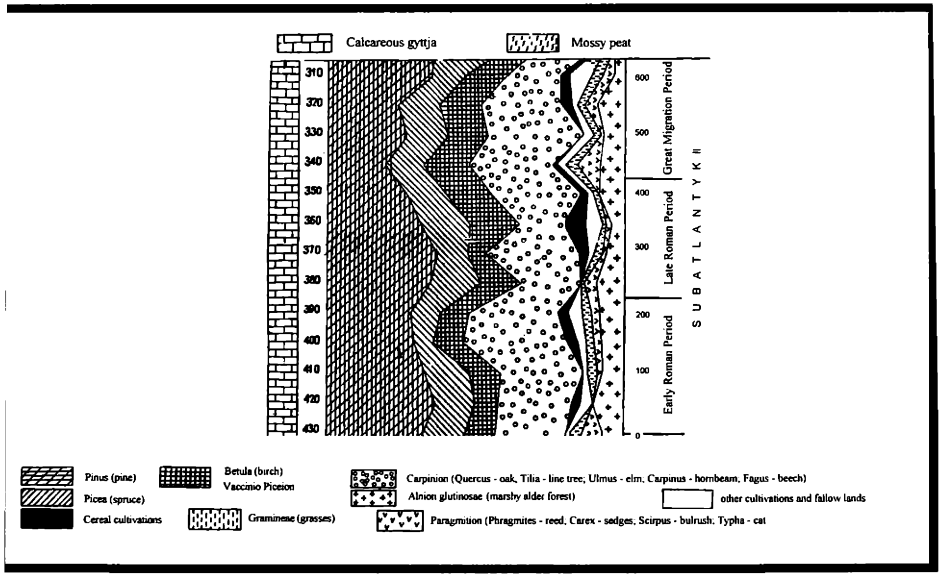
As a result of greater humidity and a higher ground water level, the now existing peat filled hollows and the wet valley of the river Kamionka – Szwajcaria used to be water reservoirs in the early centuries of our era. At that time peat bogs occured solely around lakes in the southern and central parts of the area near the cemetery in Szwajcaria (Stasiak, 1965, p. 35–36, fig. 5).

The above reconstruction was prepared with the use of information concerning the contemporary landscape of the Szwajcaria area and the results of palynological study (Stasiak, 1965, p. 34). It does not however take into account the results of species delineation of charcoal from the cemetery in Szwajcaria (Sławiński, Gierasimow, Kościk, 1958, p. 146–147). Contemporary fitosociological and habitat conditions have made possible the determination of the types of habitats, to which, after taking into consideration the palynological data, potential vegetation groupings were assigned. This practice was not repeated in reasearch connected with the reconstruction of microregion vegetation on the north shore of former lake Wąż, for it is impossible to obtain a credible picture of the actual vegetation in this way (Kruk, 1973, p. 138–139). Data concerning the macroscopic plant remains and charcoal discovered in storage pits in the settlement in Paprotki Kolonia, as well as plant remains from two horse burials from the cemetery in this village, made it possible to indicate eleven classes of vegetation groupings which could probably be found in the area of the microregion. They are as follows: 1. groupings accompanying the cultivation of garden plants and millet, 2. groupings accompanying grain cultivation, 3. ruderal groupings, 4. carpet groupings characteristic of treaded areas (paths, yards), 5. meadows, 6. pastures (or barley and rye cultivation on sandy soils), 7. rushes and tall reeds, 8. groupings occuring on drying mire on the lake shores, 9. deciduous forests on mineral soil (oak – hornbeam and marshy forests), 10. pine forests, 11. high peat bogs. The species composition of organic remains indicated that there were no great forested areas near the settlement in Paprotki Kolonia site 41, apart from marshy forests near the lake. The dominant elements of the landscape were meadows, fields and fallows, rushes and probably shrubs (Pirożnikow, 2002, p. 25–28). Charcoal discovered in storage pits in the settlement and grave pits in the cemetery in Paprotki Kolonia indicate that forests must have grown on the territory of the settlement microregion or in the nearest surrounding area (Tomczyńska, 2002; in print). These were marshy forests represented by charcoal from alders, willows, ash trees, poplars, and oak trees; oak – hornbeam forests authenticated by carbonates of hornbeam, maple and ash, oak and hazel; mixed forests with pine and birch (Tomczyńska, 2002, p. 105).

An element of the landscape which underwent significant change is the vast former lake Wąż, today known as the Nietlice Marshes. On the basis of geomorphological analysis of available results of drillings for the determination of the density of peat and gyttja deposits, as well as information concerning the depth of storage pits in the settlement in Parotki Kolonia site 41, a batimetric map of the former lake was reconstructed and the approxima-



acc. J. Stasiak, 1965, fig. 4



acc. J. Stasiak, 1965, diagram 2

Fig. 3. **The palynological diagram from the Osinki-Szwajcaria microregion** (acc. Stasiak, 1965).
3 pav. Osinki-Švajcarija (Osinki-Szwajcaria) mikroregiono palinologinė diagrama (pagal Stasiak, 1965)

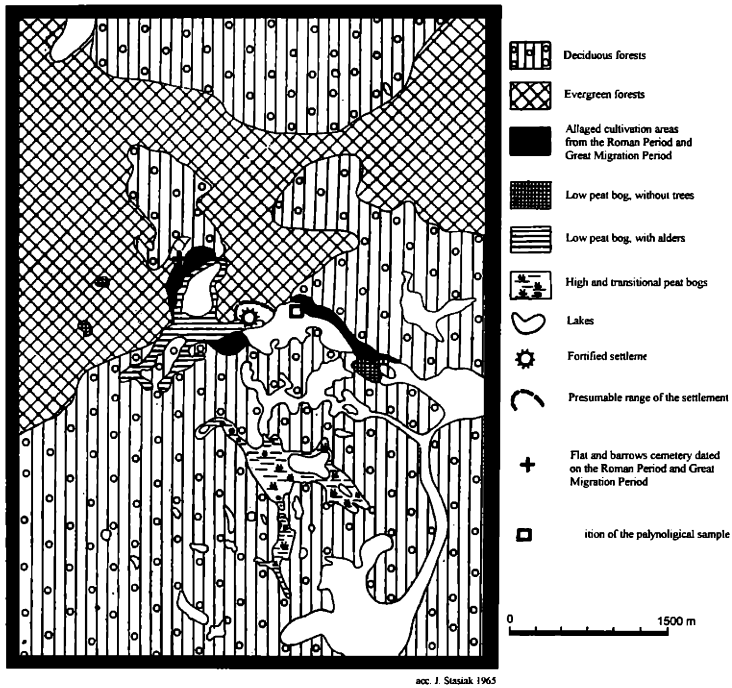


Fig. 4. **The ancient landscape in the Szwajcaria region in the Roman Period and the Great Migration Period.**
4 pav. Romėniškojo ir tautų kraustymosi laikotarpių kraštovaizdis Švajcarijos mikroregione

te water level at the time the settlement functioned was estimated (fig. 5) (Popławski, 2002). Fish remains discovered in garbage pits in the settlement point to a bream lake or perch – roach lake (Makowiecki, 2002; Karczewski, 2002, p. 164).

SETTLEMENT

Archaeological settlement researches encompass a wide range of problems, which consist of analyses concerning the development and changes of the settlement network, paleodemographic problems, as well as the reconstruction of the interior settlement layout and the elements constituting the settlement microregions (Jankuhn, 1983, p. 46–53). The state of research on both settlement microregions and publishing its results makes conducting archaeological – settlement analysis very limited. This is characteristic of the entire region occupied by the Western Baltic circle (Antoniewicz, 1979, p. 91, 127; Nowakowski, 1986–1990; Karczewski, 2001b, p. 42–46). The incomplete state of recognition of settlement relics and of the dating of the relics in long time intervals does not enable the presentation of conclusions concerning the development and changes in the settlement network. Lack of full anthropological elaboration of materials from cemeteries in Paprotki Kolonia and Szwajcaria makes paleodemographic analysis impossible. There exist some research possibilities concerning the range and layout of microregions as well as the interior layout of the main settlements.

The equidistant method has been applied for the purpose of determining the size of the Osinki – Szwajcaria settlement microregion (fig. 6) (Antoniewicz, 1958, p. 4, fig. 2). Its basis is the subjectively established radius of a circle dependent on the distance between the most stable points of the settlement network – the cemeteries (Dulinicz, 1983, p. 299–301). Half of the distance between neighbouring cemeteries served as the equidistant radius which amounted to about 5 km (Antoniewicz, 1958, p. 4). The equidistant method did not provide satisfactory results in establishing the area of the microregions around the cemetery in Paprotki Kolonia.

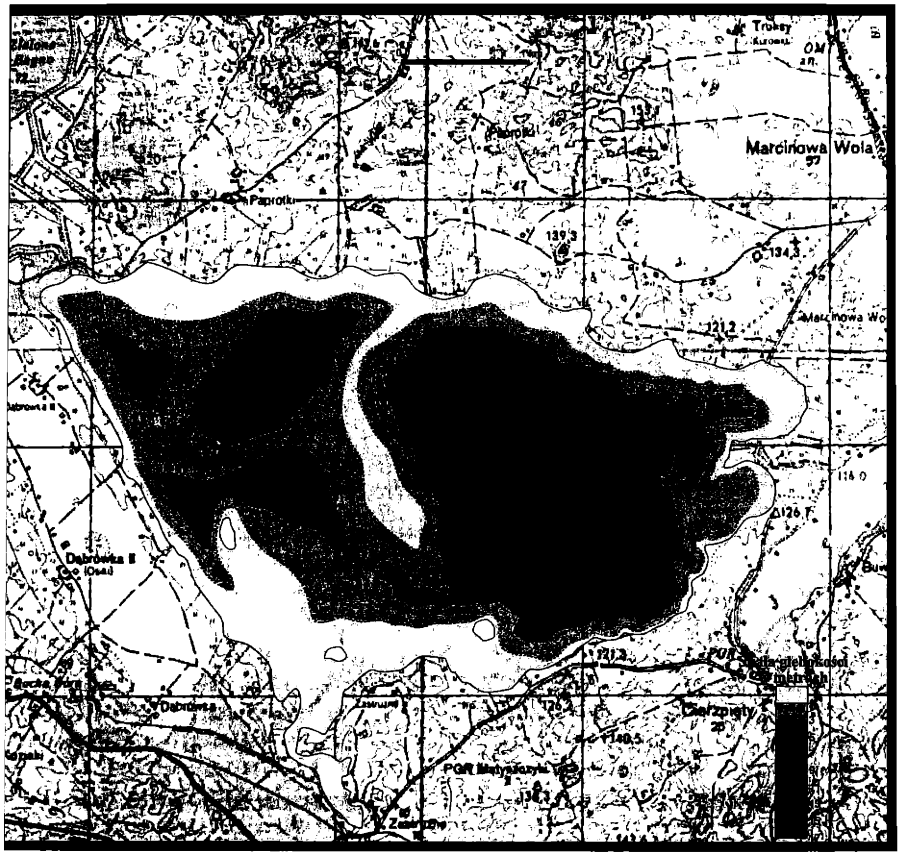


Fig. 5. **The batimetric map of the Lake Wąż in the Roman Period** (today the Nietlice Marshes).
5 pav. Wąż ežeras (dabar Nietlicos pelkės) romėniškajame laikotarpyje. Batimetrinis žemėlapis

tablishing the probable reach of the settlement mic- ion on the north shore of former lake Wąż was pos- hanks to the analysis of geographical conditions in ea occupied by archaeological sites forming a set- nt complex. Its boundaries were marked out in the by a chain of moraine hills called Paproteckie Moun- in the east by the basin of lake Buwełno, from the by former lake Wąż and from the west by a former he remnants of which are known today as the Gre- arsh[4]. Here the intensive settlement zone occupied a belt of light soils formed on sand and sandy clay stre ching from the east to the west between the edge of tl moraine highland and territories off the shore of lal Wąż (fig. 7) (Karczewski, 2002, p. 170–171).

The fundamental elements of the settlement netwo of the Osinki – Szwajcaria microregion were: the cem tery in Szwajcaria, as well as a settlement complex nur bered 1a, 2 and 3 in Osinki (Antoniewicz, 1979, p. 12 124, 126). Undoubtedly, a second cemetery, including group of 4–5 mounds situated between the cemetery Szwajcaria and the settlement network in Osinki, al belonged to this microregion (Jaskanis, 1967; Nowako ski, 2001, p. 84). Similarly, two or three large settlemen constituted the settlement microregion on the north sh

In the literature on the subject, this method is consi- most useful for determining the actual range of set- nt microregions (Nowakowski, 1983, p. 317).

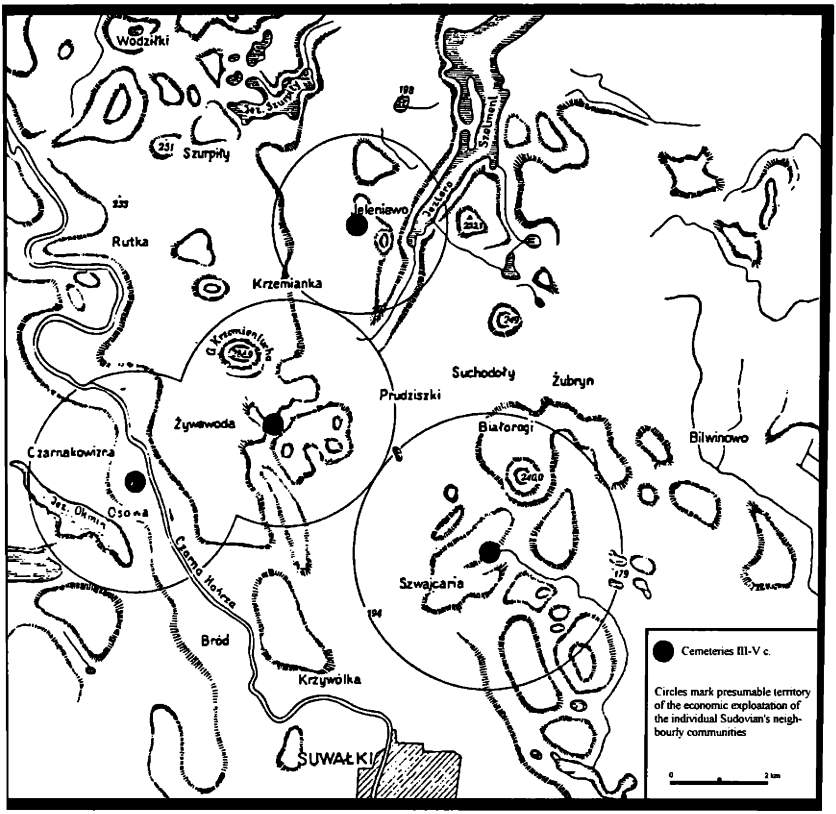


Fig. 6. **The size of the Osinki-Szwajcaria settlement microregion delimited by the equidistant method.**
6 pav. Osinki-Švajcarija gyvenviečių mikroregionas, apibrėžtas vienodo nuotolio metodu

ner lake Wąż next to the cemetery in Paprotki Their remains constituted the concentration of nt points discovered within the framework of the rchaeological Surface Researches at sites : Paolonia site 41, Paprotki Kolonia site 9, 10 and l as Marcinowa Wola Kolonia site 12 (fig. 7). nmon feature of the settlements of both microvas their location on rather small but distinctly elevations or capes surrounded by water and wet nich assured a certain degree of defence. This nay be considered as common for the settlements :zewo and Sudowska cultures (Antoniewicz, 130, 132; Nowakowski, 1986–1990, p. 37). ossible to reach certain conclusions concerning nal layout of settlements in the Osinki – Szwajcaria region on the basis of excavation research a in Osinki[5]. This research led to the discovery of r residential and agricultural buildings in the form ces of 4 buildings and 76 pits and 6 hearths orig from two settlement phases. The older phase is d the turn of the I and II century, while the younge dated to the V–VI century AD (Okulicz, 1963, p 207; Antoniewicz, 1979, p. 130; Rek, 1998, p. 1 far, publications present the character of the build disorderly. Eight to twelve families occupied ther ce (Antoniewicz, 1979, p. 131).

[5] Excavation researches on two remaining settl sites 2 and 3 in Osinki – were carried out on a much scale (Rek, 1998, p. 194, fig. 1–3).

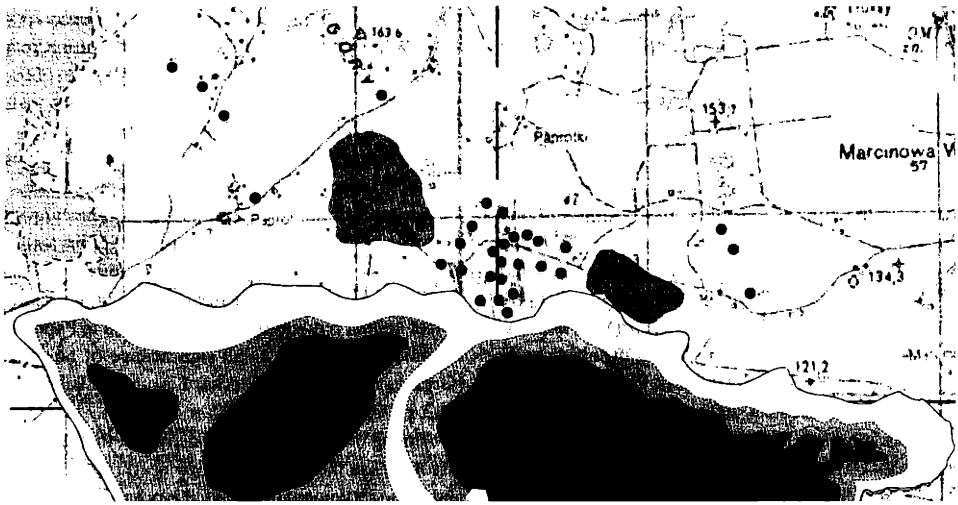


Fig. 7. **The concentrations of the settlement points constituted the microregion on the north shore of former Lake Wąż** (today the Nietlice Marshes).
7 pav. Gyvenviečių sankaupos, sudarančios mikroregioną šiauriniame buvusio Wąż ežero (dabar – Nietlicos pelkės) krante

Results of the study of settlements in the microregion on the north shore of former lake Wąż do not entitle the presentation of conclusions as to their internal layout. Excavations carried out so far at site 41 in Paprotki Kolonia led only to the discovery of a zone of storage pits located on the southern edge of the vast cape occupied by the settlement (Karczewski, 2002, p. 172–173). The relics of the remaining settlement were recognized solely through the method of surface surveys. Detailed planigraphic research was carried out at site 12 in Marcinowa Wola Kolonia and sites 39 and 40 in Paprotki Kolonia (Karczewski, 2001a, p. 12–25).

ECONOMY

For the purpose of reconstructing the everyday activities of the inhabitants of the settlement microregion Osinki – Szwajcaria Jerzy Antoniewicz used archaeological data, as well as the results of natural analyses, including palynological analyses. The discovery of a grafting knife, fanged plough-share and sickle in the graves in the cemetery in Szwajcaria near Suwałki inclined the author to set forth the hypothesis concerning the occurence of scorched ground cultivation, the role of which he did not overestimate because of its low effectiveness (Antoniewicz, 1979, p. 172–174, 178–179). On the basis of palynological analysis he concluded that the biggest area was occupied by grain cultivation (wheat, barley and rye) in the III and IV century (Stasiak, 1965, p. 30–32, table 2a). At that time it took up about 25–30 hectares of the area of the microregion Osinki – Szwajcaria, which means that an area of 1,7 – 3 hectares was at the disposal of one family. These estimates, which take into account the unfavourable conditions of vegetation and low level of cultivation techniques, have inclined Jerzy Antoniewicz to state that cultivation did not guarantee a sufficient amount of plant food (Antoniewicz, 1979, p. 179–181). The analysis of macroscopic plant remains from the settlement in Osinki confirmed emer cultivation in the early Roman Period and barley, common wheat, rye and oats in the late Roman Period. The cultivation of peas and beans has also been confirmed (Okulicz, 1963, p. 207; 1973, p. 455; Lityńska-Zając, 1997, p. 27–28, 63, 70, tab. 7).

The size of the area of till fields for the settlement microregion on the north shore of former lake Wąż has not yet been estimated. Grain cultivation has been confirmed by the discovery of small amounts of rye, millet and barley seeds, as well as the seeds of plants accompanying grain cultivation: lentil vetch, corn gromwell, rye brome, myosotis arvensis, spotted ladysthumb, filed brome, field pennycress, scarlet pimpernel and firld spurry in storage pits in the settlement in Paprotki Kolonia site

41. The great number of seeds and the heterogeneity of their generic composition point to a great overgrowth with weeds of the till fields and unsophisticated cultivation techniques, as well as long-term use of the fields (Pirożnikow, 2002, p. 28; Karczewski, 2002, p. 174). Eincorn, host club wheat, oat or bean and pea seeds have not been found (Pirożnikow, 2002, p. 33). The difference in the generic composition of plants cultivated by the inhabitants of both microregions do not necessarily reflect the actual economic differences, but may be the result of a much lower familiarity with the settlement in Paprotki Kolonia. The discovery of an oxen horn with marks of hoe use proves that oxen were used as draft animals by the inhabitants of this settlement (Gręzak, Piątkowska-Małecka, Lasota-Moskalewska, 2002, p. 79).

Breeding, especially cattle breeding, constituted an important element in the economy of the inhabitants of the Osinki – Szwajcaria microregion. A significant place was also occupied by the breeding of sheep and forest horses such as the tarpan. This has been confirmed by the discovery of horse remains and riding equipment (Antoniewicz, 1979, p. 174–178, 183)[6]. Identical conclusions were reached on the basis of animal bone remains discovered in the garbage pits in the settlement in Paprotki Kolonia and horse burials in the cemetery in the village. The breeding herd was dominated by cattle, sheep and goats, with a predominance of sheep. Pig breeding was not that significant. The use of horses did not constitute an element of the economic sphere but sacrum. They served as sacrifice animals and could be derived from both breeding and wild herds (Gręzak, Piątkowska-Małecka, Lasota-Moskalewska, 2002, p. 79–80; Karczewski, 2002, p. 175–176).

There is no information concerning fishing and gathering practices of the inhabitants of the settlement microregion Osinki – Szwajcaria. Hunting has been confirmed by small numbers of bone fragments of wild animals discovered in the settlements in Osinki (Gręzak, Piątkowska-Małecka, in print). These activities are well confirmed by the results of research in the settlement in Paprotki Kolonia site 41. Fish bones and scales were discovered in garbage pits: bream, trench, perch, fish remains of the carp type, as well as bone fragments: stag, moose, roe-deer and muflon. Gathering is confirmed by the macroscopic remains of ten wild growing plants: the fruit of goose food and water-pepper, sorrel, field pennycress, mallow, cheese-rennets, nettle, common plantain, chicory and small cranberry (Karczewski, 2002, p. 176–177). It is difficult to determine the role of fishing, hunting and gathering in the whole range of economic activities connected with obtaining food by the inhabitants of the settlement microregion on the north shore of former lake Wąż. The low percentage of wild animal bones in the collection of animal remains from the settlement in Paprotki Kolonia point to the small significance of hunting. (Gręzak, Piątkowska-Małecka, Lasota-Moskalewska, 2002, p. 78; Karczewski, 2002, p. 177–178).

Among the nonagricultural activities, thanks to the discoveries in the cemetery in Szwajcaria near Suwałki and in the settlement in Osinki, it is possible to confirm wood, stone antler and bone work, metallurgy and iron work, pottery, weaving and making clothes (Antoniewicz, 1979, p. 195). An identical set of nonagricultural activities has been confirmed for the inhabitants of the settlement microregion on the north shore of former lake Wąż. Discoveries made at the cemetery in Paprotki Kolonia indicate the possibility of local glass production (numerous beads made of matt glass) and ornaments made of colour metals with two cast forms made of marl found in grave 29 (Karczewski, 2002, p. 178–179).

It is impossible to determine the role of trade exchange, including long distance trade, with the participation of the inhabitants of both microregions. Contact with the provinces of Imperium Romanum is confirmed by the presence of Roman province imports: glass beads from the settlement in Osinki site 1a and cemeteries in that village, balteus ironwork and a sword from grave 2 in mound 25 from the cemetery in Szwajcaria, as well as glass beads from that cemetery (Nowakowski, 2001, p. 83–84, 109–110). Just as numerous are Roman province imports in the cemetery in Paprotki Kolonia. Next to glass beads, the sesterc of Marcus Aurelius (grave 67), denar suberatus of Faustina (grave 102) (Nowakowski, 2001, p. 85–87) and a disk brooch decorated with enamel (grave 379) were also discovered. Imported bronze and silver objects were also undoubtedly a source of raw products used by the local goldsmith buried in grave 29 in the cemetery. The muflon – a species of wild sheep in Asia Minor and in the Mediterranean region – can be considered a special import. A single bone of that animal

[6] The animal remains from the settlements in Osinki have not been fully studied from the archaeozoological point of view until recent years and the results of the analyses have not yet been published – compare Gręzak, Piątkowska-Małecka, in print.

has been discovered in the settlement in Paprotki Kolonia (Gręzak, Piątkowska-Małecka, Lasota-Moskalewska, 2002, p. 78–79).

CONCLUSIONS

Research on the landscape of the settlement microregion Osinki – Szwajcaria and the microregion on the north shore of former lake Wąż brought different results indicating much greater deforesting and change in the landscape in the area of lake Wąż. This is consistent with the established views on changes in vegetation on the Masurian Lakeland in the Roman Period (Karczewski, 2002, p. 167–168). It is however possible that the differences between the compared microregions are, at least partly, the result of differences in the used source base and its interpretation. This is even more probable, since the comparison of the microregions in regard to settlement and economy did not show significant differences. The same model of economy realized in almost identical conditions of the geographical environment had to cause similar changes in the landscape.

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BALTŲ GENČIŲ GAMTINĖ APLINKA, GYVENVIETĖS IR ŪKIS ROMĖNIŠKUOJU LAIKOTARPIU. BOGAČEVO IR SŪDUVIŲ KULTŪRŲ DVIEJŲ GYVENVIEČIŲ MIKROREGIONŲ STUDIJA

Maciej Karczewski

Santrauka

Vakarinių baltų kultūrų rato paežerių gamtinės aplinkos, gyvenviečių ir ūkio tyrinėjimų problematika aptariama dviejų mikroregionų: Osinki-Szwajcaria Suvalkų paežerėje ir prie šiaurinio senojo ežero Wąż kranto Didžiųjų Mozūrų ežerų regione, pavyzdžiu.

Gamtinė aplinka

Gamtinės aplinkos archeologinės analizės apėmė palinologinius, augalų makrosporinių dalių rūšinius ir medžio anglių iš ūkinių duobių Osinkuose ir Paprotki Kolonia rūšinius tyrinėjimus, taip pat geologinius-geomorfologinius tyrimus. Remiantis palinologinėmis diagramomis ir informacija apie dabartinį Szwajcarijos kapinyno apylinkių kraštovaizdį, buvo atlikta šio mikroregiono kraštovaizdžio rekonstrukcija. Augalų liekanų paleobotaninės analizės iš šiaurinio Wąż ežero kranto mikroregiono leido identifikuoti vienuolika augalų grupių, augusių ten romėniškuoju laikotarpiu. Tuo metu vyraujantys kraštovaizdžio elementai buvo lankos, laukai, lydimai ir tikriausiai krūmai. Taip pat buvo padaryta pirmųjų m. e. amžių kartografinė Wąż ežero skersmens ir gylio rekonstrukcija.

Gyvenvietės

Mikroregionų gyvenviečių tyrinėjimų ir jų publikacijų būklė, tik dalinis ilgo chronologinio laikotarpio gyvenviečių medžiagos pažinimas neleido padaryti platesnių išvadų apie gyvenviečių tinklo raidą ir pokyčius. Paprotki Kolonia ir Szwajcarijos kapinynų antropologinės medžiagos publikacijų trūkumas neleido padaryti paleodemografinės analizės. Buvo galima apibūdinti mikroregionų teritoriją ir jos suplanavimą, svarbiausių gyvenviečių vidaus suplanavimą.

Osinki-Szwajcaria mikroregiono apgyvendinimo teritorijai nustatyti taikytas ekvidistancinis metodas. Senojo Wąż ežero šiaurinio pakraščio mikroregiono dydį nustatyti padėjo archeologinių paminklų geografinių sąlygų analizė.

Bendras abiejų mikroregionų bruožas – gyvenvietės kūrėsi nedidelėse, bet gerai ištirtose išplovose arba iškyšuliuose, apsuptuose vandens ar drėgno dirvožemio – tai atliko ir tam tikrą gynybos funkciją. Abiejuose mikroregionuose ryškiai išsiskyrė ūkinės veiklos zonos, kuriose aptikta įvairios paskirties duobių.

Ūkis

Abiejų mikroregionų gyventojų ūkinės veiklos rekonstrukcijai buvo panaudoti archeologiniai ir gamtinių analizių duomenys. Kad Osinki-Szwajcaria mikroregiono gyventojai ankstyvuoju romėniškuoju laikotarpiu vertėsi žemdirbyste, liudija kviečiai *plaskurka*, vėlyvuoju romėniškuoju laikotarpiu – taip pat miežiai, paprasti kviečiai, rugiai ir avižos. Sėtos ir ankštinės kultūros. Auginti pagrindiniai galvijai, menkesnį vaidmenį turėjo tarpano tipo arklių ir avių auginimas.

Šiauriniame senojo Wąż ežero pakraštyje, piktžolėtuose laukuose buvo auginami rugiai, soros ir miežiai. Gyvulių

bandoje vyravo galvijai, taip pat avys ir ožkos. Mažiau auginta kiaulių. Arkliai nebuvo naudojami ūkio darbams ar garbinami. Žvejyba, medžioklė ir rankiojimas, kaip papildoma ūkinė veikla, gerai atsispindi Paprotki Kolonia gyvenvietės medžiagoje. Atliekų duobėse aptikta karšių, lynų, ešerių, karpinių šeimos žuvų kaulų ir žvynų, elnių, briedžių ir stirnų kaulų fragmentų, dešimties laukinių augalų liekanų.

Iš kitų užsiėmimų galima kalbėti apie medžio, akmens, rago ir kaulo apdirbimą, geležies lydymą ir apdirbimą, puodininkystę, stiklo gamybą, audimą ir drabužių siuvimą.

Iš lenkų kalbos vertė *M. Michelbertas*

Įteikta 2006 m. sausio mėn.