

## Concerning the transition to farming in the East Baltic

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**ABSTRACT** – *The aims of this paper are three-fold: to review current theory regarding the general, practical (animal and plant resource utilization) transition to farming; to draw attention to problems in the data base from which theoretical conclusions are made; and to explore specific, contextual socio-cultural changes that occurred simultaneously during the practical transition, in particular those reflected in the changing forms of burials.*

**IZVLEČEK** – *Cilji članka so trije: pregledati sedanje teorije, ki govorijo o splošnem, praktičnem vidiku prehoda v kmetovanje (koriščenje rastlinskih in živalskih virov); usmeriti pozornost na težave s podatki, na katerih temeljijo teoretični sklepi; ter raziskati specifične družbeno-kulturne spremembe, ki so se pojavile sočasno s praktičnim prehodom, še posebej tiste, ki se kažejo v spremenjenih oblikah pokopov.*

**KEY WORDS** – *Lithuanian; transition to farming; contextual socio-cultural changes; changing forms of burials*

Chronological data is key in any assessment of evolution, including the transition to farming. What is important is not only how we define archaeological periods and subperiods, but also continuous refinements and clarifications of the chronological data themselves. It must be pointed out that East Baltic archaeological periods are not all currently defined either clearly or uniformly (see below). More importantly, however, new chronological data have recently come to light that make it clear that certain of our contextual evolutionary classifications are in dire need of reevaluation, and this is the primary concern in this paper.

The defining signature of the Neolithic in the East Baltic is not domestication, but rather the appearance of pottery – beginning roughly in the middle of the seventh millennium bp (by the site of Zvidze in Latvia: 6535±60 BP; TA-862, also 6450±250 BP; MGU-1008. See *Loze 1992*) uncalibrated<sup>1</sup>. The subsistence economy at the start of the East Baltic Neolithic appears to have been a continuation of the previous Mesolithic tradition that relied on hunting, fishing, and gathering. This is suggested by tool inventories, animal bone data, palynological analyses and some macrofossil finds such as nutshells and such. The existing data show that here the domes-

<sup>1</sup> Calibrated BC dates for the East Baltic Neolithic have been proposed by R. Rimantienė 1992: Early Neolithic 5500–3400 BC (6450–4750 uncal. BP); Middle Neolithic 3400–2800 BC (4750–4350 BP); Late Neolithic 2800–2000 BC (4350–3750 BP). Although in the last few years an effort to calibrate dates is being made by some East Baltic archaeologists, calibrated archaeological period dates are often still a source of confusion, as uncalibrated bc typologies (<sup>14</sup>C date uncal. minus 1950) have been standard. Nor are they exactly the same in each of the three Baltic states. Moreover, East Baltic archaeologists are acknowledging problems with current periodization (conference seminars on periodization, for example, have recently taken place in the Lithuanian History Institute on May 10, 1999, with the next one scheduled for Sept. 10, 1999), so many period boundaries are at this time esp. not agreed upon. However, in Latvia, the most recent classification is – Early Neolithic 4500–3400 uncal. bc, Middle Neolithic 3400–2500/2400 bc, Late Neolithic 2500/2400–1500 bc (see *Vasks 1999*). In Lithuania, the typically used dates have been Early Neolithic 4000–2900 bc, Middle Neolithic 2900–2300/2100 bc, Late Neolithic 2300/2100–1800/1600 bc (see *Rimantienė 1984; Girininkas 1994*). In Estonia, the rough subdivisions have been Early Neolithic 3000 (3500?)–2500 bc, Middle Neolithic 2500–2000 bc, Late Neolithic 2000–1500 bc (see *Jaanimäe 1965; Selirand and Tõnisson 1984*), though A. Kriiska will soon be proposing an updated and calibrated periodization of Early Neolithic 5000–4200 BC; Middle Neolithic 4200–3200 BC, Late Neolithic 3200–1500 BC (*personal communication*).

tication of plants and animals was a very slow, several millennia-long process (for example, Paaver 1965; Zvelebil 1986; 1993; 1994; 1998; Zvelebil and Rowley-Conwy 1986; Dolukhanov 1986; 1993). A model for the slow transition to farming that especially fits the East Baltic area was originally proposed by Marek Zvelebil and Peter Rowley-Conwy fifteen years ago. The model distinguishes an availability phase, when foraging is the principal means of subsistence, and domesticates and cultigens constitute less than 5% of total remains; a substitution phase, when farming strategies develop, but foraging strategies are retained and domesticates and cultigens comprise about 5–50% of total remains; and a consolidation phase, when farming is the principal mode of subsistence, and domesticates and cultigens comprise more than 50% of total remains (Zvelebil 1986: 12). This slow model of the transition to farming has also been taken up by Lithuanian researchers investigating early prehistoric economy evolution (Daugnora and Girininkas 1995; 1996; 1998).

Intensive management of floral and wild animal resources such as water chestnuts and hazelnuts, fish, and pig by complex hunter-fisher-gatherers engaged in various trade could have been the initial backdrop for the appearance of domesticates in the East Baltic (Zvelebil 1995; 1998). The main defining feature of the Middle Neolithic is the appearance or influence of the Comb-and-Pit Pottery culture. The Corded Ware culture horizon of the Late Neolithic is considered by many East Baltic archaeologists decisively influential in the adoption of farming, although it is acknowledged that farming was not an overall significant part of the economy in the Stone Age. Paaver's East Baltic faunal data base published in 1965 is still one of the most comprehensive and available, and shows that the gradual shift to animal husbandry in the East Baltic occurred sometime between 1500 and 500 BC or during the Bronze Age, and that slightly before this shift an increase in the exploitation of secondary, optimal sources like seal is noticeable. Botanical data are generally not as well researched as the faunal, though perhaps fit this same basic pattern.

Recent analyses in some East Baltic microregions supplement this picture and illustrate variability within the region. In the last few years, Lithuanian archaeologist Algirdas Girininkas and osteologist Linas Daugnora have researched the evolution of the

economy in Lithuanian territory and their basic conclusions are (going by their published chronology):

- ① In Western Lithuania, the availability phase may have occurred as early as the Early Neolithic (in Girininkas' and Daugnora's chronological scheme this is 4800/4600–2900/2700 bc)<sup>2</sup>, the substitution phase – in the Middle (2900/2700–2300/2100 bc) and Late Neolithic (2300/2100–1800/1600 bc), and the consolidation phase – in the Early Bronze Age (1800/1600–1100 bc).
- ② In Eastern Lithuania, the availability phase occurred during the Middle and Late Neolithic, the substitution phase – during the Early Bronze Age, and the consolidation phase – in the Late Bronze (1100–500 bc) and Early Iron Age (500 bc–0 AD).
- ③ Cereal agriculture developed first and more intensively in western Lithuania than in eastern Lithuania, where animal husbandry was more prevalent.

Researchers have stressed the importance of examining not only the evolution of the practical side of domestication, its specific nature and locational variance, but also the evolution of other aspects of material culture occurring and changing in tandem with practical domestication. The transition to farming was part of an interdependent behavioural complex that included not only changing ecological conditions, trading networks and population expansion, but also the actual people, changing kinship networks (connubia), burial rites, the possible demarcation of "ethnic groups". The domestication process must be understood as part of this interdependent complex, in its entire context.

On the level of theory, how we classify our data will strongly impact our interpretations, and it is important to clearly define our classifications. But theoretical conclusions about the evolution of economy and prehistoric societies in general are drawn and interpretations made mainly from the material data. Although we may have enough data to paint a rough sketch of the long transition to farming in the East Baltic, we are far from a fine resolution view of the transition's development. A myriad of problems exist, from uneven preservation of material and uneven regional or chronological site representation, to no or very little systematic recovery of plant

<sup>2</sup> A. Girininkas postulates that the Early Neolithic (Narva culture) must have begun in Lithuanian territory at about the same time as in the nearby Lubāna lowland in Latvia, and uses the Zvidze date of 4820±60 BP; TA-856 (Girininkas 1994:272; Loze 1992).



macrofossils, minimal functional analyses of tools and not enough regard to the complexities of site formation processes. But a very fundamental and foundational problem that needs to be rectified for proper interpretation concerns actual chronological data, the evolutionary sequence.

I would like to draw attention to Lithuanian chronology as a case in point. To the credit and steadfast efforts of anthropologists Dr. Kenneth Jacobs at the Université de Montréal and Dr. Rimantas Jankauskas of Vilnius University, AMS radiocarbon dating was done at Oxford on skeletal material from Lithuanian Stone Age graves<sup>3</sup>. The results (see OxA listing in Tab. 1) show that six out of the nine dates are significantly different than have been assumed and published. This proportion is of great consequence, since there are not many Stone Age skeletal remains to date recovered in Lithuania and these dates concern token site material. These new dates require re-orientation in the interpretation of Lithuanian Stone and Bronze age social, economic, physical, ideological evolution. They show that certain important previously assumed and published chronological contexts can simply no longer be considered valid.

The Kirsna skull was found in southwest Lithuania's Marijampolė region, near the Kirsna River, during the draining of a peat-bog in 1930. Among this peat-bog's finds at that time were many bone artefacts,

bone axes, daggers, harpoons, as well as flint knives found in a stone-lined pit, and typologically dating to the Mesolithic. By association, the skull was also dated to the Mesolithic. Since the first publications of the Kirsna skull in 1931 (Žilinskas), it has been and is still often cited as representative of the oldest Lithuanian inhabitant and one of two main anthropological types in Lithuania's earlier Stone Age. The skull belongs to a 25–30 year old male (Fig. 1) who was hypermorphic, dolichocranic, with a high, narrow face, a Europoid related to Eastern Cro-Magnon-type people (Česnys 1990; Žilinskas and Jurgutis 1939). The Oxford AMS date of this skull is 2895±55 BP (OxA-5931) (see Tab. 1 for a listing of calibrated BC dates) – it actually dates to the Late Bronze Age, about 5000 years later.

Three out of four graves found at the site of Spiginas in western Lithuania's Samogitian Highland at Biržulis Lake (Fig. 2) have been previously dated (Butrimas 1992). One, crouched burial nr. 2, with no grave goods, dated to 4080±120 BP (GIN-5570) – the Late Neolithic. Grave nr. 4, a 30–35 year old mesomorphic, brachyranic woman (Fig. 3), representing a massive Europoid of Central European type (Česnys 1990; Balčiūnienė et al. 1992), buried with ochre, a projectile point, pendants of elk/red deer and boar teeth, was radiocarbon dated to the middle of the 8<sup>th</sup> mil. bp (7470±60 BP; GIN 5571). Spiginas gr. 1 of a 35–45 year old male with lots of

Lab.nr.	Grave	<sup>14</sup> C Age BP	Uncal. bc*	CALIBRATED BC**
OxA-5925	Spiginas gr. 3	7780±65	5830±65	6750 (6637, 6623, 6594) 6460
GIN-5571	Spiginas gr. 4	7470±60	5520±60	6440 (6380, 6307, 6302, 6283, 6269) 6220
OxA-5924	Duonkalis gr. 4	6995±65	5045±65	5990 (5869, 5861, 5842) 5720
OxA-5926	Kretuonas gr. 3	5580±65	3630±65	4540 (4446, 4421, 4398, 4381, 4367) 4260
OxA-5935	Kretuonas gr. 1	5350±130	3400±130	4460 (4223, 4182, 4168) 3830
GIN-5569	Spiginas gr. 1	5020±200	3070±200	4320 (3793) 3370
OxA-5936	Plinkaigalis gr. 242	4280±75	2330±75	3090 (2893) 2640
GIN-5570	Spiginas gr. 2	4080±120	2130±120	2910 (2618, 2611, 2596, 2593, 2582) 2290
OxA-5928	Plinkaigalis gr. 241	4030±55	2080±55	2860 (2568, 2518, 2499) 2460
OxA-5931	Kirsna 1	2895±55	945±55	1290 (1049) 920
OxA-5927	Turlojiškė 1	2835±55	885±55	1210 (998) 830
OxA-5937	Plinkaigalis gr. 317	1910±65	AD 40±65	Cal BC 40 (cal AD 82) cal AD 240

Tab. 1. Lithuanian Stone Age Grave Dates.

OxA = *History of Art; radiocarbon dates in Ramsey et al. 2000, Archaeometry journal 42 (1), in press.*  
GIN = *Geological Institute, Russia; radiocarbon dates in Butrimas 1992.*

\* *Dating typology used by many East Baltic archaeologists.*

\*\* *The extremes of the 2 sigma ranges are given with the calibrated ages in between them in parentheses and the ranges are rounded off to the nearest decade, as suggested by M. Stuiver and P. J. Reimer. Dates were calibrated using Stuiver and Reimer's 1999 Radiocarbon Calibration Program Rev. 4.1.2. See Stuiver and Reimer 1993 and Stuiver et al., 1998, in References.*

<sup>3</sup> These were funded by a grant to Dr. Jacobs from the Canadian Social Science and Humanities Research Council.





Fig. 1. Face reconstruction of Kirsna man by Urbanavičius (Rimantienė 1996.108).

ochre, 2 rhomboid projectile points and 57 animal teeth pendants was also previously dated to approximately the very end of the 6<sup>th</sup> mil. bp ( $5020 \pm 200$  BP; GIN-5569). This date has seriously been doubted, however, based on the Late Mesolithic-type grave goods (the type of points) found in the grave, and the fragments from which the date was made (Butrimas 1992). Analogies of Spiginas' grave goods and burial rites are made to Maglemose/Kungemose culture-type burials in northern Latvia's Zvejnieki cemetery, the Janislawice grave in Poland, and others in southern Scandinavia. One new  $^{14}\text{C}$  date was made at Oxford from this cluster of graves – Spiginas' grave nr. 3 of a woman of unknown age, unique body build, and no grave goods was dated to  $7780 \pm 65$  BP (OxA-5925)<sup>4</sup>. Spiginas 3 may be a little older than Late Mesolithic. Most importantly, however, this burial is now the oldest known burial in Lithuania.

The "Turlojiškė man" (Fig. 4) is a 25–30 year old male, found in the same general area and peatbog

as the Kirsna skull (Rimantienė 1984; Česnys 1990). It was originally dated by association with other artefacts to the Neolithic and considered the representative anthropological type of southern Lithuania's earlier Neolithic, Nemunas culture people: brachycranial with protolaponoid elements. The new Oxford date of this individual is  $2835 \pm 55$  BP (OxA-5927) – the Late Bronze Age.

The two main cemeteries of Lithuania that have represented the bulk of known Neolithic inhabitants are at Duonkalnis, along the same Biržulis Lake as Spiginas (see Fig. 2), and also at Kretuonas 1B, in northeastern Lithuania, on the southeast edge of Kretuonas Lake. Both of these "cemeteries" are associated with contemporaneous settlement sites. One

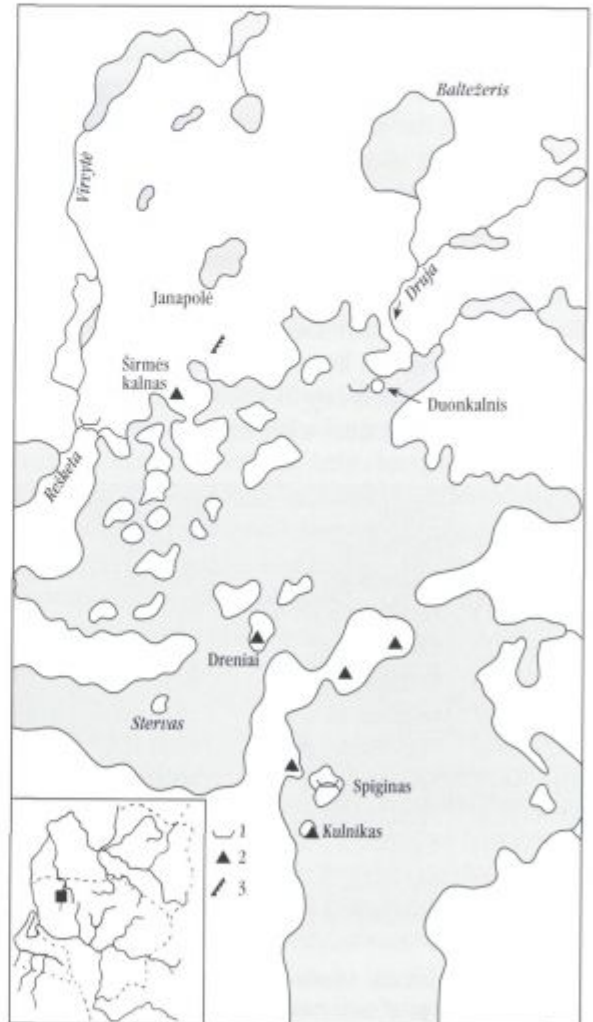


Fig. 2. General situation plan of Mesolithic sites near Biržulis Lake: 1 – Stone Age cemeteries, 2 – Mesolithic habitation sites, 3 – isolated Mesolithic finds (Butrimas 1992.4).

<sup>4</sup> This date is very similar to Zvejnieki gr. 154's ( $7730 \pm 70$  BP; Ua-3644), a male buried with ochre, stones at the feet end, and fragments of bird bone.

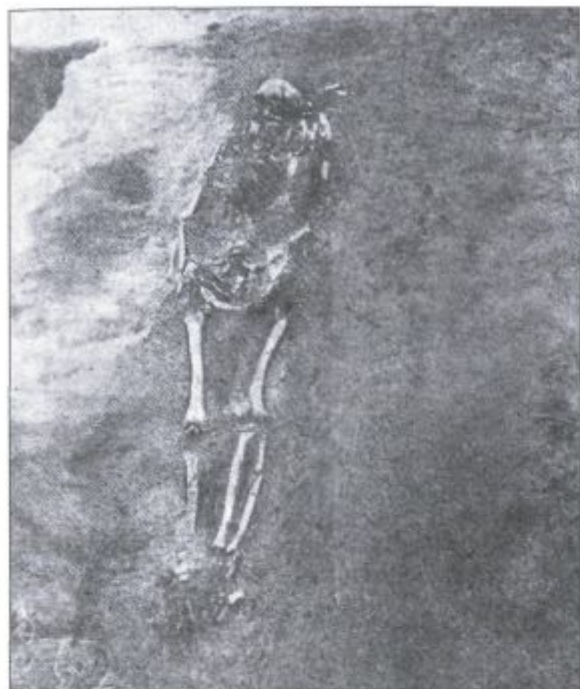


Fig. 3. Spiginas grave nr. 4 (Butrimas 1992.7).

grave from Duonkalnis and two from Kretuonas 1B have new dates. Supposedly falling chronologically between Kretuonas and Duonkalnis are three graves from Plinkaigalis, also token data base burials.

Kretuonas 1B (Fig. 5) has six graves and is the second largest Stone Age "cemetery" in Lithuania. It is associated with the Middle Neolithic Narva culture, representative of the Narva culture anthropological type - mesomorphic, mesocranic, Europoid, with a slightly flattened face (Girininkas et al. 1985; Girininkas 1990; Česnys 1990). Grave nr. 3 is that of a 50-55 year old male with two horse teeth as grave goods. The individual dates to  $5580 \pm 65$  BP (OxA-5926). Kretuonas 1B's grave nr. 1 is of a 20-25 year old female with a 0.4 cm layer of dark soil underneath the upper portion of her body and a broken bone dagger under her right forearm, and dates to  $5350 \pm 130$  BP (OxA-5936). These Kretuonas graves actually date to the time that has been classified as Early Neolithic, some 1000 years earlier than previously believed. It is likely that the associated settlement falls within this same chronological framework. Moreover, Kretuonas 1B grave nr. 3's date is now the oldest Neolithic date in all of Lithuania. (The oldest Neolithic site before now was at Žemaitiškė 3:  $5510 \pm 60$  BP (Bln-2594; Girininkas 1994; Rimantienė 1996), also one of the Kretuonas series of sites.) If the associated settlement site is truly contemporaneous with the graves, and if we keep the criteria of the appearance of the Comb-and-Pit Pottery

culture as marking the beginning of the Middle Neolithic, this would mean that the Middle Neolithic in Lithuania begins in the 6<sup>th</sup> mil. bp; Kretuonas 1B does exhibit "influences" of the Comb-and-Pit Pottery culture.

Three of the newly dated graves are from Plinkaigalis, a cemetery in central Lithuania, in the Kėdainiai district. Most of the graves in the Plinkaigalis cemetery date from the 3<sup>rd</sup> to the 6/7<sup>th</sup> cen. AD, but these three have been ascribed to the Boat Battle Axe or Early Corded Ware culture horizon by their crouched manner of burial and (1 case) grave goods (Butrimas et al. 1985; Kazakevičius 1993.160, 165). Craniologically, all three of these individuals fit well into the frame of the "classic" type of hyperdolichocranic, hypermorphic Europoids with high faces and marked clinoprosopy (Butrimas et al. 1985; Česnys 1990). The first of the three, Plinkaigalis gr. nr. 242 (Fig. 6) is of a woman over 40, buried with 2 flint blades-knives and one retouched flint knife, bent legs, and with much charcoal in the burial pit. The date of this burial is  $4280 \pm 75$  BP (OxA-5936) and it falls nicely into the Boat Battle Axe horizon. Plinkaigalis' nr. 241 (Fig. 6) is of a 50-55 year old woman with very worn teeth and bent legs (who may have had two wooden boards on two of her sides),

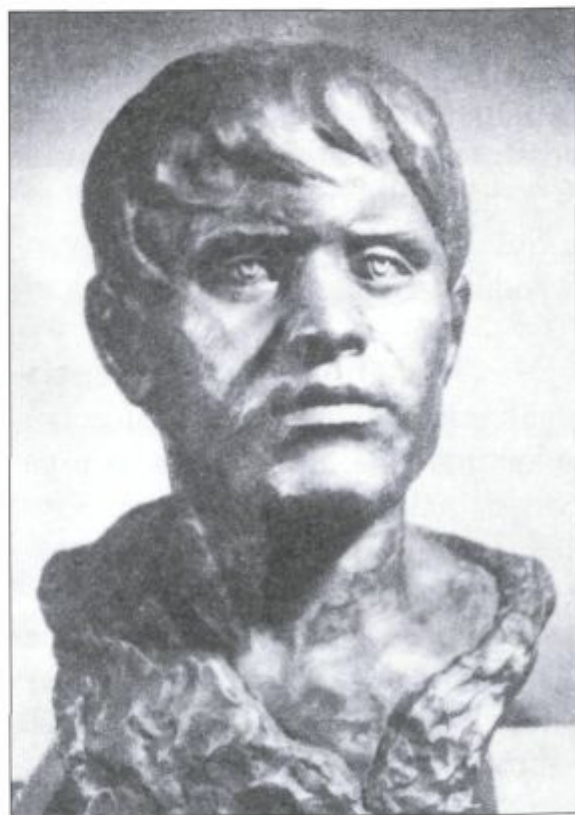


Fig. 4. Face reconstruction of the Turlojiškė man by Urbanavičius (Rimantienė 1996.206).





**Fig. 5. Situation plan of Kretuonas 1B burials (Girininkas 1990.98).**

dating to  $4030 \pm 55$  BP (OxA-5928) and also falls into Corded Ware culture times. The third Plinkaigalis grave, nr. 317 (Fig. 7), however, dates to  $1910 \pm 65$  BP (OxA-5937), placing it already well into the Iron Age. This grave is of a 50–55 year old woman with bent legs and no grave goods. Plinkaigalis nr. 317's date illustrates that crouched burials (and the "classic" anthropological type mentioned above) do not necessarily imply Corded Ware culture burials.

Duonkalis has 7/8 intact graves<sup>5</sup> and is the largest Stone age "cemetery" in Lithuania associated with the Late Neolithic Baltic Haff culture representative of this culture's physical anthropological type and burial rites (Kunskas et al. 1985; Česnys 1990). The Baltic Haff culture's anthropological type is characterised as a hybrid between autochthonous mesocranic, and immigrant hypermorphic, hyperdolichocranic early Corded Ware Pottery bearers. Duonkalis nr. 4 is of a 50–55 year old man buried with 83 animal tooth pendants (Fig. 8) and intensive ochre. Its new date is  $6995 \pm 65$  BP (OxA-5924) – not the Late Neolithic as was believed, but rather Late Mesolithic – 2.5 to 3 thousand years earlier. Known isotopic analysis from grave nr. 2 (Fig. 9), a male buried with a female at his feet and of special interest, suggests that grave nr. 2's individual is slightly older than grave nr. 4. This double burial will be redated<sup>6</sup>. These new dates affect not only the assumed chro-

nology; they also affect contextual interpretations concerning the evolution of anthropological types, their material culture affiliations, economy, burial rites, social structure and ideology.

Stone age archaeological cultures in the East Baltic are quite often associated with linguistic/social groups – Narva culture people as *in situ* locals and Pre-Indo-European (or even Indo-European), Comb-and-Pit Pottery culture as emigrating Finno-Ugrians, Corded Ware culture as incomer Indo-European. A citation from the Journal of Indo-European Studies: "The neolithization of the East Baltic area began only with the coming Indo-European speakers, the early Corded Pottery people. Their spread northward was halted by the Comb-and-Pit-marked Pottery people, presumed to be Finno-Ugric speakers, who had entered Estonia and Latvia before the Indo-European (*Rimantienė 1980.407*)."

The Duonkalis cemetery has been noted for its similarities of burial rites to other cemeteries of the Late Mesolithic tradition. Previously deemed Late Neolithic and Baltic Haff culture, it was interpreted as an illustration of the long-standing spiritual tradition of local Narva culture inhabitants dominating in Late Neolithic Baltic Haff culture, which was a mixture or assimilation of mostly local Narva culture and incomer Corded Ware culture groups. This old burial tradition included extended burials, ochre deposits, animal tooth pendants. Double grave nr. 2 and 3 (see Fig. 9) was interpreted as a shaman, with the wealthiest of grave goods and ochre, and the female with bent legs at his feet and no grave goods, as representative of Corded Ware culture and patriarchal Indo-European burial elements. One musing was that "with the patriarchal social order taking hold, in special cases (like in burying a shaman), women were sacrificed (*Rimantienė 1996.304*)..." If this "shaman's" grave dates to the Late Mesolithic, and grave nr. 3 is contemporaneous, Corded Ware and Indo-European culture elements are especially unlikely to have been a part of the burial rite here.

In Lithuania we now have no anthropological data associated with the Nemunas culture, no absolutely clear Narva culture representatives for most of the 5<sup>th</sup> mil. bp (or what has been called the Middle Neolithic<sup>7</sup>), only a possibility of a Baltic Haff culture re-

<sup>5</sup> There are also six more 'pits' with human remains found at Duonkalis; they are fragmentary remains only and are considered to be out of their primary burial context. Since they have been analyzed minimally only, I shall not discuss them further here.

<sup>6</sup> It must be pointed out that not all Lithuanian researchers believe graves 2 and 3 are contemporaneous.

<sup>7</sup> Only undated skeletal fragments from Šventoji 23 (*Rimantienė 1979.148, 1996.207*). The site itself dates to a late  $4190 \pm 80$  BP (Vib-1).



representative. Anthropological types supposedly characteristic of one time or associated with one material culture have either moved up or back on the time line as much as 5000 years, or totally disappeared. The generalised evolution of anthropological types in the Stone Age in Lithuania must be totally reassessed.

Perhaps the generalisation of anthropological types into ethnic or racial groups from the Stone Age is altogether a fruitless endeavour. In their article entitled "Pitfalls in the Search for Ethnic Origins: a Cautionary Tale regarding the Construction of 'Anthropological Types' in Pre-Indoeuropean Northeast Europe", Jacobs, Wyman and Meiklejohn (1996:285-301) elucidate the theoretical constraints of such typologies with the concept of the connubium or mating network - the aggregation of groups from which a member of any given focal group will obtain a mate. The main point is that low population densities of forager societies in at least most of the Stone Age would have required relatively open connubia, leading to a high gene flow rate across larger geographical expanses. Only at relatively high population densities does it become possible for regionally based connubia to define themselves as closed endogamous groups and for what we call 'anthropological types' to develop as distinct entities.

Recent anthropological research of the large Zvejnieki Stone Age cemetery in northern Latvia appears to support this notion. Data on the body build of people buried at Zvejnieki show much diversity in

anthropological composition. Aside from the marked lack of continuity observed between individuals of the Late Mesolithic and those in the Transition Period (from the Late Mesolithic into the Early Neolithic), as well as those from the Early Neolithic to the Late Neolithic, Zvejnieki Early Neolithic individuals show a strong lack of homogeneity in physical type and body build (Gerhards 1996; 1997; 1999).

As for economic research in Lithuania thus far, the token Neolithic site representing East Lithuania's 5<sup>th</sup> mil. bp economy data in research on Lithuania's transition to farming has been Kretuonas 1B. Given the good possibility that the Kretuonas 1B settlement is contemporaneous with the Kretuonas 1B graves, the 5<sup>th</sup> mil. bp data base of Eastern Lithuania from which economy assessments have been made is left empty. The percentage of domestic animal bone at Kretuonas 1B (over 4046 bones) is noted as almost 7%, which by Zvelebil and Rowley-Conwy's availability model would put this eastern site into at least the availability phase by the mid-6<sup>th</sup> mil. bp, if not into the beginning of the substitution phase. Also, in the Lithuanian economy evolution assessments, faunal data from the Duonkalis graves and settlement have been counted together and regarded as Late Neolithic. Whether the Duonkalis settlement site is actually contemporaneous with the Duonkalis graves may be more disputable, due to the presence of Corded Ware culture pottery in the settlement area and a very high percentage of domestic animal bone. Problems with stratigraphy may be another important consideration at this site. Coming



Fig. 6. *Plinkaigalis* burials nr. 242 (left) and 241 (right) (Rimantienė 1996:224).





Fig. 7. *Plinkaigalis* burial nr. 317 (Butrimas et al. 1985:19).

back to the burials, however, an interesting discovery made recently is that two of the Duonkalnis graves have eight cattle teeth among the various tooth pendants in the graves (Daugnora 1998). One of these is in the newly dated Late Mesolithic grave of Duonkalnis 4, a 50–55 year old male with 83 pendants. If the cattle teeth actually date to the Late Mesolithic, which would seem likely, this could be evidence of local contact with farmers by the early 7<sup>th</sup> mil. bp. Perhaps the cattle teeth were acquired through trade with farmers, perhaps considered a prestige item? The other Duonkalnis grave with cattle teeth among the many animal teeth is nr. 5, the grave of one or two 5–7 year old children.

In terms of the availability model for the transition to farming, the new chronological data suggest that at least the availability phase of both west and east Lithuania started earlier than previously believed.

Seven out of 20 dates done from the skeletal material of graves in Zvejnieki (Zagorska 1994; 1997) or 35% of the dated graves fall within the 7<sup>th</sup> mil. bp, while 9 out of 20 or 45% cluster in the 6<sup>th</sup> mil. bp. A radiocarbon date of human bone from the supposedly Late Neolithic cemetery of Tamula in eastern Estonia (Grave nr. 10 (or 11?); 5310±85 BP; Ua-4828 (Lõugas, Liden, Nelson 1996) turned out to be roughly contemporaneous with the newly dated graves of Kretuonas 1B in eastern Lithuania – almost the middle of the 6<sup>th</sup> mil. bp<sup>8</sup>. These clusters are in themselves an interesting point. We have no radiocarbon dated graves from then until the burials associated with the time of the Early Corded Ware culture horizon almost 1000 years later. Another

millenium absolute dating gap covers the end of the Late Neolithic and Early Bronze Age. The vast majority of Lithuanian and other East Baltic Late Neolithic graves associated with the period of the Corded Ware culture lack absolute dates; typology and stratigraphy are usually employed to date them (Butrimas et al. 1985; Zagorskis 1961; 1987; Loze 1979; 1995). Since these relative dating methods have proved *inadequate*, it would be most beneficial to radiocarbon date some human bone associated with this period – like the burials of Veršvai, Rešketa, Kurmaičiai, skeletal material from the Abora, Kreiči, Kiviutkalns cemeteries. Serious doubts still remain about the chronology of yet undated graves at Duonkalnis, Tamula. These doubts, added to the large gaps in material evidence, further confuse the view of social and ideological processes involved in the evolution of domestication. These constitute large missing chunks of the transition to the farming period – large portions of the substitution and consolidation phase times – without which a fine resolution view of the transition to farming's multidimensional process is not possible.



Fig. 8. Tooth pendants found in Duonkalnis grave nr. 4's neck and chest area (Butrimas; Kuskas et al. 1985:43, 42).

<sup>8</sup> It is possible that the human bone from which the radiocarbon date was made was contaminated, but there is an equal chance that it was not. Also, there are 2 types of burial at the Tamula cemetery, one type possibly older than the other. Until very recently, however, these graves have all been considered contemporaneous with the Late Neolithic settlement site.



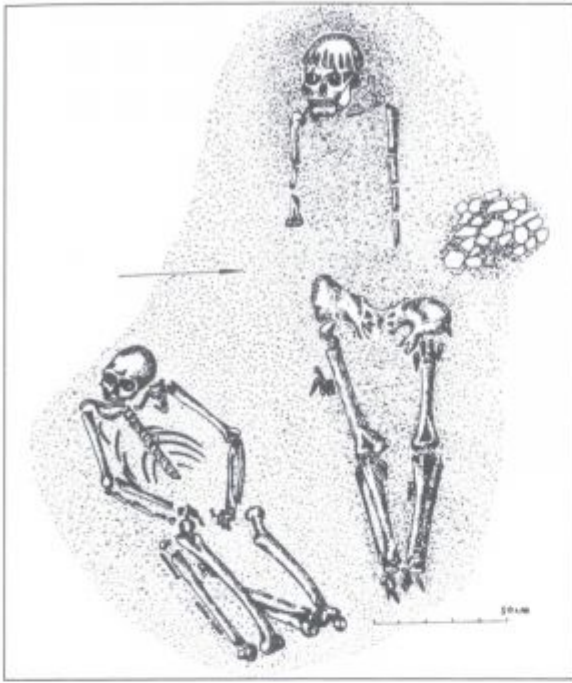


Fig. 9. Duonkalnis "shaman" grave nr. 2 (right) along with grave nr. 3 (left) (Butrimas; Kunskas et al. 1985.36).

From the Neolithic burial data that we do have in the East Baltic, the heterogeneity of burial rites must also be stressed. There most certainly is not only chronological and regional lacunae and variance, but site variance as well. The simple fact, for example, that in the largest cemetery of Zvejnieki, almost one third of Neolithic graves have no grave goods (Zagorskis 1987, tables; Antanaitis 1998), deserves attention. As far as general trends in graves that do have grave goods here, dominating earlier grave goods that may be associated with the availability phase are ochre, animal tooth pendants and large stones. Zvejnieki's later funerary assemblages, like those of the 6<sup>th</sup> mil. bp and that may be associated with the beginnings of the substitution phase (?), are dominated more by amber pendants and processing tools. Collective burials also become more common. At the Tamula cemetery in Estonia (Jaaniis 1957) which at least partially dates to the mid-6<sup>th</sup> mil. bp (?), bird bone or works of art and amber are among the more frequent of goods. Lithuania's Kretuonas burials have very few grave goods altogether. There are no known Neolithic burials with amber in Lithuania<sup>9</sup>.

Traumatic lesions occur in the Duonkalnis burials: the skull of the old male in Late Mesolithic grave nr.

4 has an area of periostitis which could be caused by an infection after a local scalping trauma. This individual also has a parry fracture of the left ulna, as does the mature female of grave nr. 6. These traumas have been interpreted as the possible result of an individual raising his hand to protect his head from a blow (Jankauskas 1995.18). Grave nr. 3 at Duonkalnis of a young female adult has a small shallow oval depression on her right parietal lobe. This could be a healed blunt injury to her skull vault. The skull of the 50–55 year old male of Kretuonas' grave nr. 3 has eight healed-over small shallow impressions of varying shapes on both parietals. The Late Bronze Age young adult male of Turlojiškė also has three impressed fractures (Fig. 10) on his skull, all connected by fracture lines. The impressions were probably made by a blunt hard instrument that could also have been the cause of this individual's death. A high proportion of apparent violence is reflected by the (few known) Lithuanian human remains of the early 7<sup>th</sup>, mid-5<sup>th</sup> and early 3<sup>rd</sup> mil. bp. If these are suggestive of territoriality, competition and conflict, then their occurrence is of an early and recurring scope.

Social structure before the consolidation phase of the transition to farming would probably have been similar to that of ethnographically recorded hunter-fisher-gatherers, though some researchers have stressed that the complexity of foragers at that time must have been of the sort that is not fully comparable to the modern situation. Farmers are typically more sedentary. The consolidation phase of the prac-



Fig. 10. General view of the Turlojiškė man's skull vault (Jankauskas 1995.13).

<sup>9</sup> Except, possibly, for some human bone fragments found in association with an amber pendant at Šventoji 23 (Rimantiene 1996. 205)?



tical transition to farming process in Lithuania appears to have occurred mostly in the Bronze Age (although hunting – mostly for trade – was important even in the Iron Age). The Bronze Age is also known for its defensive and high energy investment structures – defence walls, ditches, hill-forts (as well as burial types – barrows or burial mounds – similar in form). The implied higher population density and increased territoriality would make more endo-

gamous mating networks possible, perhaps suggesting the beginnings of the formation of ethnic/ socio-linguistic groups (Balts? Indo-Europeans?) at this time.

A more *complete* and *certain* chronological foundation of material data related to both the practical and ideological processes involved in the East Baltic's slow transition to farming would allow a better understanding of its evolution.

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