

Seals, contracts and tokens in the Balkans

Early Neolithic: where in the puzzle

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ABSTRACT – *Paper discusses Early Neolithic seals, contracts and tokens in the context of Neolithization processes in southeastern Europe. Paper analyses the assemblages, contexts and the patterns of regional and interregional distributions. The results contradict traditional models as the objects appearance and distributions can no longer support the models of colonization, demic diffusion and population replacement in the context of the transition to farming in the Balkans. The paper argues they were well embedded in the Early Neolithic Balkans koine, where the transformation of hunter-gathering into farming societies took place in an arena of selective integration of the new technologies and social practices as much as the result of intensive connections and exchange networks.*

IZVLEČEK – *V članku obravnavamo pečatnike in druge predmete simbolnega pomena v procesu neolitizacije jugovzhodne Evrope. Povezujemo jih z menjavo dobrin in socialnimi stiki. Analiziramo kontekste v katerih se pojavljajo in njihove distribucije. Te ne podpirajo modelov demske difuzije, kolonizacije in menjave populacij, na katerih sicer temeljijo razlage prehoda h kmetovanju. Ugotavljamo, da so dobro umeščeni v zgodnjeneolitski balkanski koine, kjer je bilo preoblikovanje lovskih skupnosti v poljedelske posledica selektivnega prevzema novih gospodarskih strategij, tudi s pomočjo stikov in menjav.*

KEY WORDS – *Neolithization; Balkans; social networks; seals; contracts and tokens*

PRELUDE

Asia Minor

In the late twenties of the previous century at the Nuzi site, north of Babylon in northern Iraq, a hollow, egg-shaped envelope was recovered. When opening it the excavators found that, as they described, it held forty-nine “pebbles”. The envelope (bulla) bearing the surface cuneiform inscription as follows: “21 ewes that lambed, 6 female lambs, 8 full-grown rams, 4 male lambs, 6 nanny-goats that kid, 1 billy goat, 2 female kids. Seal of Ziqarru (the shepherd). The number of listed animals corresponds to the number of “pebbles”, and it was hypothesised they represent the counters “*abnati*” mentioned in the text. Neither their shapes, nor the material of which they were made were described. They were simply referred to as “pebbles” and separated from

their envelope, and can no longer be identified. However, the counters, the list of animals, and the explanatory cuneiform text were believed to have been used for book-keeping, each animal of the flock being represented by a stone held in an office in a container (*cf. Schmandt-Besserat 1992.8–9*).

In the ‘sixties and ‘seventies small clay cones, spheres, and tetrahedrons enclosed in a globular clay envelope from Susa, dated to a proto-literate period, bearing well preserved seal impressions have been interpreted as calculi, counters that stood for commodities. It became broadly accepted that that the first impressed signs of writing reproduced the shape of the former calculi.

In the 'eighties it was recognized that identical small clay artefacts – but not envelopes – were found at Near Eastern Neolithic sites. They were identified as tokens that might have been used as counters in an accounting system with no discontinuity between 8000 and 3000 BC, and it was hypothesised also that they represent a prelude to writing (*Schmandt-Besserat 1992*).

Southeastern Europe

In European Neo-Eneolithic contexts almost identical artefacts were determined as gaming pieces and “coniform figurines” since the second volume of *The Prehistoric Vinča* was published in the thirties (*Vasić 1936*).

In the 'sixties and 'seventies some of them were identified as “ear studs”, “ear plugs”, “nose plugs”, “decorative and other objects”, “spheres and button beads” (*Milojčić 1960.335; Theocharis 1973.299, 301, Fig. 212, 238, 270*). They have been discussed (in eighties) as the markers of an early farming settlement in the Balkans, whether in the contexts of demic diffusion spread of farming in Europe or the genesis of the Balkan-Anatolian complex of the Early Neolithic (*Makkay 1984; Renfrew 1987*). The signs incised on the round base of a Karanovo (VI) stamp seal have been recognized as the earliest European writing system (*Mikov, Georgiev 1969.10–12, 13*).

A set of clay and stone artefacts described as “*pintaderas*” (*Cornaggia Castiglione 1956*) were re-defined as “stamp seals” in the 'eighties (*Makkay 1984*, but see also *Dzhanfzova 2003.97–108*). The Karanovo seal was determined as the bearer of the “Li-

near Old European Script” (*Gimbutas 1982.87*; but see also *Makkay 1984.31*). In the settlement context of the Vinča culture at Ratina a hollow zoomorphic figurine was found. X-rays were used to investigate the contents and, after opening, it was found to contain 28 black and 4 white pebbles(!). It was hypothesised that they represented the lunar calendar as the moon's cycle (28 nights) and 4 lunar phases (*Va-lović 1987.219–226*).

It was pointed out in the nineties that the Aegean Bronze Age stamps maintained a long tradition, as their conical shape and motifs, especially the meanders, spirals, zigzag lines, dots and cross and its variants had not changed since the Early Neolithic as they appeared in south-eastern Europe (*Younger 1992.35–54*). Numerous small ceramic and stone objects were determined as tokens used in systems of exchange and devices for recording information in the context of the transition to farming and secondary products scenario (*Budja 1992.95–109; Talalay 1993.45–46*).

Discussing the Greek Neolithic figurines, Talalay hypothesised that the “split-leg figurines” served as economic contracts or identifying tokens. They were intentionally designed so that the two attached halves could be easily separated and united. Ethno-historical analogies indicate that the artefacts designed for intentional splitting serve either as contractual devices or as identifying tokens between individuals or groups. The archaeological evidence in Peloponnesus shows the pattern of six Neolithic sites where approximately twenty such fragments were found. The sites are all accessible to another, lying one-half to several days journey away, and the arte-

facts are supposed to have symbolized an agreement, obligation, friendship and common bond. This means, in consequence, that the sites/communities were bound into an interactive unit, and the artefacts – contractual devices or identifying tokens – could have been used in a variety of contexts as a “down the line” mode of exchange, or to identify messengers between villages, particularly in times of crisis (periodic floods), as symbols of future obligations among groups or individuals and as the markers of inter-village marital connections (*Talalay 1993.45–46*).

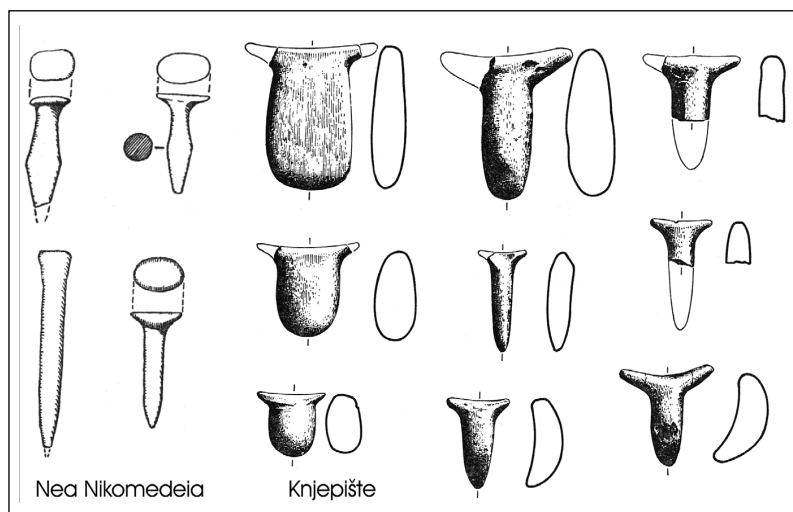


Fig. 1. “Pins” (left) and “zoomorphic amulets” (right) (After Stanković 1989/1990(1991).35–42, T.1 and Rodden 1962.209–288, Fig.11).

Tokens in Levantine Neolithic contexts

As Schmandt-Besserat pointed out, the token system appeared around 8000–7500 BC, and the first assemblages of counters consisted mainly of cones, spheres, disks, and cylinders. These plain tokens continued to be used to the very end of the system in the third millennium. The cones represent eighteen, and the spheres forty percent of a collection of some 9000 tokens collected over the entire Near East. Both shapes were also among the tokens most frequently stored in archives in clay envelopes. The appearance of plain tokens coincided not only with agriculture, but with a new settlement pattern characterized by larger communities, which suggests that a system of counting and record-keeping of goods became necessary when survival depended on the domestication of grains and accumulating agricultural produce. Tokens occur in the third phase (Mureybet III) ca. 8000–7500 BC, when the hamlet had grown to become a village covering 2 or 3 hectares. It is estimated that the community then exceeded the number of individuals manageable in an egalitarian system. The first token assemblage probably coincided with the advent of a ranked society characterized by a new type of leadership overseeing the community resources. In numerous sites the counters were located in storage areas. At the sixth millennium BC site of Hajji Firuz in Iran a cluster of six cones were located in a structure showing no trace of domestic activities such as cooking or flint chipping. The building itself differed from the usual domestic architecture. It was smaller, consisting of a single room, instead of the normal two-roomed units. Moreover, unusual features, such as a low platform and two posts, were erected inside. It was hypothesised on the basis of sequential deposits in a rubbish pit that the layers of trash that could be distinguished according to the seasons revealed that tokens were most often associated with early summer deposits. The excavator noted, therefore, that the counters were discarded in the traditional season for plenty, after the harvest and thre-

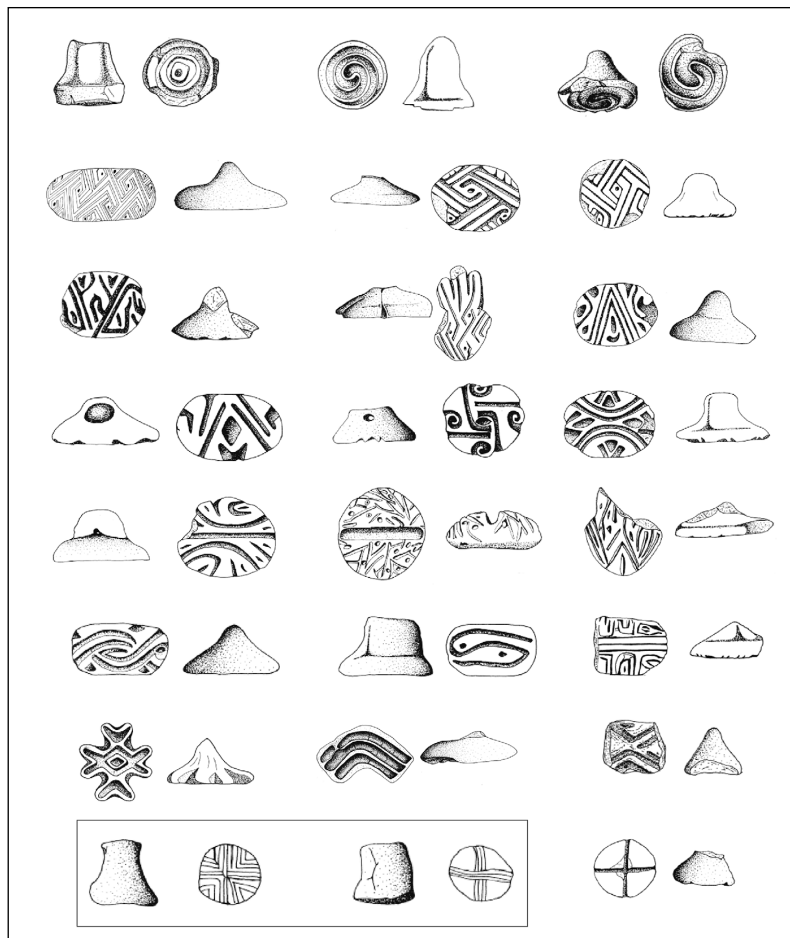
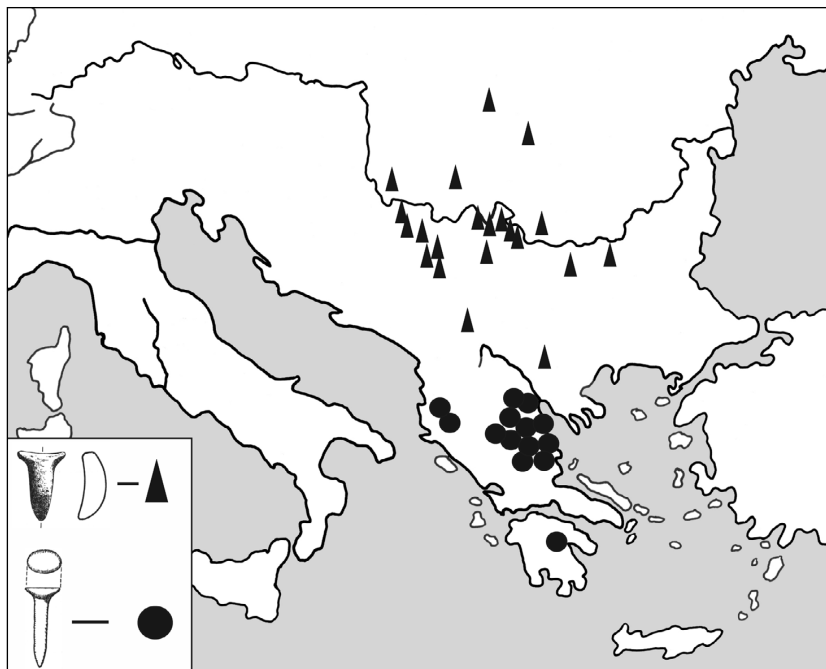


Fig. 2. Catalhüyük “seals” assemblage (after Türkcan 1997, on-line).

shing, when the crops would be stored. It might suggest that transactions were made in the course of the year to be completed at the time of the harvest. These plain tokens continued to be used to the very end of the system in the third millennium.

The token system was a medium of communication, and the tokens were frequently found in clusters varying in size from two to about one hundred counters. The clusters seem to indicate that the accounts kept in archives by means of tokens dealt with small quantities of different kinds of commodities. The system worked according to the most simple and basic principle of one to one correspondence, as in matching each unit of a set to be recorded with a token. The evolution of the token system seems to reflect an ever increasing need for accuracy. This is exemplified by tokens dealing with livestock, as the early plain cylinders and lentoid disks apparently stood for “heads of livestock”, whereas the fourth millennium complex tokens indicated the species, sex, and age. The transition from counters to script occurred when tokens were stored in an envelope (bulla), and impressed signs on the outer sur-

Map 1. Spatial distributions of “zoomorphic amulets” (▲) and “pins” (●) (after Stanković 1991.35–36; Jovanović 1968.15–16; Garašanin 1979.104; Karmanski 1987.101–106; Matsanova 1996.109; Kalicz 2000.309; Perlès 2001.288). List of sites plotted on the map: Gediki, Magoula Kossinas, Sesklo, Soufli, Achilleion, Zappeio, Ayios Georgios, Larisas, Elasson, Nea Nikomedeia, Yannitsa, Dendra, Rudnik, Divostin, Lug kod Zvečke, Kozluk Kremenjak, Grivac, Banja, Dobanovci, Kučajna, Drenovac, Donja Branjevina, Lepenski Vir, Kamenicki potok, Knjepište, Velešnica, Rakitovo, Vaksevo, Koprivec, Cui-na Turcului, Ocna Sibiului, Gura Baciului.



face appeared to record not only the numbers, but also the shape of tokens inside: circular impressions for discs and spheres, conical impressions for cones. The graphic symbols on the surface of the envelope thus mark the transition between tokens and the first system of writing in the context of the evolution from tokens to markings on envelopes and impressed signs on tablets (*Schmandt-Besserat 1992.161–165*).

Seals, contracts and tokens in south-eastern European Early Neolithic contexts

It is rather obvious that contracts and tokens have been a neglected subject in European Neolithic studies. As we have mentioned elsewhere, their significance was due to an interpretative taphonomic filter marginalised to the level of decorative objects. The Thessalian objects have been described as “earplugs” and “decorative and other objects” and some researchers still believe the “stamp seals” were used to decorate cloth with stained or dyed patterns, a practice which flourished in Greece until fairly recently (*Perlès 2001.252–253*). From this point of view, however, it is impossible to ignore the fact that there is no evident correlation in the early Neolithic household context of warp-weighted looms and stamp seals, although it was postulated that textile art in the context of early Starčevo-Körös culture appeared in late 7th millennium BC (*Barber 1991.93–94*) and that there was a well-defined distribution of stamp seals attested in the region (*Makkay 1984*). We should not overlook in the Aegean a se-

veral thousands year tradition in the manufacturing of clay cone seals with standardized motifs almost identical to those in the Balkans Early Neolithic. In the Helladic Period the function of these stamps was part of an industry that took place less within bureaucratic structures, but mainly in areas of domestic activities. Stamps carrying spirals, zigzags, crosses, and dots decorated storage vessels, hearth rims, frying pans and exported pottery (*Younger 1992.35–54*).

There are undoubtedly technical and individual stylistic analogies between the Anatolian and Balkans “earplugs” and “stamp seals” and it is broadly accepted that the latter originated in Central Anatolia, since the Çatalhöyük and Bademagaci stamps predate all the others. But it is also true that the motifs on Early Neolithic stamps in the Balkans were more heterogeneous. It can be indicative, if we accept the idea that the incised patterns on the face sides of the stamps are the indicators to understand the relevant function and meaning behind the concepts which constitute the patterns or symbols, that the Balkan patterns regularly consist of zigzags, spirals, dots and labyrinth patterns, while the Anatolian comprises pseudo-meanders, meanders, and fragments of curvilinear ornaments in fantastic styles (Fig. 2).

Seal production and their distribution in central and south-western Anatolia did not change very much over the 7th and 6th millennia, as the series with a rectangular-shaped stamp surface disappeared in

this region about 5500 cal BC. No traces of paint or dye were found, and any sealing is available or any positive evidence which can show on which material were they applied. It was hypothesised, therefore, that the seals at Çatalhüyük, Bademagaci, Höyücek, Kuruçay and Hacilar were used to stamp perishable or edible items, as the village or neighbourhood bread was made communally, and each family stamped the ones belonging to them. They might have been applied on baskets or bags to show ownership or to classify the contents in the communal store rooms of the settlements. Two small stamps (Fig. 2), on the other hand, directly contradict the notion of seal use with their smooth patterns which does not leave a recognizable mark or trace, and it is reasonable to suggest they were used as “calculi” or the tokens as a counting devices (Türkcan 1997).

However, “earplugs”, “pins” and seals maintain a central position in the context of Neolithization of the Balkans as the indicators of the initial links to the Near East in general and to Hacilar and Çatalhüyük in particular, since Milošević (1959(1960).6; 1960.327–328) conceptualized the pre-pottery Neolithic in Greece. It is well known that, in modelling the cultural and linguistic transformations during the early spread of farming in Europe, used the “studs”, “nails” and “stamp seals” as signifiers of a “marine version of the wave of advance model”, and markers of early farming settlements in the Balkans (Renfrew 1987.169–170). Perlès (2001; see also in this volume) actualized recently the idea they were well embedded in the baggage of the immigrants as stated that they could have been correlated with the late outcome of the Near Eastern PPNB exodus. The first pioneers of Greece have been hypothesised as adventurous individuals, continuing the “great exodus”, who followed different pathways from their original ancestral home to their ultimate settlement in Greece, bringing their most valuable symbols and objects.

The latter relates to “earplugs” and “pins”, and it was suggested that they were personal ornaments, which “clearly indicates that few individuals, in fact, wore them” (Perlès 2001.288, Note 8). The restricted geographical distribution of the objects that was hypothesised in Thessaly is being used as a key argument in modelling the “insular colonisation” and rapid displacements over long distances of small groups that ultimately settled in favoured environments, far from their original homes (Perlès 2001. 288–89; in accordance with van Andel and Runnels 1995.481– 500).

Similar objects made of burnt clay, bone and various fine rocks have been identified in numerous Early Neolithic sites in the northern Balkans. They have been described as “zoomorphic amulets”, “la-

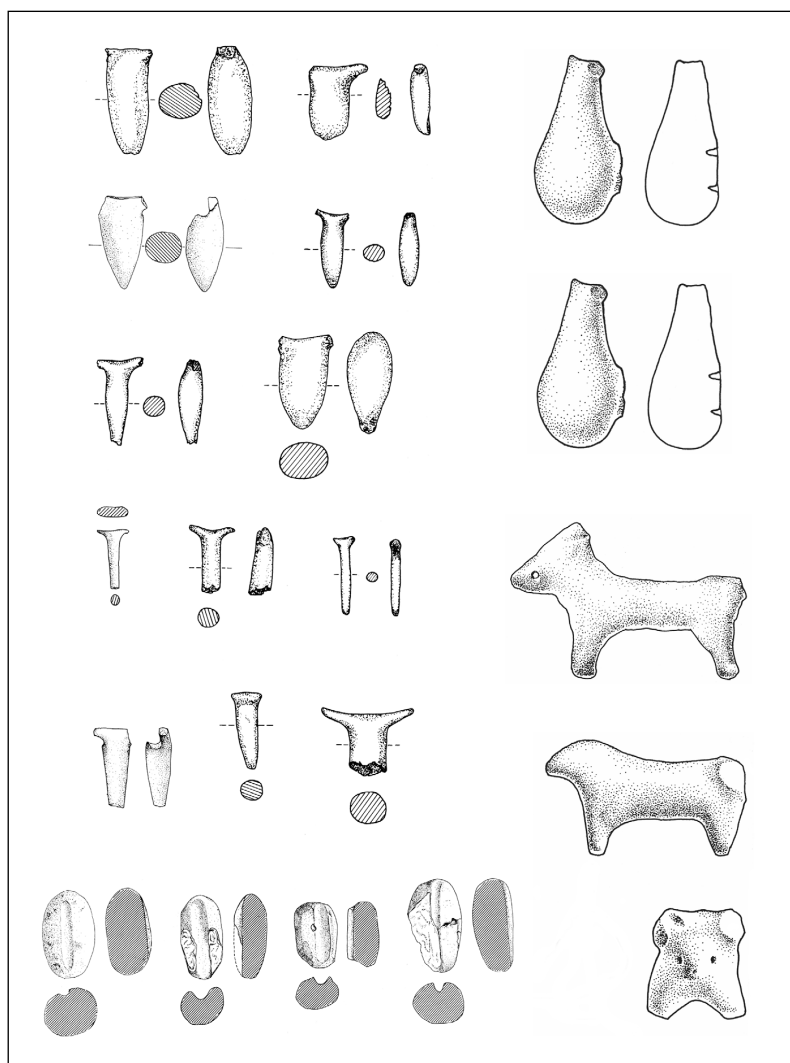


Fig. 3. Divostin. Assemblage consists of “zoomorphic amulets”, “split-legs figurines”, miniature “zoomorphic figurines”, and “ceramic cereal-grain shapes” was deposited in a “trapezoidal shaped hut 4” (Letica 1988.173–201; McPherron et al. 1988.325–336; Bogdanović 1988. 35).

brets” and “bucrania” connected with a cult in which the bull “represents the centre of all power” (*Stanković 1989/90(1991),35–42; Matsanova 2003.65*). They are extremely standardized in shape, and as the upper parts terminate in schematic horn projections, they do reflect the image of bull heads on the one hand and separate them from the Thessalian “pins” on the other (Fig. 1). We have already pointed out elsewhere that their appearance corresponds well with the dispersal of monochrome-impresso pottery in the Balkans (*Budja 1999; 2001; 2003; Kalicz 2000.298–299*), but this does not mean they did not appear in later contexts of the Starčevo and Körös cultural complexes in the Balkans, the Carpathian Basin and Transylvania (Map 1). A well-defined series is embedded in the Donja Branjevina settlement context associated with monochrome pottery (6080–5890 cal BC at 1σ) that was stratigraphically and chronologically separated from the layers with white painted pottery (*Karmanski 1987.T 1; Whittle et al. 2002.72, 81–82*).

At Divostin there were 35 ceramic and marble zoomorphic amulets found in an Early Neolithic settlement context. The majority of them were deposited in a “semi-subterranean trapezoidal shaped hut 4” located in the central part of the site. They are associated there with “split-legs figurines”, miniature zoomorphic figurines, and “ceramic cereal-grain shapes” (*Letica 1988.173–201; McPherron et al. 1988.325–336; Bogdanović 1988.35*) (Fig. 3). There were a few fragments of white painted pottery found, as was noted recently, but it is still not clear whether they correlate to the earliest settlement phase and trapezoidal huts, or later rectangular houses (*Perić*

1 *Nea Nikomedeia* (OxA-4281, 7100±90; OxA-4280, 6920±120; OxA-3876, 7370±90; OxA-3875, 7280±90; OxA-3874, 7370±80; OxA-3873, 7300±80; OxA-1606, 7400±100; OxA-1605, 7400±90; OxA-1604, 7340±90; OxA-1603, 7050±80); *Catalhuyuk VII* (P-1363 7911±103), *VIA* (P-1375, 7661±99; P-772, 7572 ±99; P-827, 7579±86; P-778, 7538±89; P-769, 7507±93), *VIB* (P-1364, 7936±98; P-1362, 7904 ±111), *IV* (7531±94), *II* (7521 ±77); *Hacilar IA* (P-315, 6926±95) and *IIA* (P-316, 7170±98); *Hoca Cesme II* (GrN-19310, 6890±280; GrN-19311, 6890±65; GrN-19780, 6920±90; GrN-19781, 6900±110; GrN-19782, 6890±60; GrN-19356, 6520±110); *Divostin Ia* (Bln866, 7060±100; Bln866a, 7200±100; Bln931, 7050±100); *Divostin Hut 5* (Bln823, 7050±180; Bln824, 6970±100); *Donja Branjevina III* (OxA8557, 7080±55; GrN15974, 7155±50; GrN15975, 6955±50; GrN15976, 7140±90) and *Ib* (OxA8556, 6775±60; OxA8555, 6845±55), *Gálábnik VII* (Bln3579, 7030±70; Bln3579H, 7220±80; Bln3580, 7120±70; Bln3582, 6950±70). After *Pyke and Yiouni. 1996.195; Thissen et al. on-line; McPherron et al. 1988.380. Table 14.1, Sample No.1–3; Whittle et al. 2002.2, 81–82; Boyadziev 1995.180*).

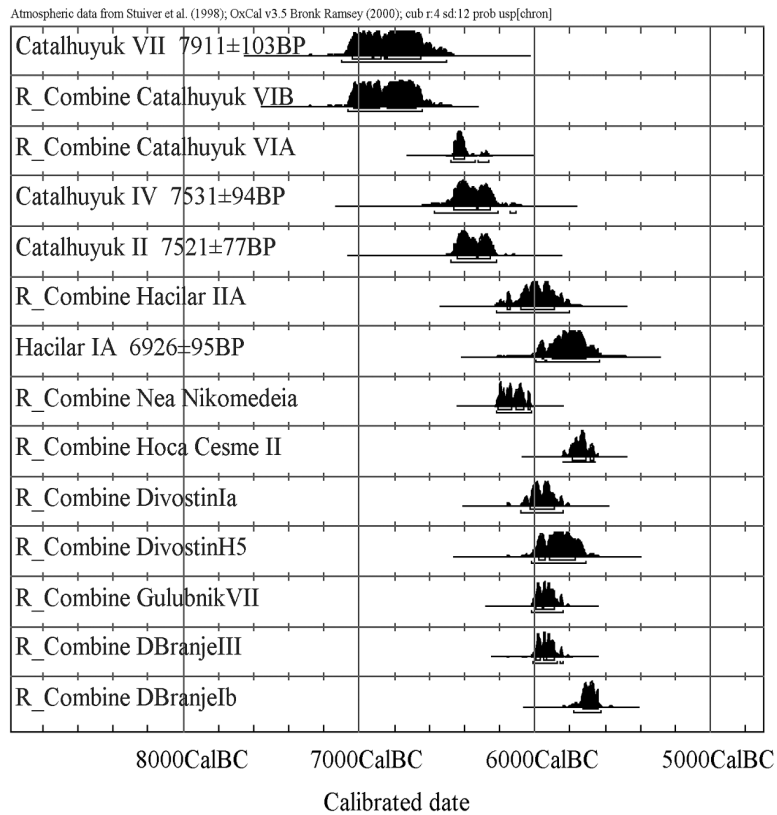


Fig. 4.14C. Probability distribution plot of radiocarbon dates correlating with the contexts and assemblages at Catalhuyük, Hacilar, Nea Nikomedeia, Hoca Çesme, Divostin, Donja Branjevina and Gálábnik mentioned in the text¹.

1998(1999).11–33; Tasić 2003.181–191). The assemblage can be indirectly radiocarbon dated, as the neighbouring hut 5 was embedded in the period 6090–5740 cal BC at 1σ (phase Ib) (*McPherron et al. 1988.380, Table 14.1, Sample No. 1–3*). It is worth remembering the local domestication of aurochs was hypothesised at the site, and that the practice of keeping large numbers of cattle might have been an indicator of status (*Bökönyi 1988.431*).

However, the primary colonized area in the Balkans was marked by the eight sites in Thessaly, where the “earplugs” and “pins” seem to be well embedded in the “Initial Neolithic” (*Perlès 2001.287–288*). It seems that, ironically, for the time being the almost

identical items (earplugs) at Hacilar, Mellaart (1970.160) determined as a pestles for grinding cosmetics. At Hoca Çesme, on the other hand, there were no “earplugs”, “pins” or “stamp seals” found in the phase IV that is believed to objectify the exodus of Anatolian farmers and the establishing of their settlement by the estuary of the Maritza River in Eastern Thrace (Özdoğan 1997.19–27). There were seven seals, found together with white-on-red painted pottery that is recognised as a “significant innovation” in the later phase II (Özdoğan and Başgeçen 1999.218–219, Fig. 25; Özdoğan, *personal communication*).

It has been hypothesised that the stone and clay stamp seals testify to a similar pattern of restricted geographical distribution in the southern Balkans (Perlès 2001.252, 288–289), but mark a distinctively wider dispersal in the north, in the context of the Starčevo-Körös and Karanovo cultures (Makkay 1984). While they are in Thessaly and western Macedonia in Greece embedded in a later period of initial colonization and linked to painted pottery appearance, they are believed to indicate in the northern and eastern Balkans and the southern Carpathian Basin “a breakthrough of the elements of the Balkan-Anatolian complex of the Early Neolithic” (Garašanin 1979.103), and that they were connected there with the “general emergence of the earliest

South-East European pottery industry under formative Anatolian influences” (Makkay 1984.100–101).

On present evidence stone and clay seals in the “Protosesklo” period (Onassoglou 1996.163) occur only as isolated and sporadic finds in Argissa, Nesonis, Sesklo, and Pyrasos (Perlès 2001.252), but it is not the same in Greek Macedonia, where at Nea Nikomedeia they appear in large numbers. There were twenty-one seals found in the settlement and all are of clay. The site was hypothesised to have a central position in transmitting “influences” from Anatolia to the Balkans and the Carpathian Basin (Makkay 1984.81).

In discussing the seals’ appearance and distribution in the contexts of “connections” and “cultural similarities” between the early farming site of Nea Nikomedeia and farming centres in Anatolia it has to be pointed out that the Nea Nikomedeia seals package predates the Hacilar seals. There is no doubt, however, that the Çatalhöyük clay seals predate both (Fig. 4). There were thirty-two seals found at Çatalhöyük, mainly coming from Mellaart’s excavation in the ‘sixties, and only 4 of them have come from the ongoing excavation. The majority of them are from Level II, III, IV, VI, while one is from Level VII (Türkcan 1997 on-line; for dating see Thissen et al. on-line). They seem to have been used for stamping, but

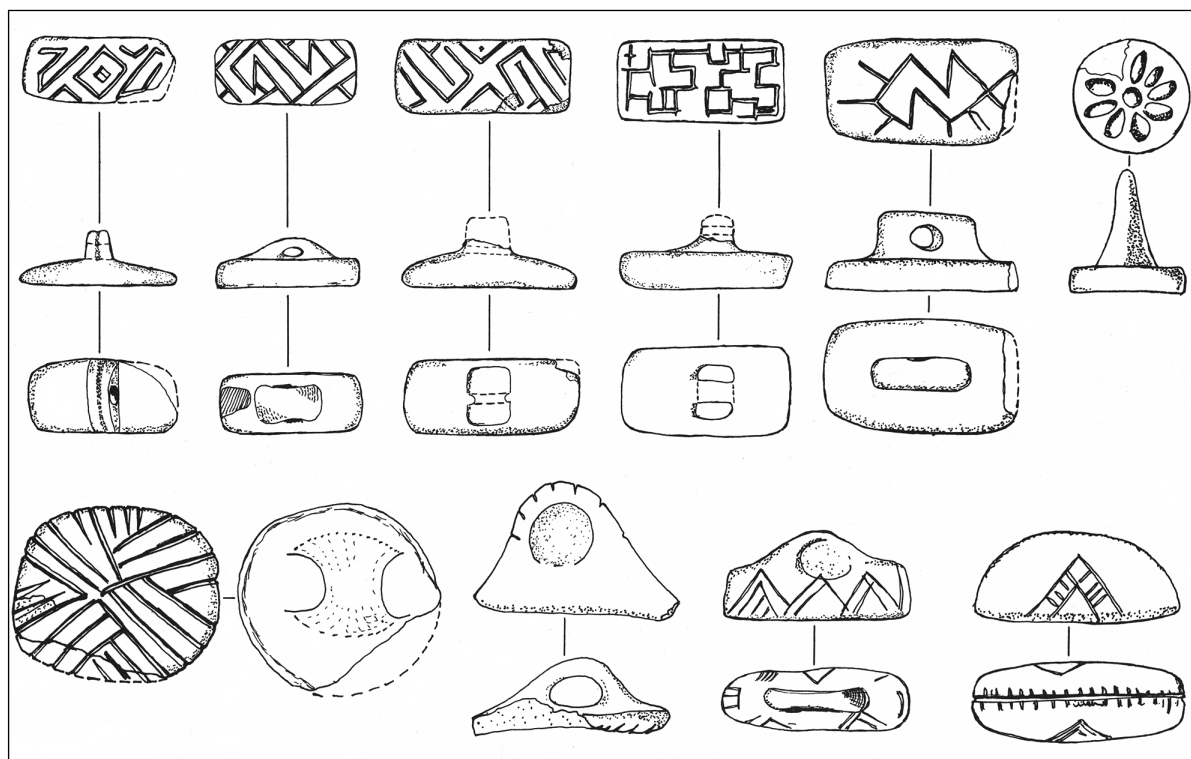


Fig. 5. Hacilar “seals” assemblage (after Mellaart J. 1970.164, Fig. 187).

there are some small cylindrical stamps that contradict the seal use, as they have smooth patterns which do not leave a recognizable mark. We noted above that they might have been used as counting devices (*cf. Türkcan 1997 on-line*).

In Hacilar, three of the seven seals are unstratified, and the others all come from Hacilar IIB (Fig. 5). The settlement phase was not directly radiocarbon dated, but the terminus post-(IIA) and ante quem (IA) can be easily anchored, since the comments on the Hacilar ^{14}C dates are available. The seals are embedded in a narrow time niche determined by the dates 6090–5890 (for the IIA) and 5900–5720 cal BC at the 1 σ (for the IA) settlement building levels (*Mellaart 1970.164*; for dating see *Thissen on-line*).



Fig. 6. *Nea Nikomedeia assemblage consists of “pins”, “seals”, anthropomorphic vessels and figurine and askoid vessels (after Theodoridis 1973.Figs. 18, 219; Rodden 1962.209–288, Fig.11; Perlès 2001.Fig. 11.6; Makkay 1984.Fig.4.6).*

At Nea Nikomedeia there are twenty-one seals embedded in the settlement context of “a relatively short period of occupation” in the interval of 6170– 6060 cal BC, as the sum probability distributions of the calibrated dates at the 1 σ confidence show (*Pyke and Paraskevi 1996.48; Thissen 2000. 291–203*). They are contextually associated with red and white painted pottery, anthropomorphic vessels, and a large vessel most probably used for the long term storage of foodstuffs and stone pins in general, but we do not know how they relate to a large building in particular, since it was recognized as a “shrine” supposedly having ritual and cultic functions. Beside five female figurines, outsized greenstone axes, unused large flint blades, askoid vessels, and several hundred clay ‘roundels’ of unknown function” were found in the corner of the building (*Perlès 2001.271; Pyke and Paraskevi 1996.88–89, 191, 103, 191–192*) (Fig. 6). However, on the base of “exotic flint”, Halstead, to the contrary, hypothesised that the house belonged to a family involved in long-distance trade (*Halstead 1995.13*).

Not far to the north a similar assemblage was embedded in the settlement context at Rakitovo in the West Rhodopi Mountains. The site, located at 800 m above sea level, is believed to be of a short period of occupation that correlates to the Karanovo I phase (*Matsanova 1996.105–128; Macanova 2000.59–*

74). Two clay seals, identical in shape, size and ornamentation (a horizontal zigzag and shallow holes arranged in columns) to those at Nea Nikomedeia, were found in an almost identical context. The settlement consists of surface buildings with trapezoidal plans, and in some of them, evidence of food grain processing and storage is available. But there are three buildings that differ from the others. Two have been interpreted as “shrines”, the third as a communal building. Seals were found in both contexts. What is to be pointed out is that the associated assemblage consists of anthropomorphic (askoidal) and zoomorphic vessels, clay and marble anthropomorphic and zoomorphic figurines, split-leg figurines, clay tripods and tables, a model house, white painted pottery and thirty-three zoomorphic, clay amulets (*Matsanova 1996.105–127; 2003.66–70; Radunčeva et al. 2002*) (Figs. 7.1, 2). Further to the north, in the Danube region, in the context of the Starčevo culture, an almost identical assemblage can be reconstructed at Donja Branjevina, even though the stratigraphy was not well defined due to unsystematic and inconsistent research procedures. However, there was a seal bearing a zigzag pattern identical to the seals at Rakitovo and Nea Nikomedeia. It was contextually associated with white painted pot-

tery, anthropomorphic and zoomorphic figurines, split-leg figurines, numerous clay zoomorphic amulets, and clay tables (Truhović, Karmanski 1993. T 3, 12; Karmanski 1875. Slika 33; 1987. T 1; 1978a. T 1.4–6; see also Whittle et al. 2002. 72, 81–82; Perić 1998 (1999). 11–33; Tasić 2003. 181–191) (Figs. 8. 1, 2). We can hypothesise a similar pattern even in the Carpathian Basin in the Tisza region, where five clay stamps were found at Hódmezővásárhely-Vata site of the Körös culture. They differ from each other regarding shape and decoration. Ornamental patterns of zigzags, meanders, and chevrons clearly link the site to the Balkans in general and Nea Nikomedeia in particular. The lack of excavation records does not permit a reconstruction of the precise contexts and associated finds, but there were anthropomorphic and zoomorphic figures, split-leg figurines and clay tables found in the settlement (Makkay 1984. 27–28, 37. Figs. 5, 7, 9, 10, 11; Kutzian 1947. Plates 35, 36, 43, 44, and 46). A similar context can be recognized even in the Šar-Pindus mountain range, west of Nea Nikomedeia. A clay seal at the Vashtëmi Early Neolithic site was contextually associated with white painted and impresso pottery, anthropomorphic and zoomorphic figurines, split-leg figurines, clay tables, clay pins, and bi-conoid clay token. The ornamentation, a flower in the centre of the seal base, links the site to south-west Anatolia, where a similarly shaped and ornamented seal was found at Hacilar (Korkuti 1995. 41–57, Taf. 14–15, for the token see Schmandt-Besserat 1992. 222. 9:1, 4; Mellaart 1970. 187. 6) (Fig. 9).

Before we continue, it must be pointed out that numerous Early Neolithic seals in the Balkans can not be dated precisely. They are still laxly embedded in the Early Neolithic contexts (Makkay 1984), but as was displayed recently, they do not appear in the initial Neolithic, whether it is identified as the “Monochrome stage of the Balkan early Neolithic” in Bulgaria, “Proto-Starčevo” in Serbia, “Achileion”, or “Initial and Early Neolithic I” in Greece. It seems that their appearance in the region correlates chronologically and geographically well with white painted pottery distribution in the central, eastern and northern Balkans (Todorova

1995. 83; 1998. 37; Korkuti 1995. 41–57; Onassoglou 1996. 163; Perlès 2001. 112, 289) and, that they must have been well embedded in regional social patterns and traditions, maintaining a long presence, whether in the household, or cult and ritual contexts.

Interpreting the typological parallels in shapes and decorative patterns with Anatolian seals in terms of direct filiation, Makkay (1984. 73–75; Todorova & Vajsov 1993. 233–234, Figs. 227–228) has already pointed out regional differences, as the labyrinthine motifs that are the common characteristic in the Balkans are completely lacking in Çatalhöyük. It is instructive at this point that they did appear at Hacilar, in Anatolia, within a very narrow time niche, and the Nea Nikomedeia seals (at least) predate them, as we mentioned above (see Fig. 4). The patterns of “clockwise spirals” and “the cruciform design that form a quadranted circle”, however, form very close parallels with the Çatalhöyük seals of levels VII–VI and IV, which evidently predate the seals from the Balkans. It is broadly accepted that they represent the first precursors of their kind in Anatolia, and very probably, in south-eastern Europe. The Early Neolithic dispersals of the others, such as

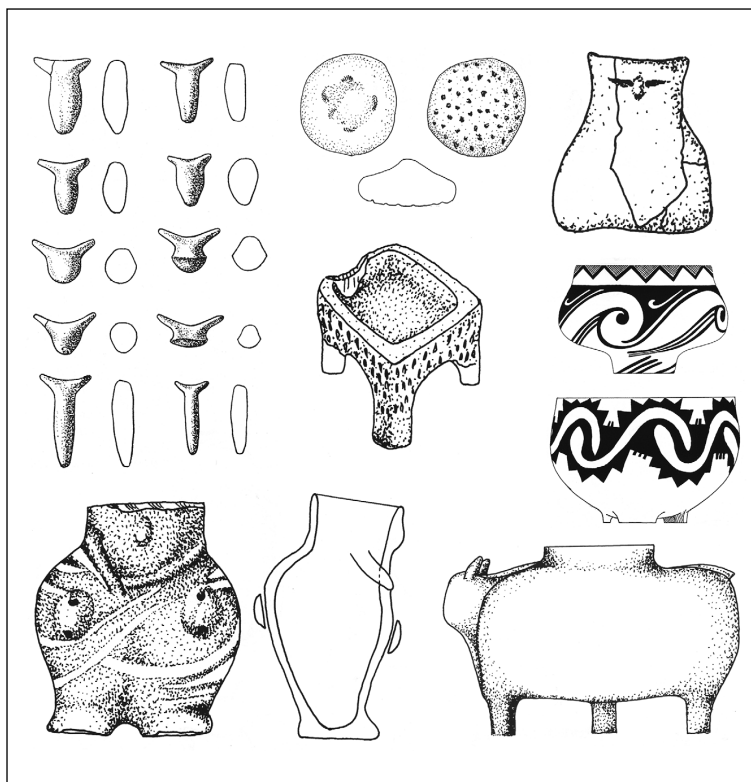


Fig. 7.1 Rakitovo. Assemblage consists of “zoomorphic amulets” and “seal”, “altar”, “anthropomorphic and zoomorphic vessels” and “white painted pottery” was deposited in trapezoidal shaped “Building No. 8” (after Matsanova 1996. Tabs. 3, 4, 6, 8–10, 12; 2003. 65. Figs. 1–4; see also Radunčeva et al. 2002. 17–22, 32–33).

horizontal wavy and zigzag lines and impressed shallow holes arranged in columns and lines, were regionally bounded within the Balkans. However, the manner, mechanism and contexts of their dispersals and functions are still subjects of discussion.

Assemblages, contexts and inter-regional distributions

Three patterns can be recognised in the palimpsest. The first relates to the regional dispersal of “earplugs”, pins, and zoomorphic amulets. The objects were hypothesised as being directly connected with the colonisation of south-eastern Europe. The spatial distribution of “earplugs” does show a pattern of inter-regional dispersal, since they have been found outside Thessaly on the Adriatic coast (Vrbica) and in the northern Balkans (Divostin). The spatial distribution of pins and zoomorphic amulets were exclusive (Map 1). While the pins were clustered in the southern Balkans (Thessaly), the zoomorphic amulets were dispersed in northern regions. It was hypothesised that the pattern might have been linked to social networks that predate farming and maintained a long tradition (Budja 1998.219–235; 2003.357; Kalicz 2000.309). It is not by coincidence they are evidently clustered in Danube region in the areas that had been settled initially by hunters and gatherers. The assemblages at Lepenski Vir, Divostin and Rakitovo were incorporated in the trapezoidal shaped buildings that clearly maintain the regional hunter-gatherers architectural principles.

The second relates to the seal assemblages sketched above. They are integrated into sets of prestige or symbolic objects found in settlement deposits and in a few building contexts. Their appearance may have been connected to *female figurines*, *anthropomorphic vessels*, and *clay tables* or “altar” phenomena. It might have not been by coincidence, but by function that they are associated with *pins*, *zoomorphic amulets* and *split-leg figurines*. We mentioned above that the latter were intentionally designed so that the two attached halves could be easily separated and united. It has been hypothesised already (Talalay 1987.161–169; 1993.45–46) that they could have been used as contractual devices or identifying tokens in a variety of contexts as a “down the line” mode of exchange, or to identify messengers be-

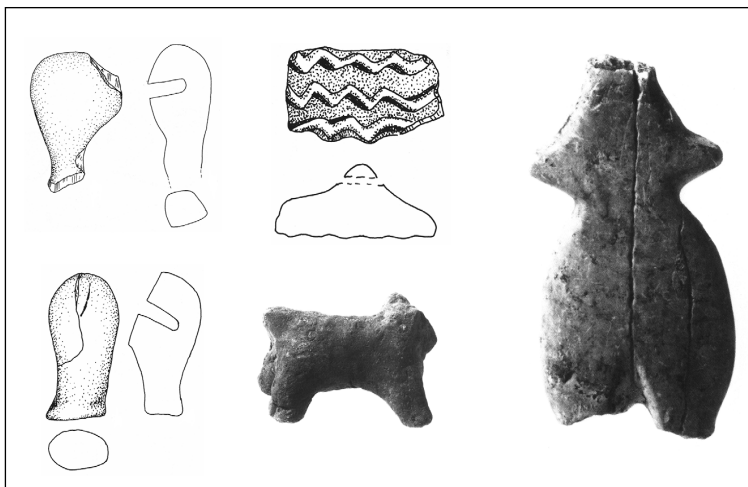


Fig. 7.2. Rakitovo. Assemblage consists of “seal”, “split-legs figurines”, “zoomorphic figurines” and female figurine (after Matsanova 1996.Tabs. 3–4, 12).

tween villages, particularly in times of crisis (periodic floods), as symbols of future obligations among groups or individuals, and as markers of inter-village marital connections. We have to point out also that the seals were associated with *zoomorphic vessels* and numerous miniature clay *zoomorphic figurines* in the form of cattle, sheep, and goats. It is not only that they might have represented the practice of keeping a large numbers of animals or indicating status, but a system of animal counting and record keeping. What is to be pointed out is the fact that the most intriguing assemblages at Nea Nikomedeia, Rakitovo and Divostin were embedded in settlement contexts of relatively short periods of occupation (see above and cf. Pyke & Yiouni 1996; Macanova 2000; McPherron & Srejović 1988). They were related to buildings different from the usual domestic architecture. At Nea Nikomedeia the large building was recognized as a “shrine” supposedly with ritual and cultic functions (cf. Perlès 2001). At Rakitovo they were found in two buildings. The first (No. 8) was identified as a cult structure and the second (No. 10) as a communal building. The excavator noted that of the whole village only in the first building was a large concentration of painted pottery found beside two anthropomorphic vessels, a clay table or altar, twelve zoomorphic figurines and a seal (Radunčeva et al. 2002; Matsanova 2003.65–70) (Fig. 7.1).

The third pattern relates to the spatial distribution of seals (Map 2). It should be emphasised from the very beginning that the Nea Nikomedeia clay seals assemblage consists of almost all the shapes and 10 of 21 ornaments that circulated in the Balkans in the Early Neolithic (see Todorova & Vajsov 1993.Figs.

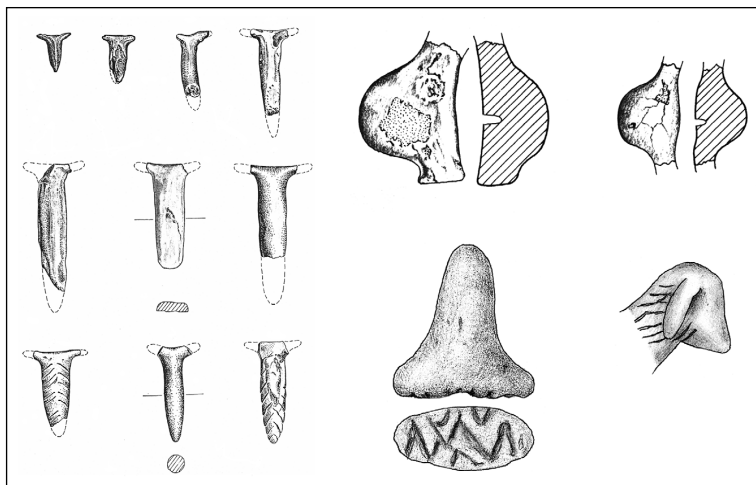


Fig. 8.1. Donja Branjevina. Assemblage consists of “zoomorphic amulets”, “seal”, “split-legs figurines” and “zoomorphic figurines” (after Karmanski 1987.T. 1; 1987a.T1.4–5; Trbuhović and Karmanški 1993.T4.3, 5.6).

227, 228). From this point of view the assemblage can be understood as paradigmatic and embedded in a narrow span of 6170–6060 cal BC at 1σ (see above).

In plotting the Early Neolithic seals it is evident that they crossed a line where the pins' distribution stopped and expanded towards the northern and eastern Balkan borders. They entered into the Carpathian Basin as well (cf. Makkay 1984). However, evident differences appear if we plot the seal ornaments separately (Map 2). Seals bearing horizontal wavy and zigzag lines, impressed shallow holes and spirals (but not concentric circles) did not enter the southern Balkans regions, as on contrary the distribution of well known Thessalian stone seals with labyrinthine design remains (with two exceptions at Tečić and Endrőd) confined to the south. The spatial patterns do not overlap, but we can speculate that they were in circulation simultaneously, since they met at Nea Nikomedeia and, as the scarce radiocarbon dates show. We may consider the tell location in between the regional seal distributions as a juxtaposition point in inter-regional social networks. It is beyond all doubt that all the settlements mentioned above participated in the networks, whether it ran on a regional or interregional level. However, the seal distributions were

more intensive in central and northern Balkans. The dispersals of spiral and horizontal wavy and zigzag ornaments show overlapping patterns of interregional seal distribution. The impressed shallow holes ornament show on contrary regionally bounded distribution that may indicate a social links between Nea Nikomedeia and Rakitovo.

We are still not able to decipher the messages they bear connecting the settlements within a hundreds or even more than thousand kilometres as the stamps embedded in the settlement contexts at Tečić and Endrőd or Vashtëmi and Hacilar show. It is believed that they correlate

with an Early Neolithic social elite, as they were contextually associated with prestige items such as a half-metre long nephrite sceptre at Gálábnik (Todorova & Vajsov 1993.104; Todorova 1998.37), or painted pottery, anthropomorphic and zoomorphic vessels, figurines, clay tables and altars, and “exotic flint” as sketched above. However, they might have been objects for identifying an individual or a group (clan), or to identify personal or common property for its security or a prehistoric information system which we can not yet decipher.

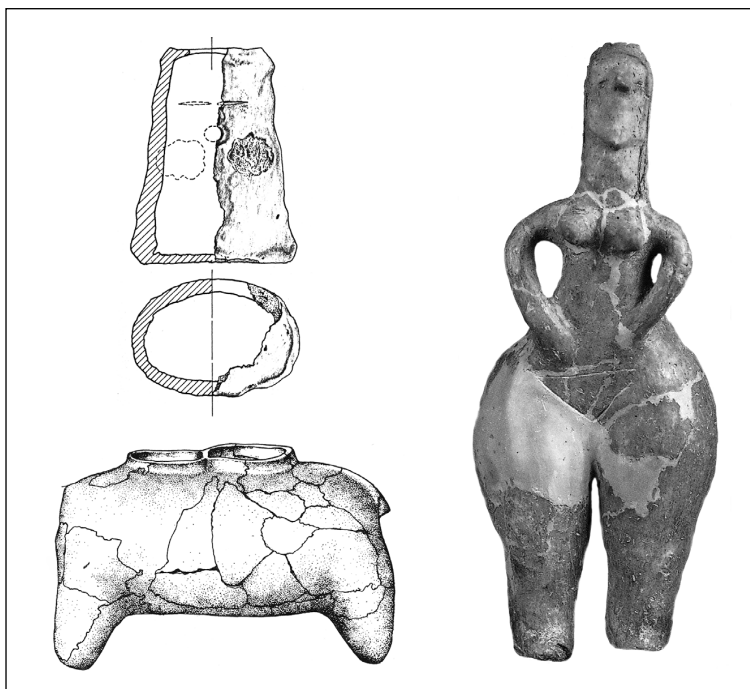


Fig. 8.2. Donja Branjevina. Assemblage consists of “anthropomorphic and zoomorphic vessels” and female figurine (after Karmanški 1975.Sl. 33; 1987a.T 1.6; 1996.Fig. 4).

We need to point out the great relevance of the dispersal of split-leg figurines, since they appeared in settlement contexts where the seals were absent. They do not seem to be bounded within regional distributions, as they were found in the northern Balkans associated with zoomorphic amulets (Divostin), and in the Šar-Pindus Mountains (Podgori) with pins (Korkuti 1995. *Taf. 8. a-d*). The social networks may thus have been even more intensive and not necessarily correlative to prestige items only.

In place of concluding remarks

The objects and assemblages discussed are well standardized and distributed in the area where evidence of long-distance connections and Trans-Aegean exchange networks are available well after 7000 BC (Cherry 1990; Perlès 2001). We may speculate, therefore, that they were intentionally incorporated in processes of social ties of reciprocity and obligation, contract and partner exchange that mostly involved single individuals or small groups within the framework of established kinship ties, marriage alliances, trading and exchange partnerships. This means, in consequence, that the objects and assemblages were embedded in a variety of contexts where sites and communities were bound into an interactive regional unit and could have been used as contractors, identifying tokens, or tokens for counting. The tokens in the Levant were frequently found in clusters varying in size from two to about one hundred counters. The assemblages were hypothesised as indicating that the accounts kept in archives by means of tokens referred to small quantities of different kinds of commodity. The system worked according to the most simple and basic principle of one to one correspondence, as in matching each unit of a set to be recorded with a token. Perhaps we may speculate that several hundred clay “roundels” deposited in the “shrine” at Nea Nikomedeia and, three miniature zoomorphic figurines, three ceramic cereal-grain shapes, six split-leg figurines and twenty-one ceramic and marble zoomorphic amulets deposited in trapezoidal shaped hut 4 at Divostin can be interpreted as identifying tokens or tokens as counting devices and contractors of reciprocity and obligation.

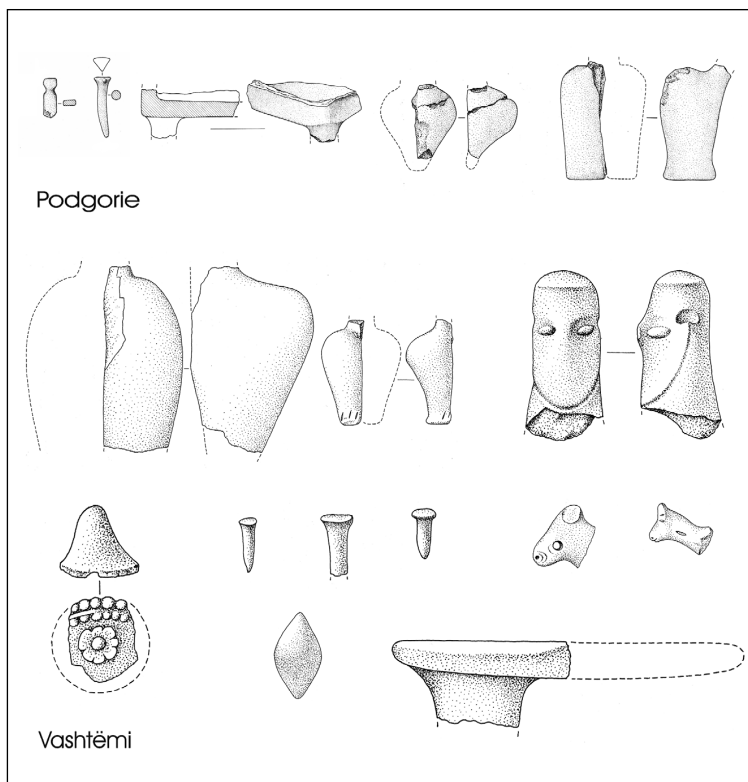
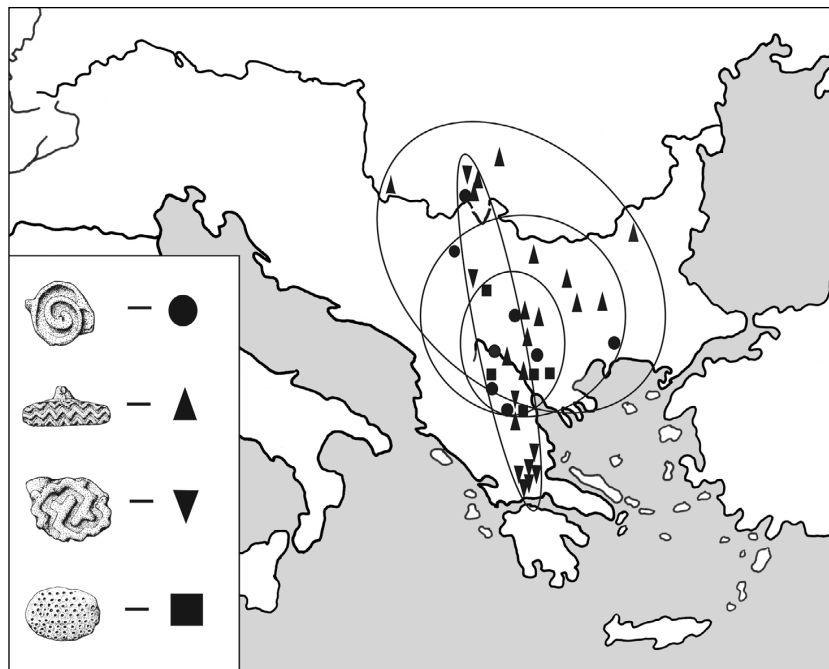


Fig. 9. Vashtëmi and Podgorie. Assemblages consist of “split-leg figurines”, “clay pins”, “bi-conoid” clay token, “anthropomorphic and zoomorphic figurines” and “clay tables” (after Korkuti 1995. *Taf. 8.a-d; 14–15*).

We have pointed out elsewhere (Budja 2001; 2003) that their appearance and scatters correspond well with monochrome-impreso and painted pottery distributions, and that the zoomorphic amulets correlate with hunter-gatherer societies in the northern Balkans. The patterns we recognized in the spatial and chronological distributions of pins, zoomorphic amulets and seals contradict the models of colonization, demic diffusion and population replacement in the context of the transition to farming in the Balkans. We believe they were well embedded in the Early Neolithic Balkans *koine*, where the transformation of hunter-gathering into farming societies took place in an arena of selective integration of the new technologies and social practices as much as the result of intensive connections and exchange networks. None of the objects have entered on the eastern Adriatic coast and Dinaric hinterland. We may speculate therefore that the region although adopting farming did not enter into a network of reliable integrative mechanisms through interregional exchanges and, there were social barriers that stopped the circulation of goods and/or people over middle and long-distances. The isolationism may be seen as a strong dominance of social and ideological continuity that slowed down the processes of social and

Map 2. Spatial distributions of seals (after Makkay 1984; Todorova & Vajsov 1993). List of sites plotted on the map. Spiral (●): Bългарčevo, Kurdžali, Slatino, Grabovac, Hódmezővásárhely, Rug Bair, Trn, Nea Nikomedeia. Horizontal wavy and zigzag lines (▲): Türkeve, Hódmezővásárhely, Donja Branjevina, Bългарčevo, Čavdar, Gradešnica, Kazanlik, Slatino, Karanovo, Azmaška mogila, Anzabegovo, Maluk Preslavac, Rakitovo, Gālābnik, Nea Nikomedeia. Labyrinthine design (▼): Nea Nikomedeia, Sesklo, Pyrasos, Tsangli, Philia, Achilleion, Nessonis, Tečić, Endrőd. Impressed shallow holes (■): Supska, Porodin, Elešnica, Rakitovo, Nea Nikomedeia.



ideological restructuring of forager and hunter-gatherer communities. We hypothesised already that the boundaries in the Balkans had formed not on the base of farming and/or herding adoption but the dynamics of social networks. The incoming near eastern lineages and the difference of the values for the Balkans (~20%) and Mediterranean coastal area,

including the Adriatic (~10%) as the mitochondrial DNA analysis and the maternal lines showed (Richards and Macaulay 2000:139–151; see also Richards in this volume) can be linked not to an incipient farming, but to a continuous and long-term networks of the circulation of goods and people over long distances.

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REFERENCES

- BARBER E. J. W. 1991. *Prehistoric Textiles. The Development of Cloth in the Neolithic and Bronze Age*. Princeton University Press. Princeton.
- BOGDANOVIĆ M. 1988 Architecture and structural features at Divostin. In A. McPherron and D. Srejović (eds.), *Divostin and the Neolithic of Central Serbia Ethnology Monographs 10*: 35–142.
- BOYADZIEV Y. D. 1995. Chronology of prehistoric Cultures in Bulgaria. In D. W. Bailey and Panayotov I. (eds), *Prehistoric Bulgaria. Monographs in World Archaeology 22*: 149–192.
- BÖKÖNYI S. 1988. The Neolithic fauna of Divostin In A. McPherron and D. Srejović (eds.), *Divostin and the Neolithic of Central Serbia. Ethnology Monographs 10*: 419–447.
- BUDJA M. 1998. Budja M. Clay tokens – accounting before writing in Eurasia. In M. Budja (ed.), *5th Neolithic Studies. Documenta Praehistorica 25*: 219–235.
- 1999 Budja M. The transition to farming in Mediterranean Europe – an indigenous response. In M. Budja (ed.), *6th Neolithic Studies. Documenta Praehistorica 26*: 119–141.
- 2001 Budja M. The transition to farming in South-eastern Europe: perspectives from pottery. In M. Budja (ed.), *8th Neolithic Studies. Documenta Praehistorica 28*: 27–47.
- 2003 Symbolic systems in the context of transition to farming in Southeast Europe. Pottery and boundaries. In L. Nikolova (ed.), *Early Symbolic*

- Systems for Communication in Southeast Europe. BAR IS 1139: 347–360.*
- CHERRY J. F. 1990. The first colonisation of the Mediterranean islands: a review of recent research. *Journal of Mediterranean Archaeology* 3: 145–221.
- CORNAGGIA CASTIGLIONE O. 1956. Origini e distribuzione delle pintaderas preistoriche "euro - asiatiche". *Rivista di Scienze Preistoriche* 11: 123–153.
- DZHANFEZOVA T. 2003. Neolithic Pintaderas in Bulgaria (Typology and Comment on their Ornamentation). In L. Nikolova (ed.), *Early Symbolic Systems for Communication in Southeast Europe. BAR IS 1139: 97–108.*
- GARAŠANIN M. 1979. Centralnobalkanska zona. In A. Benac (ed.), *Praistorija jugoslovenskih zemalja II. Neolitsko doba: 79–212.* Sarajevo.
- GIMBUTAS M. 1982. *The Goddesses and Gods of Old Europe 6500–3500 BC. Myths and Cult Images.* Thames and Hudson. London
- HALSTEAD P. 1995. From sharing to hoarding: the Neolithic foundations of Aegean Bronze Age society? In R. Laffineur, W. D. Niemeier (eds.), *Politei. Society and State in the Aegean Bronze Age. Proceedings of the 5th Aegean Conference. Egeaem* 12: 11–21.
- KALICZ N. 2000. Unterscheidungsmerkmale zwischen der Körös- und der Starčevo- Kultur in Ungarn. In S. Hiller and V. Nikolov (eds.) *Karanovo III. Beiträge zum Neolithikum in Südosteuropa: 295–310.*
- KARMANSKI S. 1975. *Rani neolit. Donja Branjevina.* Katalog izložbe. Odžaci.
- KARMANSKI S. 1987. Nalazi labreta na lokalitetu Donja Branjevina u svetlu novih arheoloških i etnoloških činjenica. *Glasnik SAD* 4: 101–106.
- 1987a. Donja Branjevina. Privately circulated.
1996. *Boginja je pronađena.* Odžaci.
- KORKUTI M. 1995. *Neolithikum und Chalkolithikum in Albanien.* Heidelberger Akademie der Wissenschaften. Monographien B. IV. Mainz am Rhein.
- KUTZIAN I. 1947. *The Körös Culture.* Dissertationes Pannonicae Ser. II. No. 23. Budapest.
- LETICA Z. 1988. Anthropomorphic and zoomorphic figurines from Divostin. In A. McPherron and D. Srejović (eds.), *Divostin and the Neolithic of Central Serbia. Ethnology Monographs* 10: 173–201.
- MAKKAY J. 1984. *Early Stamp Seals in South-East Europe.* Akademiai Kiado, Budapest.
- MACANOVA V. 2000. Neolitische Siedlung bei Rakitovo. Stratigraphie und Chronologie. In S. Hiller and V. Nikolov (eds.), *Karanovo III. Beiträge zum Neolithikum in Südosteuropa: 59–74.*
- MATSANOVA V. 1996. Cult objects from the Early Neolithic site at the town of Rakitovo. *Poročilo o raziskovanju paleolitika, neolitika in eneolitika v Sloveniji XXIII: 105–128.*
- MATSANOVA V. 2003. Cult Practices in the Early Neolithic Village of Rakitovo. In L. Nikolova (ed.), *Early Symbolic Systems for Communication in Southeast Europe. BAR IS 1139: 65–70.*
- McPHERRON A., SREJOVIĆ D. (eds.) 1988. *Divostin and the Neolithic of Central Serbia.* Ethnology Monographs 10. Pittsburgh.
- McPHERRON A., RASSON J., GALDIKAS B. 1988. Other artefact categories. In A. McPherron and D. Srejović (eds.), *Divostin and the Neolithic of Central Serbia. Ethnology Monographs* 10: 325–336.
- McPHERRON A., AITKEN M. J., BUCHA V. 1988. Absolute dating of Divostin, Grivac-Barice and Banja. In A. McPherron and D. Srejović (eds.), *Divostin and the Neolithic of Central Serbia. Ethnology Monographs* 10: 379–388.
- MELLAART J. 1970. *Excavation at Hacilar 1 and 2.* Edinburgh University Press. Edinburgh.
- MIKOV V., GEORGIEV V. I. 1969. Nadpisut vurhu kruglia pechat ot Karanovo – naydrevnata pismenost v Evropa. *Arheologia* 1: 4–13.
- MILOJČIĆ V. 1959(1960). Ergebnisse der Deutschen Ausgrabungen in Thessalien (1953–1958). *Jahrbuch des Römisch-Germanische Zentralmuseums Mainz* 6: 1–56.
1960. Präkeramisches Neolithikum auf der Balkanhalbinsel. *Germania* 38/3–4: 320–335.

- ONASSOGLU A. 1996. Seals. In G. A. Papathanassopoulos (ed.), *Neolithic culture in Greece: 163–164*.
- ÖZDOĞAN M. 1997. The Beginning of Neolithic economies in Southeastern Europe: An Anatolian Perspective. *Journal of European Archaeology* 5/2: 1–33.
1999. Northwestern Turkey: Neolithic Cultures in Between the Balkans and Anatolia. In M. Özdoğan and N. Başgelen (eds.), *Neolithic in Turkey. The cradle of civilization. Text and Plates: 218–219*.
- PYKE G. and YIOUNI P. 1996. The excavation and the ceramic assemblage. In K. A. Wardle (ed), *Nea Nikomedeia I. The excavation of an Early Neolithic village in Northern Greece 1961–1964 directed by R. J. Rodden*. The British School at Athens. Athens.
- PERIĆ S. 1998(1999). Višeslojna neolitska naselja I problem kulturne stratigrafije neolita na teritoriji Srbije. *Starinar XLIX: 11–39*.
- PERLÈS C. 2001. *The early Neolithic in Greece. The first farming communities in Europe*. Cambridge World Archaeology. Cambridge University Press. Cambridge.
2003. An alternate (and old-fashioned) view on the Neolithisation in Greece. In M. Budja (ed.), *10th Neolithic Studies. Documenta Praehistorica XXX: 99–113*.
- RADUNČEVA A., MATSANOVA V., GATSOV I., KOVACHEV G., GEORGIEV G., CHAKALOVA E., BOZHILOVA E. 2002. *Neolitno selishte do gr. Rakitovo. Razkopki i prouchvaniya* 19. Gal-Iko, Sofija.
- RENFREW C. 1987. *Archaeology and Language. The Puzzle of Indo-European Origins*. Penguin Books. London.
- RICHARDS M., MACAULAY V. 2000. Genetic Data and the Colonization of Europe: Genealogies and Founders. In C. Renfrew and K. Boyle (eds.), *Archaeogenetics: DNA and the Population prehistory of Europe. McDonald Institute Monographs, Cambridge: 139–151*.
- RICHARDS M. 2003. The Neolithic transition in Europe: archaeological models and genetic evidence. In M. Budja (ed.), *10th Neolithic Studies. Documenta Praehistorica XXX: 159–167*.
- RODDEN R. J. 1962. Excavations at the Early Neolithic Site at Nea Nikomedeia, Greek Macedonia (1961 season). *Proceedings of the Prehistoric Society XXVIII: 209–288*.
- SCHMANDT-BESSERAT D. 1992. *Before Writing. From Counting to Cuneiform*. University of Texas Press. Austin.
- STANKOVIĆ S. 1989/1990(1991). Predstava bika u starijem neolitu. Bull representations in the Early Neolithic. *Starinar XL/XLI: 35–42*.
- TALALAY E. T. 1987. Rethinking the function of clay figurine legs from Neolithic Greece: an argument by analogy. *American Journal of archaeology* 91: 161–169.
- TALALAY E. T. 1993. *Deities, Dolls, and Devices. Neolithic Figurines from Franchthi Cave, Greece*. In T. W. Jacobsen (ed.), *Excavation at Franchthi Cave, Greece Fasc. 9*. Indiana University Press. Indianapolis.
- TASIĆ N. 2003. The White Painted Ornament of the Early and Middle Neolithic of the Central Balkans. In L. Nikolova (ed.), *Early Symbolic Systems for Communication in Southeast Europe. BAR IS 1139: 181–192*.
- THEOCHARIS R. D. 1973. *Neolithic Greece*. National Bank of Greece. Athens.
- THISSEN L. 2000. *Early Village Communities in Anatolia and the Balkans: Studies in Chronology and Culture Contact*. Unpublished Ph.D. dissertation. Leiden.
- THISSEN et al. on-line
<http://www.chez.com/canew/cadata.htm>
- THISSEN et al. on-line
<http://www.chez.com/canew/swdata.htm>
- TODOROVA H. 1998. Der balkano-anatolische Kulturbereich vom Neolithikum bis zur Frühbronzezeit. In M. Stefanovich, H. Todorova and H. Hauptmann (eds.), *James Harvey Gaul. In memoriam. In The Steps of James Harvey Gaul 1: 27–54*.
- TODOROVA H., VAJSOV I. 1993. *Novokamennata epoha v Bulgaria*. Izdatelstvo nauka i iskustvo. Sofia.
- TRBUHOVIĆ B., KARMANSKI S. 1993. *Donja Brajevina 1989–1993*. Odžaci.

- TÜRKCAN A. 1997. Stamp Seals. In Çatalhöyük Archive Reports. Çatalhöyük 1997 Archive Report. On-line: http://catal.arch.cam.ac.uk/catal/Archive_rep97/turkan97.html
- VALOVIĆ S. 1987. Ritualna neolitska zoomorfna zvečka iz Ratine. Baša prošlost. *Zbornik radova Narodnog muzeja i Istorijskog arhiva Kraljevo 2*: 219–226.
- VAN ANDEL H. T., RUNNELS N. C. 1995. The earliest farmers in Europe. *Antiquity 69/264*: 481–500.
- VASIĆ M. M. 1936. *Preistoriska Vinča II*. Beograd.
- WHITTLE A., BARTOSIEWICZ L., BORIĆ D., PETTIT P., RICHARDS M. 2002. In the beginning: new radiocarbon dates for the Early Neolithic in northern Serbia and south-east Hungary. In E. Banffy (ed.), *Prehistoric Studies In Memoriam Ida Bogнар-Kutzian Antaeus 25*: 15–62.
- YOUNGER J. G. 1992. Seals? From Middle Helladic Greece. *Hydra 8*: 35–54 and, on-line <http://www.people.ku.edu/~jyounger/articles/>