

THE ORIGINS OF FARMING IN SOUTH EAST EUROPE

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ABSTRACT

The domestication of the landscape, the plants and the animals in South East Europe is considered in a multi-causal model which relates the symbolic and spatial contexts of social action to the longer-term processes of subsistence intensification. The article explores to what extent the spread of farming resources from Anatolia can be modelled through the sole agency of forager exchange networks in southern Greece, Thessaly, the central Balkans, the Tisza valley and the eastern Adriatic littoral. The development of a place-based world view in foraging societies is linked to increasing sedentism, just as in the case of most early farming communities. It is found that there is little need to rely on migrating populations for the introduction of farming in most of the area under study. The agency of incoming social groups is best supported by subsistence data in regions where there is a major disjunction between the spatial ideologies of foraging and farming groups.

KEYWORDS:

Domestication, exchange networks, social power, foragers, farmers, Greece, the Balkans, South East Europe, the Adriatic

PRELIMINARY DEFINITIONS

The origins of farming is part of a wider process of the domestication of the landscape by social groups whose world views are based on the importance of "places" in their environment. In this article, I consider previous explanations of the transition to farming in south east Europe and present a new approach. I take south east Europe to mean the modern states of Greece, Albania, Yugoslavia, Bulgaria, Romania and Hungary. The process under investigation falls within the time span 8,000 - 5,500 CAL BC (dates calibrated according to papers in Radiocarbon Vol 28/2B (1986)).

INTRODUCTION: BIASES IN DATA AND CONCEPTS

There are two reasons why the current known distributions of Late Mesolithic and Early Neolithic sites are biased and therefore limited for our investigation: (1) the sea-level changes after the melting of the glaciers has flooded

crucial sites in the Early Neolithic coastal lowlands (van Andel, 1989); and (2) post-Neolithic sedimentation of main valleys has masked many key early sites located in the main valleys (Chapman, 1989; van Andel et al., in press). The Mesolithic settlement pattern is biased in favour of upland cave sites throughout the Balkans, while there is a selective field survey bias in favour of lowland Early Neolithic sites (Fig. 1). The inhabitants of the few Late Mesolithic sites discovered in this region favoured a broad-spectrum subsistence strategy best suited to the main lowland valley environments (e.g., Lepenski Vir: Srejovic, 1969; Soroki: Markyevic, 1968). For this socio-ecological reason, it is assumed that a far wider range of Late Mesolithic settlements than is currently known once existed in all the main lowland areas and valleys of south east Europe (Chapman, 1989). If we do not take these biases into account, proper evaluation of models accounting for the spread of farming is impossible. To put the matter more positively, it is assumed that much of the Balkan peninsula is covered by extensive forager breeding networks, most of which were large except in exceptionally

• S Y N T H E S I S •

rich environments such as the Iron Gates gorge of the Danube. These networks were the mechanism by which physical and social reproduction was maintained and stimulated widespread, if low-density, exchange of exotic materials and/or finished artifacts (Wobst, 1974:1976; Chapman, 1989).

If the settlement record for the transition to farming in SE Europe is biased and partial, how much more biased is the conceptual apparatus of archaeologists who deal with this process only in terms of economic models. As Olsen (1988:431) puts it, "farming is not only an "economy" or a "mode of production", but also a cultural and symbolic construct". The organisation of social space must be explored in order to understand the symbolic transforms associated with these changes.

MODELS FOR THE INITIAL SPREAD OF FARMING

Despite the obvious point that both processes are in simultaneous operation, recent theoretical debate has tended to stress either indigenism or diffusionism to the exclusion of the other. The diffusionist model rests on the absence of domesticable resources local to south east Europe (emmer, bread wheat, caprines, etc.) and the rarity of Mesolithic sites compared to the frequency of early farming settlements. While the latter point has already been challenged, the former is indisputable. A more sophisticated, demic version of diffusionism was developed by Ammerman and Cavalli-Sforza (1984) as the 'wave of advance' model. Radiocarbon dates for the earliest regional appearance of domestic resources was interpreted to provide a rate of diffusion, which was modelled in terms of a demographic expansion across Europe. The model can be criticized for ignoring settlement discovery bias and overlooking the contribution of local foragers to the farming population.

Indigenists such as Dennell (1984) and Barker (1985) assume that exchange rather than population incursions from the Near East was responsible for the spread of farming into Europe, without

demonstrating such links archaeologically. Yet indigenists such as Zvelebil accept populations migrated into south east and central Europe, with later contact with local foragers (1986: 1989). Thus Zvelebil and Rowley-Conwy's availability model (1984) is applied to most areas of Europe except the south east and the centre. In this model, a three-stage process is proposed, in which domestic resources are available to local foragers far earlier than the date at which farming is accepted (Substitution Phase), let alone the period when agriculture becomes a subsistence mainstay (Consolidation Phase). A basic problem with the Availability model is that the very continuation of foraging subsistence patterns after farming resources become available may depend upon the existence of farmer - forager exchanges otherwise unavailable to "pure" foragers. This is an archaeological version of Galton's problem in anthropology (viz. the notion of studying pre-contact peoples is logically impossible since study requires contact).

More recently, the increasingly sterile debate between indigenists and diffusionists has been enlivened by Ian Hodder's (1990) publication of a symbolic and structuralist model for the genesis of domestication. Hodder relies on the opposition and interplay, at the conceptual level, between culture and nature, tame and wild, 'domus' and 'agrios' to create a case for the emergence of social domestication of communities before that of economic domestication of plants and animals. Since the priority of social over economic domestication is plausible in the Near East but far less clear in Europe, Hodder is forced to introduce the 'domus' principle into Europe by the mechanism of the diffusion of farming populations. While indigenists have responded by searching for conceptual complexity amongst European foragers (Zvelebil 1993), neo-diffusionists have taken Hodder's model as renewed support for their views (Sherratt 1991). In fact, the 'domus' model provides an appropriate context for forager-farmer interactions but Hodder rarely exploits this possibility.

It is paradoxical that indigenists have in fact rarely investigated their own

nul hypothesis - the introduction of farming through the spread of information and resources into foraging societies - in any but an economic sense. In this study, I shall attempt to broaden the terms of the debate by assessing the interactions of the economic and the ideological in forager and farmer social networks (cf. Mann 1986).

The likelihood that the richest environments for both foragers and farmers are concentrated in the main valleys and lowland regions of south east Europe opens up the probability of the use of pre-existing social networks for the exchange of domestic resources. This model relies on a minimal movement of people to kick-start the process because of the pre-requisite of breeding networks for physical reproduction of late Mesolithic populations. Once domestic plant and animal resources were introduced into forager exchange networks, their novelty value as status foods or livestock would contribute to further dispersal, a process aided by the availability of other desirable exchange items such as ceramic containers and stone tools and ornaments. The social disequilibrium model of Runnels and van Andel (1988), in which domestic plants and animals are conceived of as "cash crops" and domestication is explained in terms of the creation of "industrial wealth" contains a germ of truth about far-flung exchange networks but is as ideologically illegitimate in its imposition of a capitalist mind-set on communities of the remote past as it is archaeologically untestable (Hansen, 1993).

The number of pathways which the introduction of novel cultigens into a forager exchange network can generate depends as much on the social environment of the groups in question as on the physical environment in which the groups reside. At a general level of modelling, three types of socio-ecological niche can be envisaged in terms of their desirability for the beginning of a tradition of farming in a new area. These types are environments of a high (Type I), medium (Type II) and low (Type III) desirability for farming. An important factor in the kinds of expected interactions is the degree to which different types of niches are closely juxtaposed next to one

another. The more variable the local environment, the more likely the development of contrasting subsistence strategies which are potentially complementary. In social terms, the wider the variety of social structures within any given region, the more likely there is to be a variety of exchange interactions between groups of differing complexity.

The context for far-flung exchange is found in the organisation of social space in human communities, which can be summarised as the movement from "space" to "place". Far from regarding the physical environment as outside, separate from, human groups, the environment is internal to the perceptions and cognitions of individuals, who construct their own landscapes for the purposes of living meaningful lives in the places best suited. When groups colonise an environment, individuals learn which areas are suitable for all important activities and assign functions to these areas. Increased sedentism leads to the creation of ancestral homes which embody a place-based world-view where a focussed attachment to significant places is based on their 'biographical' suitability and goodness-of-fit for a range of activities. The definition of Arenas of Social Power (ASPs) enables identification of the differentiation of space through time and place. ASPs mark a conjunction of a specific place, with its functions and meanings, and the social actors who have the power (including knowledge) to perform the activities in that place. The reasons for the creation of a new arena of social power are often related to the development of contradictions in the social order, where new developments are incompatible with the traditional social structure. Hence, the identification of new arenas of social power is always a sign of basic social change which requires explanation.

In many parts of Europe, foragers had developed evolutionarily stable strategies (ESS) based on social mobility and seasonal fusion-fission. Two main advantages of this ESS were flexibility in resource extraction and a ready mechanism for the avoidance of social problems.

However, five potential contradictions may be identified: (1) accumulation of possessions; (2) increased economic intensification; (3) resource competition; (4) increased family size; and (5) place-based world-views. The more of these problems that arose, the less likely that mobile groups could find a resolution within their traditional ESS. Any single contradiction may set up a dialectic relation in which increasing sedentism may favour resolution of the problem. Insofar as a move towards sedentism stimulated by one contradiction may in turn enhance the development of others, sedentism becomes an emergent property of changing social formations. As a result, significant sites embody, directly or in transformation, the mechanisms for definition of the community's place in time and space. Given that the strategies of social reproduction will be reflexively related to the form of the site or monument, it follows that changes in the form of sites and monuments should be related to changes in underlying group ideology. This model attempts to integrate the existing ideological and economic evidence for the Mesolithic - Neolithic transition in SE Europe.

While a comprehensive investigation of this model in all regions of south east Europe remains beyond the scope of this paper, a restricted trial will be attempted, based on selected regions with higher-quality evidence. The following regions will be considered: the southern Argolid, Thessaly, the Iron Gates gorge of the Danube, the Alfold plain of Hungary and the

INVESTIGATION OF THE MODEL

Southern Argolid

The archaeological record of the southern Argolid is dominated by one site, whose significance looms large in the debate over the origins of Mediterranean farming. In the course of the Southern Argolid survey, the single site found to have been occupied throughout most of the Mesolithic and the Neolithic was the Franchthi cave, with its associated open site

of Paralia (van Andel & Runnels 1987). Excavations at Franchthi documented a complex sequence of Late Mesolithic and Early Neolithic levels, with a complex patterning of artifacts, plant and animal remains; the deposition of each category of remains changes at different rates and in a different manner from that of the others (Hansen, 1992: 1993; Perles, 1990: 1993). The territory surrounding Franchthi includes fertile Type I arable niches (Fig. 2) (Pope & van Andel 1984), but, until more sites in the Franchthi network are discovered, the pattern of land use practised by the earliest farmers cannot be clearly defined.

While the Late Mesolithic -Early Neolithic sequence at Franchthi can sustain several different readings, the following key points may be noted. The pivotal Final Mesolithic occupation is less intensive than in the previous phase of specialised tunny-fishing, with low densities of wild cereals and legumes, nuts, broad-spectrum hunting and a generalized lithic assemblage. The Initial Neolithic shares as much with the Final Mesolithic (molluscs, lithic technology, wild herbivores, nuts) as is new (domestic emmer and barley, some domestic caprines and possibly the earliest ceramics). A more significant cluster of innovations occurs in the Early Neolithic occupation, with the replacement of wild cereals, legumes and animals with domestic resources, a new blade-based lithic technology, new ceramics and ornament styles and a new living area outside the cave (Perles, 1993). The evidence for a stratigraphic discontinuity lasting a few centuries between the Mesolithic and Neolithic levels is based on weathering of rinds on carbonate rocks and reduced CaCo₃ and pH levels (Farrand, 1988, p. 314). Despite this gap in cave use, there is evidence for continuity in lithic and shell technology (Jacobsen, 1976) and shellfish collection (Shackleton & van Andel, 1986) between the Late Mesolithic and Initial Neolithic levels. Both aspects of continuity indicate the long-term success of archaeologically almost invisible breeding networks. The staggered introduction of novel domesticates into a stable local population over a period of five hundred years (6,800 - 6,300 CAL BC) favours the

hypothesis of an exchange network rather than successive waves of incoming groups. Other constituent members of the exchange network may have included the inhabitants of the Ulbrich Cave (Perles, 1990) and the possible Mesolithic sites in the Berbati valley (Runnels, pers. comm., 1990, quoted in Hansen, 1993, p. 17). Other Late Mesolithic breeding networks would have been necessary to underpin the long-term occupations at Sidari (Sordinas, 1969) and the Zaimis cave in Attica (Perles, 1990).

The long-term use of the Franchthi cave indicates that the local community had established a place-based worldview based upon regular use of the shoreline (Shackleton & van Andel 1986), the sea and local herding resources. The evidence of sea-level change is such that environmental changes would have been gradual over the lifetime of any single generation. The most striking point about the long-term if discontinuous use of the cave and its surroundings is that it marked out Franchthi as a special place whose significance in the landscape related as much to its links to the past, past inhabitants and the ancestors as to current economic practices. This juxtaposition of social place-value with a natural shelter is an example of the process of acting within a landscape without transcending this limited aspect of sedentism.

The addition of an open settlement built on the beach below the cave to the continued cave occupation indicates a social division in which the novel symbolism and cultural status of free-standing, rectangular structures was opposed to the natural, irregular and geology-dependent shelter of the cave. The Paralia structures are a sign that the residents were acting on their environment in a new way. Far from distinguishing foragers from farmers, the new settlement form was a symbolic opposition between farmers with two different concepts of social space, both relying on similar subsistence strategies. The cultural creation of outdoor structures was an important innovation for the Franchthi farmers - perhaps as significant a step in the extension of their own social environment

as the taming of animals and the cultivation of plants.

The Franchthi cave is a crucial site in SE Europe, since it is one of very few settlements with a record of in situ, gradual replacement of wild foods by domestic foods. Rather than attribute each subsistence change to new arrivals, a more concise explanation would relate such developments to the changing content of long-term farmer-forager exchange networks. An intriguing aspect of the Franchthi sequence is the linkage of economic intensification with both the creation of a new form of outdoor, domestic arena and the increased significance of a place-based world-view.

Thessaly

The continued absence of Mesolithic settlements in Thessaly has led to the assumption of a new population from the east settling in the plains, on soils bearing a marked similarity to those colonised by early Anatolian farmers (Payne 1972). The strong reliance on domestic animals, legumes and cereals from the beginning of settlement sequences such as Achilleion (Bokonyi 1989) and Prodromos (Halstead & Jones 1980) attest the use of Type I niches from the late 7th millennium CAL BC. However, the diffusionist hypothesis is weakened by two factors: new geomorphological evidence from western Thessaly and the evidence for early ceramics.

The geomorphological evidence is a good example of how post-Mesolithic environmental change can bias the archaeological record against flat, open Mesolithic settlements. Van Andel, Gallis and Toufexis (in press) document the partial burial under alluvium of two tells in the Trikala Basin. Their Unit B Peneios river alluvium masks the Early Neolithic (and therefore the Late Mesolithic) land surface to a depth of 0.50 - 2.00 m (van Andel et al., in press). While admitting the paucity of their data set, van Andel et al. recognize the likelihood of similar geomorphological processes affecting sites in the Larisa Basin. The location of Early Neolithic tells on

active water-courses and within active floodzones raises the intriguing question of seasonal or short-term but repeated tell occupation. If this is so, the Early Neolithic settlement and subsistence structure is considerably closer to those of Late Mesolithic communities than is the traditional concept of permanent peasant farming communities, and raises the possibility of Late Mesolithic contributions to the formation of Neolithic subsistence practices. However, the putative Late Mesolithic communities show no sign of acting on their landscape in the way that the tell-builders of the Early Neolithic have so dramatically demonstrated.

The evidence for early ceramics in Thessaly does not mark a return to the arguments for the so-called Aceramic Neolithic, long since dismissed by Nandris (1971). Rather, what requires explanation is the strong contrast between the extreme simplicity of the light-faced wares found at the basal, but clearly not "Pre-pottery Neolithic", levels of several Thessalian tells (Theocharis, 1973) and the highly developed ceramics of the coeval Anatolian farmers (e.g., the Fikirtepe style: Ozdogan, 1984; the Hacilar Late Neolithic style: Mellaart, 1970). The alternative to a curious reversion to simpler ceramic styles by Anatolian potters following their migration into north Greece is the development by foragers of a local potting tradition stimulated by the acquisition of ceramic containers within an exchange network bridging the north Aegean. If it is characteristic of migratory groups to maintain material culture links, often ceramic, with their originating groups (e.g., the First Temperate Neolithic, the Linearbandkeramik or the Impresso groups), the farmers of Thessaly, putatively derived from Anatolia, do not fit this pattern. While Perles (1990) is content to admit the paucity of specific artifact parallels between the earliest Greek Neolithic, Anatolia and the Near East, Hansen (1993) argues that Greek Neolithic "founders' effect" explains that lack. But this is to ignore the significance of continuing, if not progressive, social networks for communities in flux. Instead, local developments amongst foraging groups

may have played a more significant role in the north Greek Early Neolithic than is usually recognised.

However, the foundation of settlements in which the living areas were restricted to the zone of previous occupation represents the introduction of a method for the creation of social space widely practised in the Near East (Mellaart 1975). The primary characteristic of the tell is that it represents the creation of an orderly category of living space (Chapman 1989a: 1991). Since occupations are constructed directly over previous living surfaces, the tell is a "power-full" ancestral space where communities lived where their ancestors had once lived. The tell is therefore a social landmark with a cumulative place-value achieved through long-term community participation, a habitus of stability, and an active contribution to social identity. In descent-based groups where relations with the ancestors are critical for social reproduction, tells would have acted as a physical and social expression of continuity with the ancestors. In such settlements, it is the elders, with their deeper knowledge of the past and thus of the ancestors, who would have sought to maintain positions of power and authority.

While being central to the community's strategy for maintaining direct relations with the ancestors, the tell would also have been actively used for creating and maintaining social space for the living. The traditions of ancestral space were reinforced by tightly controlled principles of planning and architecture, both at settlement and household level. This limits the possibilities for outdoor on-site action: activities such as outdoor ritual, dancing, group meetings, pyrotechnology, horticulture and animal keeping. The layout of the houses is generally regular, with structures separated from each other by narrow lanes and often laid out on the same or similar orientation (e.g., Achilleion: Gimbutas et al., 1989). The main visual foci are the houses themselves. Both houses and rooms (either one or two) were rectangular and of strikingly similar layout (Fig. 3). In Neolithic tells, remarkably little evidence

has been found for intra-house or inter-house differentiation. The homogeneity of the houses may be a reflection of the absence of social diversity but may equally conceal significant divergences from 'egalitarian' structures. The persistent rebuilding of tell layers gives rise to the concept of cyclical, or reversible, time, in which both houses and the whole settlement are periodically rebuilt, renewed with the fertile earth of the land. Even though rarely reaching a height of more than 1.5 m, Early Neolithic tells reveal a visual and ideological commitment to ancestral places.

While the possibility of less permanent tell occupation in west Thessaly reduces the contrast between village farming and foraging settlement strategies, nevertheless, there are many east Thessalian examples of long-term Early Neolithic tells and the exchange of symbolically potent foods and artifacts may be insufficient to bridge the gap between different conceptions of the symbolism of place. In contrast to foraging groups, the earliest Thessalian farmers are characterised by a combination of economic intensification, accumulation of possessions and the increased significance of a place-based ideology. The same is true of southern Bulgaria and Yugoslav Macedonia, where the Karanovo I-II and Starcevo groups created tell living spaces from the early 6th millennium CAL BC onwards.

The Iron Gates gorge of the river Danube

The best evidence for Late Mesolithic occupations in the whole of south east Europe is derived from the Iron Gates gorge of Yugoslavia and Romania, a productive mixed forest environment set between limestone massifs and the carp- and sturgeon-rich waters of the Danube (Fig. 4). Here, a rescue archaeological project in the 1960s was launched to investigate sites before flooding by the rising river level. A sequence of Mesolithic occupations covering 6 millennia (11,000 - 5,000 CAL BC) culminates in the spectacular forager-fisher village of Lepenski Vir, where Europe's first monumental stone sculptures were found

set inside trapezoidal houses with solid floors (Srejovic, 1969). At other Djerdap sites, intensification of the herding of wild suids and the collection of wild cereals is attested at Icoana (Bolomey, 1973; Carciumaru, 1973), and there are strong claims for the local domestication of the wolf (Bokonyi, 1978). These local foraging practices indicate the potential for subsistence intensification of which foragers were plainly capable. However, apart from the Vlasac dogs, there is no evidence for domestication, *sensu* controlled breeding, in the Iron Gates gorge.

By the period of the first occupation of Lepenski Vir, farming practices were common as far north as eastern Serbia (e.g., the Starcevo site of Banja: McPherron & Srejovic, 1988) but foraging groups still lived north of the Danube. The first two phases at Lepenski Vir (I & II) were coeval with the spread of farming in what has been termed the First Temperate Neolithic (FTN) phenomenon in the central Balkans (viz. 6,000 - 5,200 CAL BC: Srejovic, 1969). The inhabitants of Lepenski Vir I & II relied on a broad-spectrum strategy of fishing carp, sturgeon, catfish and other Danube fish, mostly from the whirlpool in front of the site, the gathering of local plants including grasses, the hunting of forest animals and the procurement from outside the gorge of occasional joints of domestic beef (Bokonyi, 1969). A small number of Starcevo potsherds are known from levels I & II and a complex geometrical motif characteristic of FTN stamp seals was imitated in a portable sandstone sculpture (Srejovic, 1969: Plate 47). These findings complement the occurrence of flint and chert from outside the gorge, both at Lepenski Vir (Kozlowski & Kozlowski, 1983) and at other Iron Gates Mesolithic sites (Chapman, 1989). It was only in the latest phase of the FTN that the bones of domesticates were found on a significant scale at Lepenski Vir, in level III - an occupation without complex art or architecture but during which over 300,000 Starcevo sherds were discarded (Srejovic, 1969). The minimal areas available for cattle herding in the gorge indicate the likelihood that much of the meat was transported to Lepenski Vir through exchange with

farmers living outside the gorge (e.g., Gornea or Ostrovul Corbului). That the occupants of level III were incorporated into far-flung exchange networks is indicated by the presence of north Hungarian obsidian, large quantities of pre-Balkan yellow flint and a necklace made of paligorskite, the nearest sources for which are either the Urals or Anatolia (Nandris, 1968).

The implications of this evidence is that the complex foraging occupation at Lepenski Vir I & II was fully contemporary, and in exchange relations, with the farmers of the FTN and the foragers of the Middle Danube basin. That the inter-relations with farming groups may have been critical to the very manifestation of the Lepenski Vir I-II phenomenon cannot be excluded, in the sense that certain exchange exotica of significance for social reproduction were by definition obtainable only from farming groups. This notion is not to deny the reliability and stability of foraging resources in the Iron Gates gorge, merely to assert the predominance of Type III niches throughout the Djerdap region. For this reason, the expectation is that attempts by Djerdap foragers to initiate agriculture or pastoralism locally would be strictly circumscribed. The summary of subsistence evidence (Table 1) indicates that this expectation is fully met. A consistent predominance of wild resources is found throughout the 6th millennium CAL BC, with domesticates restricted to the hunting dog and imports of beef on most sites. Mixed farming practices at settlements on the margins of the gorge (e.g., Gornea) are based on the prevalence outside the gorge of Type I niches. One reading of the abandonment of all but a few cave sites in the gorge after 4800 CAL BC is that farming practice has increased both in productivity and reliability in comparison with foraging and with the earliest farming activities of the FTN (Chapman, 1981).

The significance of the Djerdap Mesolithic lies in the creation of a long-lasting place-based way of life whose social reproduction was far more successful than most shorter-term contemporary farming sites in Serbia. The Lepenski Vir foragers

acted on their environment in several dramatic ways - through the planning of a village layout, the construction of trapezoidal houses with permanent floors and the creation of monumental stone sculptures not yet paralleled outside the gorge. The theme of social power in the Iron Gates gorge is central to these reconstructions of forager - farmer interactions (Chapman, 1993). The classes of social power exploited by the foragers were twofold - ideological and economic. Four aspects of power resources can be identified in the context of Djerdap time and space: relations with ancestors, the landscape and its imagery, mating networks and associated exchange, and the ritual core of the belief system. The incorporation of the ancestors into the heart of the domestic arena led to different opportunities to control the presence of the ancestors, especially on occasions of the seasonal return to newly-flooded sites. While the entire Danube gorge epitomises a dramatic mountain landscape, discrete features such as whirlpools and mountain peaks were selected as key symbolic and economic foci embodying enduring place-value. The Djerdap mating networks formed the weak link in a chain of self-contained forager relations. The extension of the mating network to the lands outside the gorge led to the initial interactions with farming groups and set in motion the closer exchanges and kin alliances which eventually led to the downfall of the foraging economic and symbolic system. These three power resources were integrated into a final, key resource - the ritual core of the foraging network, which became deeper and stronger with increased time-depth on any particular site. Thus the occupants of Lepenski Vir were able to lay claim to the associations and symbolic referents of each previous occupation and strengthen their ties with the ancestors buried beneath far more convincingly than on shorter-term sites. They could also appropriate the ritual geometric order of the houses, complete with their hidden sculptural heritage, often built directly over ancestral homes. Partial sedentism provided novel social opportunities not only for food storage and exchange but also

for the creation of social practices which exploited the time-depth of a site and its stored memories - its biography and the resultant cultural heritage.

The Iron Gates Mesolithic is the best-documented example from S E Europe of long-term forager-farmer interaction. At first sight, it may appear paradoxical that, despite such close links, the foragers did not adopt available farming practices. There could, however, be several reasons for this millennial resistance. The biggest single factor is the wealth and diversity of the Djerdap foragers' cultural heritage, stretching back more than 500 years before the emergence of farming in the central Balkans and increasing in complexity through the evocative interplay of nature and culture until the end of the 6th millennium CAL BC. The ritual imagery of the woods and the river, in which the ancestors played a crucial part, itself provided a self-perpetuating cyclical rhythm linking past, present and future; what chance alien beliefs and customs from outside the gorge? The Lepenski Vir notion of the 'domus' was, after all, a largely indigenous creation, more developed than most coeval FTN houses. What was 'natural', viz., the traditional lifeways of hunting, fishing and gathering, must have been self-evidently preferable to domestication of resources which, if at all appealing to forager tastes, could in any case be acquired by exchange with farmers outside the gorge. Trial cultivation of einkorn, emmer and barley - still Asiatic cereals not yet fully adapted to the warm temperate climate - may not have been fruitful in the low-grade soils of the inner gorge. Likewise, procurement of domestic beef joints through exchange may have seemed easier than trying to tame large, fierce species such as the aurochs, for which there was, in any case, little good local pasture. It was the penetration of exchange items and food into the Iron Gates world that, gradually, through interstitial change, created new possibilities and potentials, new dependencies and interdependencies, leading not to the adoption of agriculture and pastoralism throughout the gorge but to the abandonment of the inner gorge after 4800 CAL BC.

The Pannonian Basin

North of the Danube-Sava line, the lowland region of the Banat and the Alföld plain presents a contrasting set of evidence for the adoption of early farming. Dominated by the Tisza, Koros and Maros rivers and their tributaries, this region was subject to frequent flooding until drainage works in the last three hundred years (Laszloffy, 1982). Bognar-Kutzian (1972) has estimated that sixty percent of the Plain was perennially or seasonally flooded, so that the range of niches suitable for cultivation was narrower than for fishing, fowling, gathering or herding.

Until recently, the evidence for Mesolithic occupations in the Banat and the Alföld plain was scanty in the extreme. For many years, the single dated Late Mesolithic site in Hungary was Szodliget, where a short-term occupation on a Danube sandy island near Budapest was dated to the 7th millennium CAL BC (Dobosi, 1972). Similar geometric microliths have been found in the Alföld plain at Hügyaj-Erpatak and in the middle Tisza valley at Toszeg-Aldozohalom (Dobosi, 1972). From 1990, a cluster of what now comprises almost 100 Late Mesolithic sites was found on the northern edge of the Alföld in the Jaszág (Kertész et al., in press). Most of the Mesolithic sites are located on the banks of Boreal-age stream meanders. Two sites have been excavated. The single occupation level at Jaszbereny 1 has yielded two dates spanning the 7th millennium CAL BC, which are both associated with a temperate forest fauna and a geometric microlithic assemblage made from Matra raw materials and a little obsidian. The other site, Jasztelek 1, is as yet undated but has similar lithics. The locations of the Jaszág Mesolithic settlements closely resemble those of the Koros culture further to the SE.

The settlement structure of the Koros and Starcevo groups was defined by presumably short-term sites on low terraces above old water courses; these short-term sites could reach an aggregate length of up to 800m (e.g., Devavanya-Katonaföldék: Ecsedy, 1972). Total excavation of a satellite

Koros culture site (Endrod 119: Makkay 1992; Bokonyi 1992) indicated two houses each occupied over some 50 years, with nine intramural burials. Although few Koros houses have been identified until recently, the domestic arena of social power is dominant in these settlements.

A broad-spectrum economy with hunting, fishing and fowling as important as cereal cultivation or stockrearing suggests that the Koros culture may be rooted in local forager lifeways. A characteristic form of remains was the thick layer of freshwater molluscs found in Koros or Starcevo pits, the equivalent of a buried shell midden. Koros and Starcevo sites were also rich in fishbones and the remains of wildfowl. Froth-flotation of settlement deposits from the site of Endrod 6 produced a total of 7 species of fish, mostly those preferring slow-moving bodies of water. The wildfowl in these sites was predominantly migratory, caught at random and in small numbers. In all of the faunal assemblages known from the Banat and the Alfold plain, significantly higher frequencies of wild animals were discovered than for Starcevo sites south of the Danube-Sava line (Table 2). Domesticated resources were introduced into all of these broad-spectrum sites, with a preference for caprines, einkorn and emmer wheat (Hartyanyi & Novaki, 1971; Kosse, 1979). The occurrence of wild einkorn at the eponymous site of Starcevo (Renfrew, 1973) should not be overlooked. The variety of subsistence strategies attested in the Plain reflects the broad range of niche types expected in a region with some areas of high arable potential. The exchange of pottery, small quantities of copper (Chapman & Tylecote, 1983) and polished stone and flaked stone lithic raw materials onto the Plain from surrounding upland areas (Biro, 1988; Chapman, in press a) indicates the existence of social networks established in the earliest farming period between foragers and farmers, and between different farming groups.

The social space of the Starcevo and Koros groups in the Plain was quite different from the tell-dominated landscapes of Thessaly, Macedonia and

south Bulgaria. In the Tisza valley, relations with ancestors were defined by residence in a single cluster of settlements rather than a single place of occupation, such as a tell (Fig. 5). The number of Koros components in a site cluster ranged from 1 to 18, with a mean of 4.5 (data from Bekes II survey: Jankovitch et al 1989), many of which may represent successive rather than coeval occupations. One possible reason for settlement relocation rather than occupational superimposition concerns the relationship between the living, the newly-dead and the ancestors (Chapman, in press b). The burials of humans inside houses at two Koros sites - Szajol-Felsőfoldek and Szolnok-Szanda-Tenyosziget (Raczky, 1982-83) - may be interpreted as the deliberate killing of houses by fire in the same act as the final burial of the deceased. The notion that death is so absolutely polluting that all associations with the newly-dead must be destroyed before the re-emergence of the community may well be the cause of short-distance relocation of Koros sites. In the cases of other, intramural Koros burials (Chapman, 1983), the absence of a rite involving house burning may indicate status differentiation between the newly-dead.

The wealth of North Starcevo and Koros assemblages has been noted before, in terms of both non-ceramic and ceramic artifacts (Kutzian 1944; Nandris 1972; Trogmayer 1968). The disposal of often complete and undamaged net-sinkers, bone spoons and spatulae, stone axes and chisels, rod-head figurines, etc., in Koros pits along with broken pots and food remains may also have marked a rite of passage, the abandonment of one locale for another. The most remarkable example of such deliberate deposits is Pit 1 at Roszke-Ludvar, where some 33,000 sherds were discarded, with more sherds than earth in much of the pit-fill (Trogmayer 1968). The thick shell layers in Koros pits may, on analogy, represent the remains of feasting rather than everyday shell consumption. While every Koros pit assemblage is not to be viewed as a "potlatch", the likelihood of deliberate smashing of pots and deposition of other artifacts together with the remains of feasting cannot be excluded as a regular

part of the North Starcevo - Koros cyclical calendar (compare the pots discarded in Lepenski Vir III).

Despite the new evidence for the Mesolithic of eastern Hungary on the northern margins of the Koros group, forager-farmer interactions in the Pannonian Basin have not yet been conclusively demonstrated. A forager presence in the South Alfold plain is still poorly attested. The evidence points rather to a succession of foraging in the 7th millennium CAL BC and the earliest evidence of farming in the succeeding millennium. It is too early to claim this spatial and temporal succession as evidence for the gradual impact of farming lifeways on as yet scarcely visible local foragers. Yet while it is possible to argue that the north Starcevo and Koros groups were migrant farmers who learnt the value of the rich local foraging resources from indigenous groups, the alternative that these sites were occupied by the acculturated foragers themselves seems just as plausible. The linear patterns of Koros community space were just as closely related to forager patterns, such as those in the Jaszag, as to those of the Starcevo farmers in Serbia. One of the main differences between the foragers of the Jaszag and the farmers of the Koros was the heightened manufacture and regular deliberate destruction of material items in large pits by the latter. This type of context of preservation, together with its contents, is a sign of intensification of production, the accumulation of possessions and novel ritual practices amongst the Koros group, all of which would have provoked major ideological and economic contradictions amongst Jaszag-type foragers.

In the final example, an understanding of the spread of farming along the East Adriatic seaboard is severely hindered by loss of Late Mesolithic and Early Neolithic sites due to coastal flooding and by the masking of such sites by post-Neolithic sedimentation. In the case of north Dalmatia, Shiel has calculated that over 50% of the coastal plains lost to the sea by 5000 CAL BC would have been Type I niches (Chapman & Shiel 1993, p. 71).

Despite discovery of some Early Neolithic occupation horizons buried by 1.5 m of eroded sediments, it must be noted that in Type I niches where surface Early Neolithic sites have survived, no foraging site has yet been discovered.

The surviving foraging and farming sites can now be more accurately dated with the aid of a series of recently measured 14-C dates (Fig. 6 and Table 3) (Chapman & Muller, 1990). The Mesolithic shell-midden of Sidari is a good example of a site where foragers accept novel resources exchanged by Adriatic fishers, in this case domestic caprines and pottery (Sordinas, 1969). The mid-6th millennium CAL BC date for the first ceramic horizon at Sidari precedes any of the dates for ceramics in coastal Dalmatia.

One of the most striking features of the Dalmatian settlement pattern is the dichotomy between the location of (1) sites with evidence of both forager occupations and levels with domestic resources and/or pottery, and (2) sites with evidence of domestic resources and/or pottery but no evidence for any earlier forager occupation. The former occur solely in regions characterised by Type III niches (viz., Crvena Stijena and Odmu, Crna Gora; Vela Jama and Jama na Sredi, Cres and Losinj; Vaganacka pecina, on the Velebit Mountains). By contrast, the latter occur in fertile Type I niches in the Ravni Kotari (e.g., Smilcic, Pokrivenik or Tinj). The occurrence of a Late Mesolithic occupation in the Southern Velebit area suggests the use of the Ravni Kotari for winter occupations, probably dating to the 7th or 6th millennia CAL BC, on sites now presumably flooded or buried under eroded karstic sediment. This type of linkage between upland and lowland is likely to be frequent in the transition period to farming in Mediterranean coastal areas.

The series of new 14-C dates leads to the conclusion that there is some support for the idea of a directional diffusion of domestic resources, from SE to NW up the Adriatic. The Ceramic Mesolithic hypothesis advanced by Ruth Whitehouse (quoted in Trump, 1980) cannot, however,

be tested since none of the cave sites to which ceramics and domestic caprines were supposed to have been diffused earlier than other domestics have been excavated with sufficient precision. However, Muller's territorial analysis of Impressed Ware sites indicated significant differences in the site potentials of caves and open sites (Muller, 1990). The radiocarbon dates for the earliest cave occupations with ceramics and domesticates (e.g., Gudnja) are no earlier than for the earliest open villages with such resources (e.g., Pokrovnik) - an indication of local diversity in the earliest period when domestic resources were utilised. The notion of a period of overlap between the adoption of farming and the abandonment of foraging is not supported in any of the lowland regions of Dalmatia but is plausible for half a millennium in inland Crna Gora (e.g., Odmut) and the Istrian karstlands (e.g., Podosojna).

Thus in Dalmatia, there is some indirect evidence that foraging networks both along the coast and inland were in existence before the spread of farming but the sites on which the earliest domesticates are found are rarely the same sites as those with foraging occupations. A good example is the farming village of Tinj, where domestic caprines and a range of five cereals (including three species of wheat) dominated the subsistence remains, which also included coastal molluscs and some wild herbivores (Chapman & Shiel, 1993; Chapman et al., 1990). The wide range of site territories utilised soon after the appearance of domesticates and pottery is an indication of the different responses to these novel resources in Adriatic exchange networks.

The main contrast in the use of social space in the early farming period is the contrast between the continued use of cave sites and the creation of an independent kind of cultural space through the formation of villages and hamlets. The long-term use of caves by foragers (e.g., Odmut) and by herders (e.g., Gudnja) indicates that a shift to a place-centered world view had already occurred by the 6th millennium CAL BC. A major component of Late Mesolithic cave sites such as Grotta

Azzurra or Kopacina pecina on Brac was the deposition of thick layers of marine molluscs, comparable to the shell layers in Koros pits. Once again, feasting activities may be postulated in connection with seasonal cycles of re-occupation. It was only with the onset of farming in Type I niches that social groups began to act on the environment to produce stone-walled houses in hamlets and small villages (e.g., Pokrovnik: Brusic, 1980).

The pattern of forager-farmer interactions in Dalmatia may be viewed as the replacement of foraging by farming practices in Type I lowland niches and the partial adoption of farming by broad-spectrum foragers in Type II or III marginal and/or upland niches. The significance of seafaring, attested by trans-Adriatic exchange networks between the earliest farmers (Muller, 1988) suggests that farming innovations may have spread with boat people, fishers as much as farmers, in the context of seasonal exchange networks and the following of Adriatic fishing shoals. In this region, accumulation of possessions and economic intensification appear to be integral to the impact of mixed farming on local foragers, many of whom had already developed a place-based world-view through long-term attachments to hunting caves.

DISCUSSION AND CONCLUSIONS

The interpretation of the evidence for the appearance of farming in South East Europe offered above represents a preliminary and partial investigation of a new model for agricultural origins. Given the rejection of the Ammerman and Cavalli-Sforza demic diffusion hypothesis and the migrationist component of Zvelebil's Availability Model (viz. the part concerning S E Europe), I attempt to model what would happen in the case of the spread of farming without any incursions of farmers save for an initial kick-start to the model through forager-farmer exchange networks in the Aegean basin.

There are two main differences between this model and other explanations

for the spread of agriculture. First, the "farmers" who transmit the ideas and/or the resources germane to farming onwards across Europe were themselves foragers or descended recently from foragers, if they are not carrying on the traditions of foraging even whilst farming part-time. Secondly, strong reliance is placed on the existence of Late Mesolithic breeding networks whose presence is taken to be attested minimally by a single long-term Mesolithic settlement in a given region. The simulation studies on which the breeding network theory is based predict sizeable networks in regions of low population density if the long-term viability of the group is assured. The existence of long forager cave occupations in S E Europe is a sign, *mutatis mutandis*, of successful breeding networks.

The development of long-term site occupations among foragers in some parts of SE Europe indicates an independent creation of a place-based world view which is so characteristic of farming societies. Thus the social pre-conditions for the extension of the taming of the landscape existed in regions such as the Argolid and the Iron Gates gorge. In the southern Argolid, the Franchthi sequence supports the idea of the uptake of farming in several stages over 500 years. By contrast, the foraging ideology of the Djerdap Mesolithic was so strongly developed that farming was resisted for over a millennium inside the gorge. Insofar as the Iron Gates evidence for foragers acting on the landscape gave them a stronger basis for the development of social power than at Franchthi, the commitment to a foraging ideology was stronger in the Danube gorges. Another key factor was the absence of Type I niches in the Djerdap, a marked contrast to the higher mixed farming potential of parts of the Franchthi landscape. Similarly, the absence of Type I niches in the karstic uplands of Dalmatia restricted selection of mixed farming options to an emphasis on pastoralism at herding caves such as Odmuť.

In regions with Type I niches where Late Mesolithic settlement is suspected but not yet documented, two settlement

patterns can be distinguished: tell settlements are created in Type I niches in Thessaly, while open, flat sites are established in or near Type I niches in Dalmatia and the Alföld plain. The evidence for the biggest discontinuities in the introduction of new farming resources into SE Europe occurs in exactly those areas where the form of place-based settlement patterns diverges most strongly from the previous forager pattern. Thus, in Thessaly, the introduction of tells coincides with the adoption of domestic cereals and stock with minimal use of wild resources. Despite recent geomorphological evidence for the masking of Late Mesolithic land surfaces, it is in the regions of tell settlement that the null hypothesis of farmer-forager exchange networks lays down the challenge of new field evidence for support. In regions where tells became the new form of settlement space, the strategy of maintaining relations with the ancestors by living where they lived is such a major contrast to the world view of the local foragers that social and/or physical continuity between foragers and farmers seems unlikely.

By contrast, the form and location of small-scale, flat Koros sites resemble more closely those of Late Mesolithic foragers than the established mixed farming villages south of the Danube-Sava line. Here, the null hypothesis cannot be disconfirmed but neither does it receive sufficient support. The same is true for Dalmatia.

An important aspect of farming is its potential for creating the economic conditions for long-term, stable settlement in a far wider range of landscapes than was possible with foraging. Each of the regions discussed above provides confirmation of the potential realized in his fundamental behavioural transformation. But the origins of farming in SE Europe must be viewed as more than an interlinked set of subsistence shifts related to the physical environment. The domestication of the landscape led to an increasing commitment to domestic arenas of social power forming the cultural foci of the farming groups. The domestic plants and animals provided the

productive capacities for economic intensification as well as increased commitment to a place-centered world view. It is only with the combination of both cultural and economic aspects of the process of domestication that a more accurate picture can be drawn of the origins of farming in SE Europe.

The farmer-forager exchange model for the origins of European agriculture and pastoralism opens up new perspectives on cultural change and social interaction. The model raises serious doubts about the validity of a diffusionist account of the spread of both social and economic domestication from the Near East and Anatolia, while requiring more confirmatory data to be regarded as the optimal model. It suggests new lines of approach, especially in the exploitation of geomorphological "windows of opportunity" for penetration the hidden landscapes of the Late Mesolithic. In this sense, never was it more truly claimed that our understanding of the origins of European farming lie buried in the past.

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BIOGRAPHICAL SKETCH

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Europe: a hunter-gatherer perspective,
In: *Norwegian Archaeological Review*
17/2: 104-128.



- Known Mesolithic site
- ▨ Ecological zone with high potential for Mesolithic settlement

Fig. 1 : Location map of the study regions, with Mesolithic settlements and ecological zones of high potential for Mesolithic settlement: 1 - southern Argolid; 2 - Thessaly; 3 - the Iron Gates gorge of the river Danube; 4 - the Alfold plain; 5 - the East Adriatic region (adapted from Chapman 1989: Fig. 3).

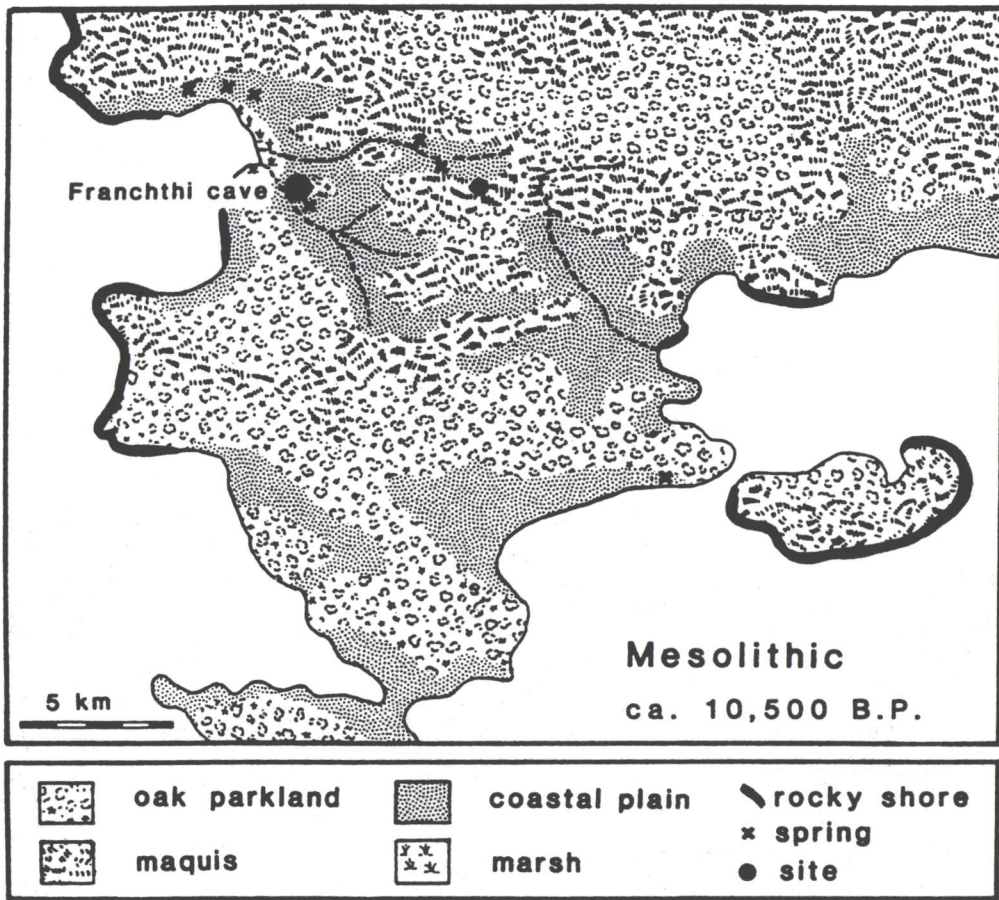
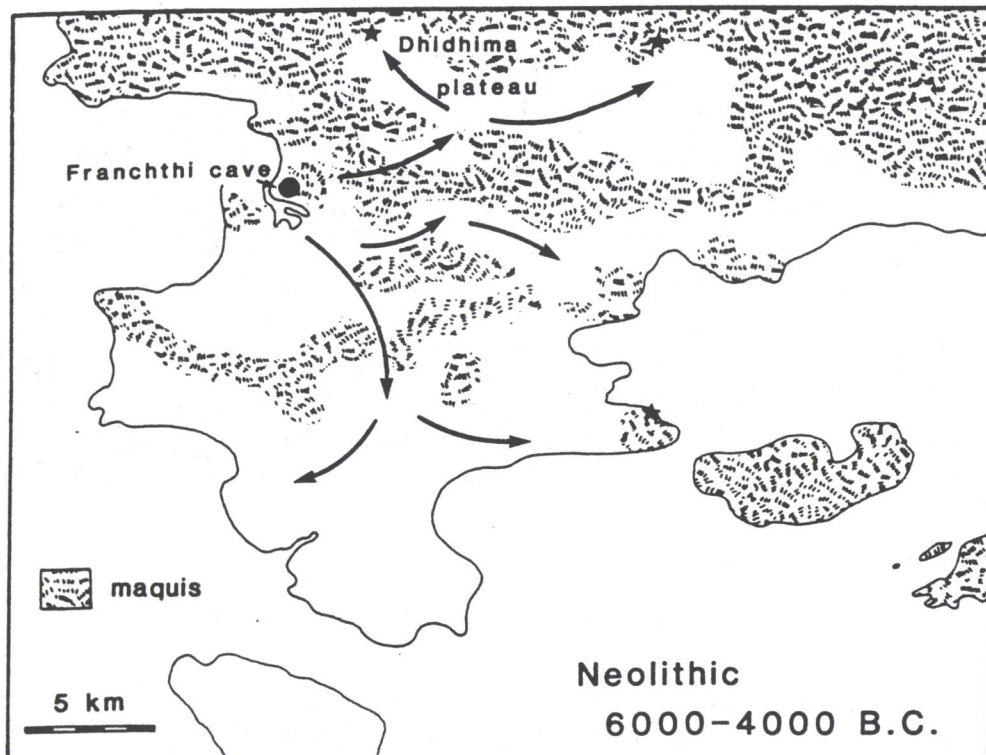
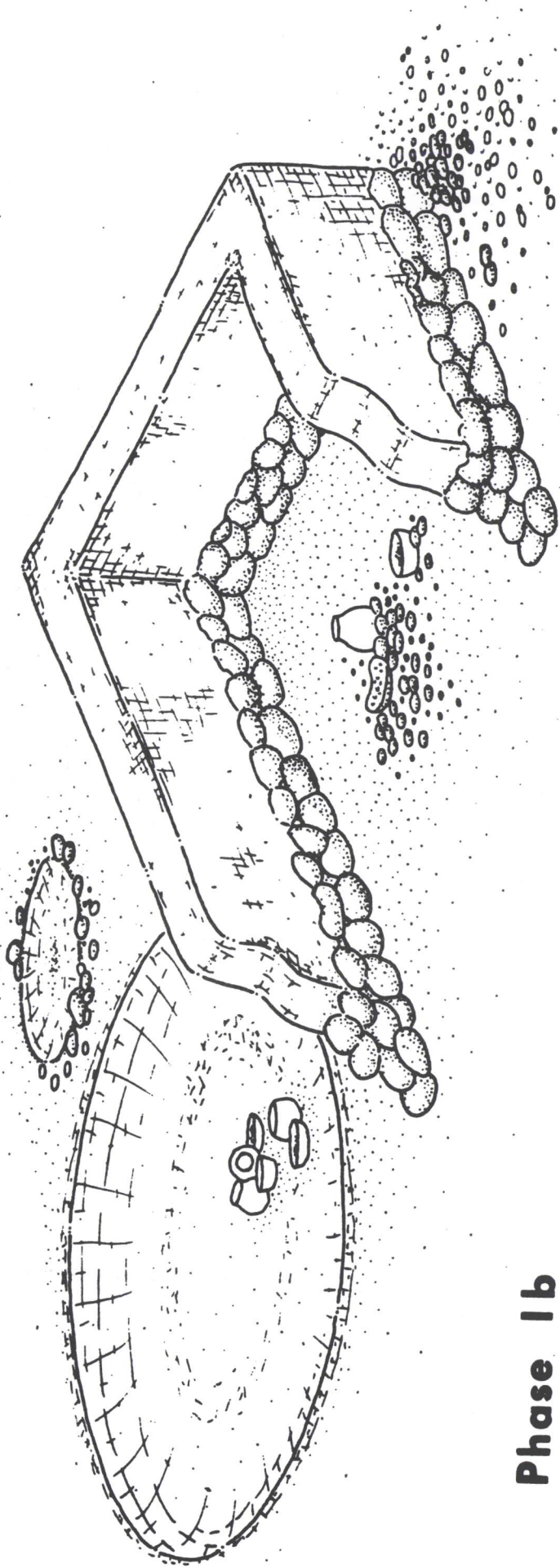


Fig. 2 : Reconstructed environment of the southern Argolid in the Mesolithic (a) and the Neolithic (b) (source - van Andel & Runnels, 1988: Maps 8 & 13).





Phase 1b

Fig. 3 : Tell architecture from the Early Neolithic level IB (Late), Achilleion (source - Gimbutas et al., 1989: Fig. 4.5).

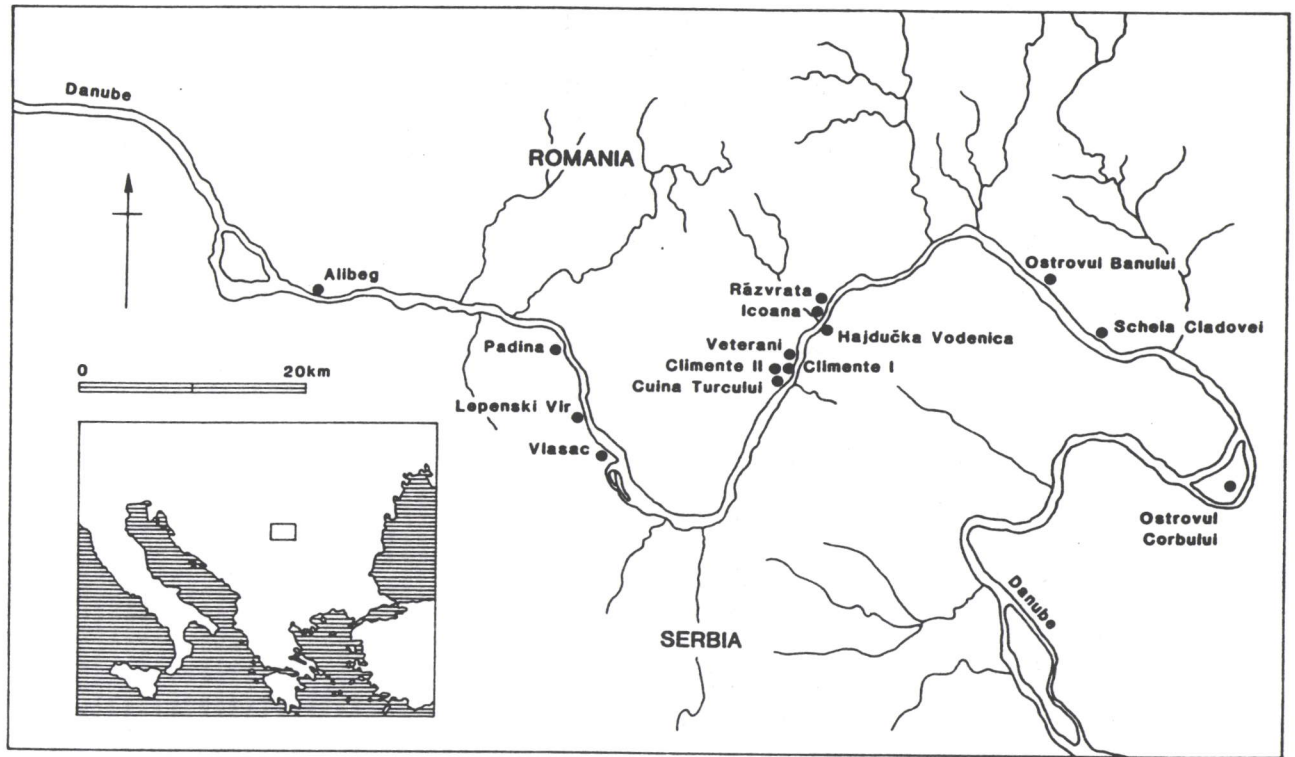


Fig. 4 : Location map of Late Mesolithic sites in the Iron Gates gorge of the river Danube (source - Chapman, 1993: Fig. 2).

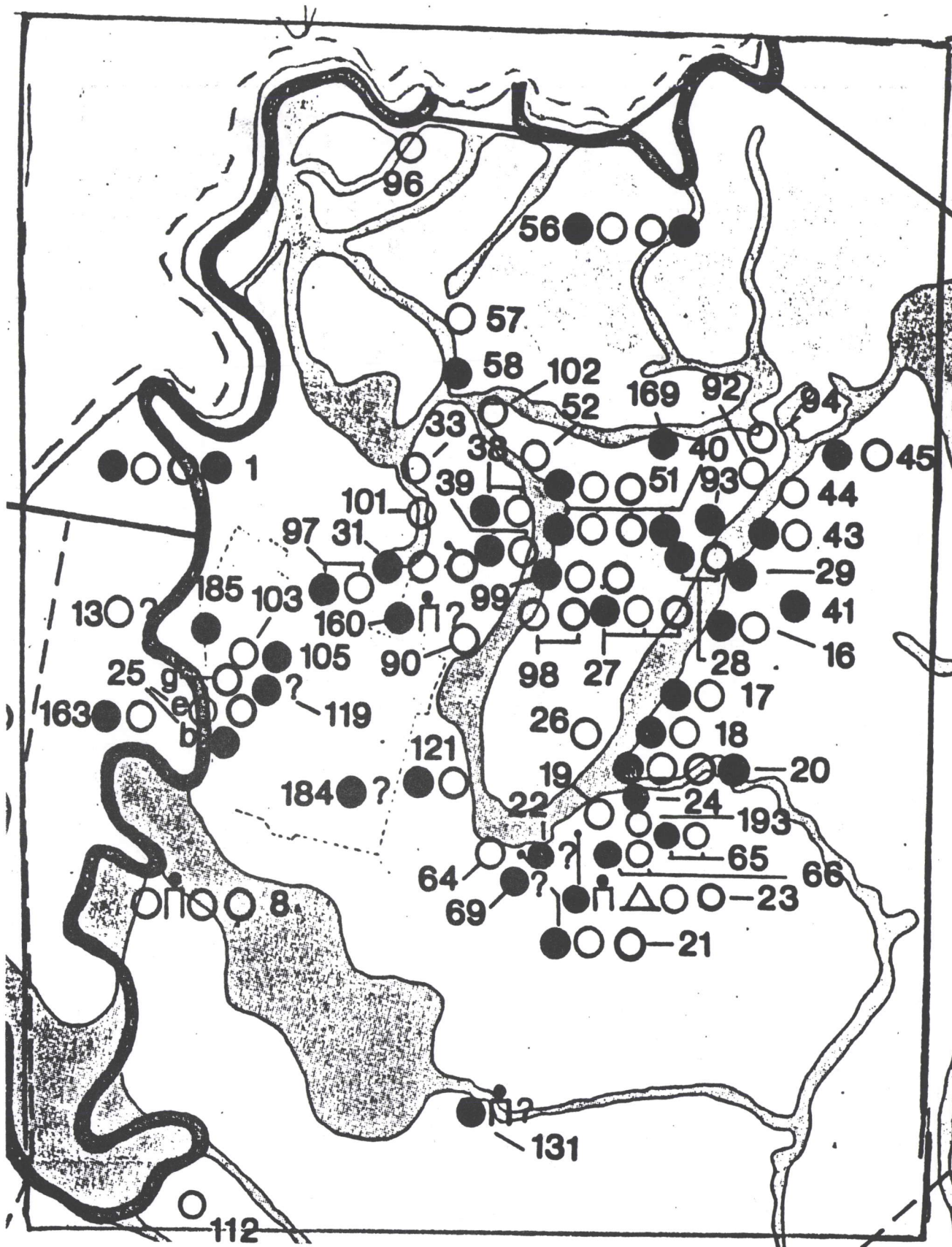


Fig. 5 : Clusters of Koros sites in the Szarvas region of Ko. Bekes, eastern Hungary (adapted from Jankovitch et al., 1989: end map 1).

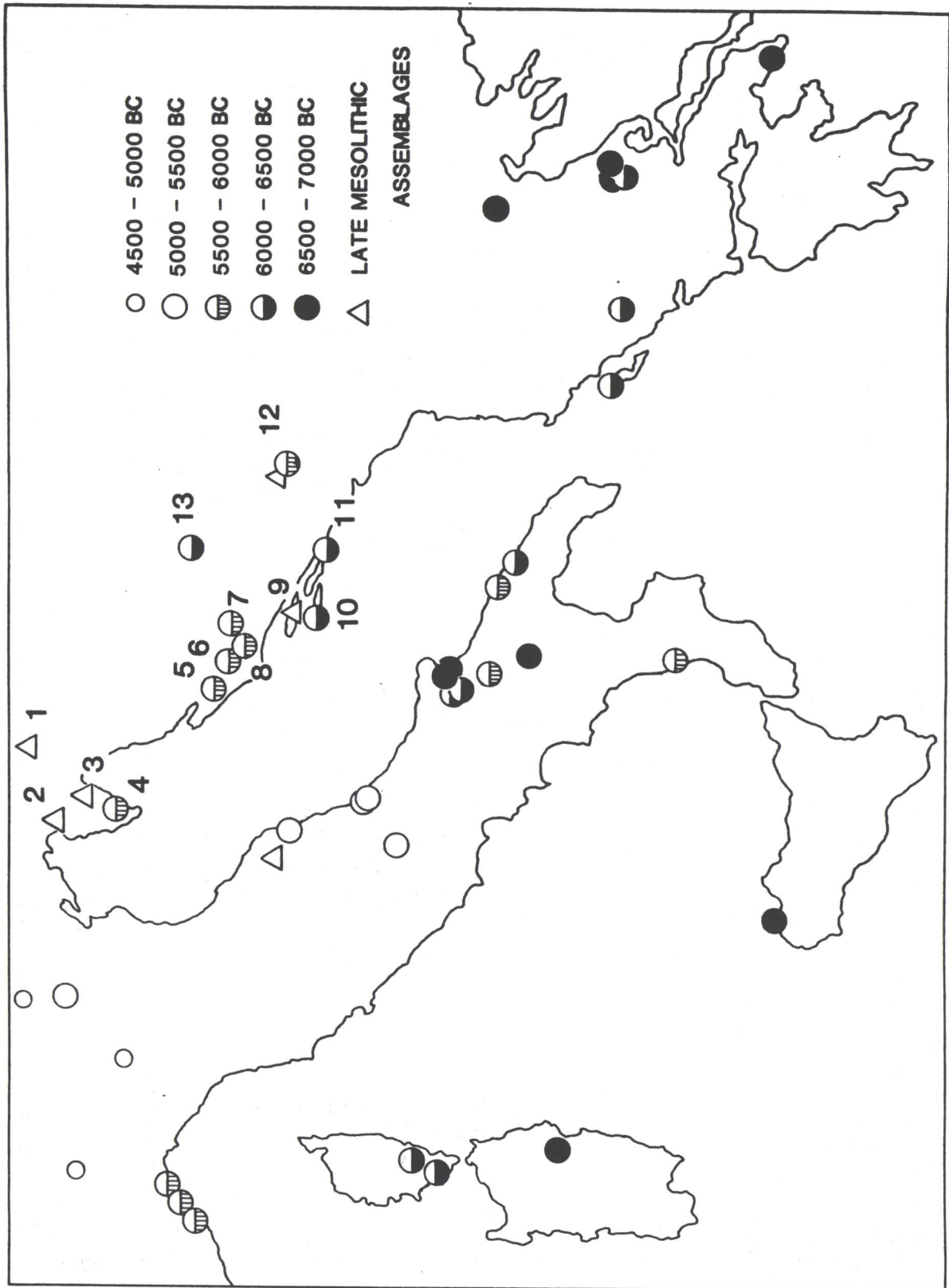


Fig. 6 : Dated Late Mesolithic and Early Neolithic sites in the east Adriatic region (source - Chapman & Muller, 1990: Fig. 1).