

The First Farmers: From the Fertile Crescent to the Danube Valley: 7500–5000 BC

By 7000 BC Europe was peopled by communities whose basic subsistence depended solely upon collecting food. Those inhabiting the forests of Europe were mobile hunter-gatherers following their food sources as the seasons determined: others living in the lush and more varied environments of the major river valleys, the estuaries and around the coasts were foragers with a more sedentary lifestyle. By 4000 BC all this had changed. In all but the most northern and eastern reaches of Europe communities had become food producers, cultivating crops of grain and herding domesticated animals – activities that called for a far more sedentary mode of existence based on village settlements occupied over many generations. It was a dramatic transformation. Mesolithic hunter-gatherers were replaced by Neolithic food producers and with the new regime came the ‘Neolithic package’ – ground stone tools, pottery and rectangular timber buildings, together with domesticated sheep, goats, cattle and pigs, and cultivated cereals.

Archaeologists in the mid-twentieth century referred to the transformation as the ‘Neolithic revolution’ and interpreted the phenomenon in Europe in terms of waves of people – pioneer agriculturalists from Anatolia or the Near East – thrusting through the subcontinent, carrying the benefits of food production to all regions as the indigenous hunter-gatherers withered away or were absorbed. This model argued for a substantial replacement of population and some saw it as the occasion when the Indo-European language was introduced into Europe. Other archaeologists took a more cautious line, even going so far as to argue that the ‘Neolithic package’ was adopted by the indigenous Mesolithic population without significant inward movement of new people. As more evidence accumulates, from excavation and from genetic studies, a far more nuanced picture is beginning to emerge. While the debate continues, most commentators now accept that the situation was so complex that in reality both processes are likely to have been involved, though in different degrees, in most parts of Europe.

The genetic make-up of modern European populations has been used to try to model population flows in prehistory. Interpretation of these data is by no means easy but the present consensus is that while mitochondrial DNA,

inherited through the female line, shows that the inflow of females from the east amounted to no more than 20 per cent of the population, Y-chromosome DNA, inherited through the male line, presents a more complex picture. In Greece and south-east Europe up to 85 per cent of the male population bear genetic markers indicating an origin further east. The percentage falls rapidly to 15-30 per cent in France, Germany and north-eastern Spain. These results could be seen to support the argument that the Neolithic way of life was introduced into Greece by a predominantly male-led immigration bringing some females with it but also taking wives from the indigenous population. The interpretation is consistent with the archaeological evidence but many uncertainties remain. A far more powerful tool is the study of ancient DNA. This is still in its infancy, but early results from Neolithic burials in Germany dating to the sixth millennium suggest that the Neolithic population there was largely descended from indigenous hunter-gatherers.

The Neolithic economy in the Old World was predicated on the domestication of sheep, goats, cattle and pigs and the cultivation of wheat and barley. While cattle and pigs existed in the wild in Europe, the other domesticates and cultivates did not. Their natural habitat was the Near East (the region from Turkey to Iraq) and it was there that the wild forms were transformed through human manipulation, later to be introduced into Europe. Since much of Europe was on the same latitude as the Near Eastern zone of origin and offered much the same range of climatic conditions, the introduction was biologically unproblematic.

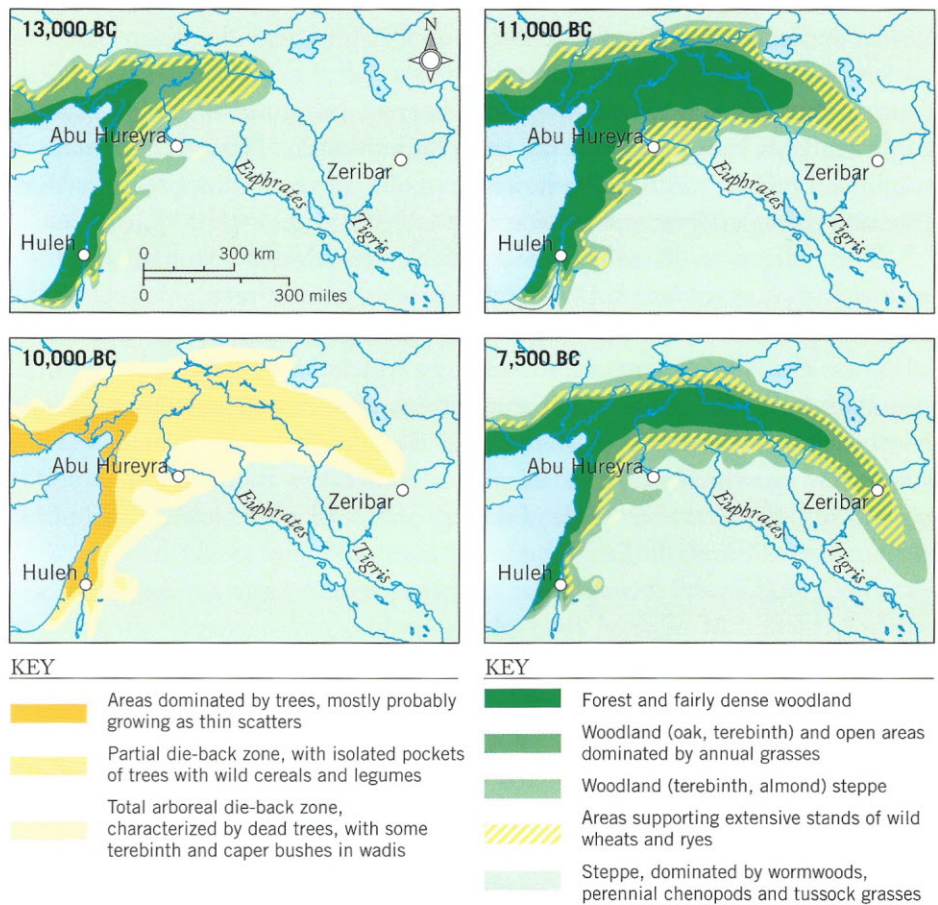
The indigenous Mesolithic populations were already manipulating their animal and plant resources. Dogs had long been domesticated, as their careful burial at cemeteries like those at Skateholm amply demonstrates. Domestication was not difficult since the wolves from which dogs were descended could be induced over generations to accept humans as pack leaders. Omnivores and herbivores were less easy to control but foragers deliberately improved the vegetation on which they fed, burning woodland to encourage new young growth in order to attract herds of deer to particular places and so facilitating their capture. Similarly limited control over wild pigs could be gained by providing food, in the form of offal and other animal waste, at fixed locations. The production of selected food plants could also have been enhanced by clearing away competing vegetation. Hazel, an early recolonizer, could be given a head start by burning tracts of woodland. Hazelnuts, a highly nutritious food source well attested in the archaeological record, are likely to have provided a major food reserve. By 7000 BC, therefore, the Mesolithic communities of Europe were already manipulating animals and plants in the interests of productivity. Thus, the introduction of new domesticates and cultivates will not have been an entirely alien concept.

Beginnings: In the Hilly Flanks

The cultivation of cereals and the domestication of animals began in south-west Asia within a broad arc of territory stretching from the southern Levant to southern Turkey and eastwards from there to the foothills of the Taurus and beyond to the Zagros Mountains of Iraq. This zone, which fringes the Fertile Crescent where the civilizations of Egypt and Mesopotamia were later to flourish, is known as the hilly flanks of the Fertile Crescent. It was here that the wild ancestors of the domesticated animals and cultivated cereals were to be found in their natural habitats.

The end of the Last Glacial Maximum around 18,000 BC marks the transition from the Upper Palaeolithic to what in south-west Asia is referred to as the Epipalaeolithic – a period that continues to around 9600 BC. The Epipalaeolithic is itself divided into an Early and a Late phase, with the transition coming about 12,000 BC. It was during the Epipalaeolithic that a

4.1 The maps cover the crucial zone of the Near East where the cultivation of grain crops and the domestication of animals began showing the changing environment from the end of the Last Glacial Maximum c.13,000 BC to the beginning of the Early Holocene c.7500 BC.



number of crucial changes occurred that paved the way for the emergence of settled food-producing economies.

The climate had been gradually improving after 18,000 BC. By about 12,000 BC dense forest covered much of the western part of the hilly flanks region, giving way, around its borders, to more open areas where extensive stands of wild wheats and ryes could flourish. Then came the sudden downturn in temperature – the Younger Dryas – which lasted from about 10,800 to 9600 BC. In the Near East this was a period of far drier, cooler weather. Tree cover thinned out and over much of the region many trees died, leaving isolated pockets of trees with areas of wild cereals and legumes spreading between them. After 9600 the climate quickly recovered: the forest spread out once more, with the zone of light woodland and wild cereals extending now into the Zagros Mountains.

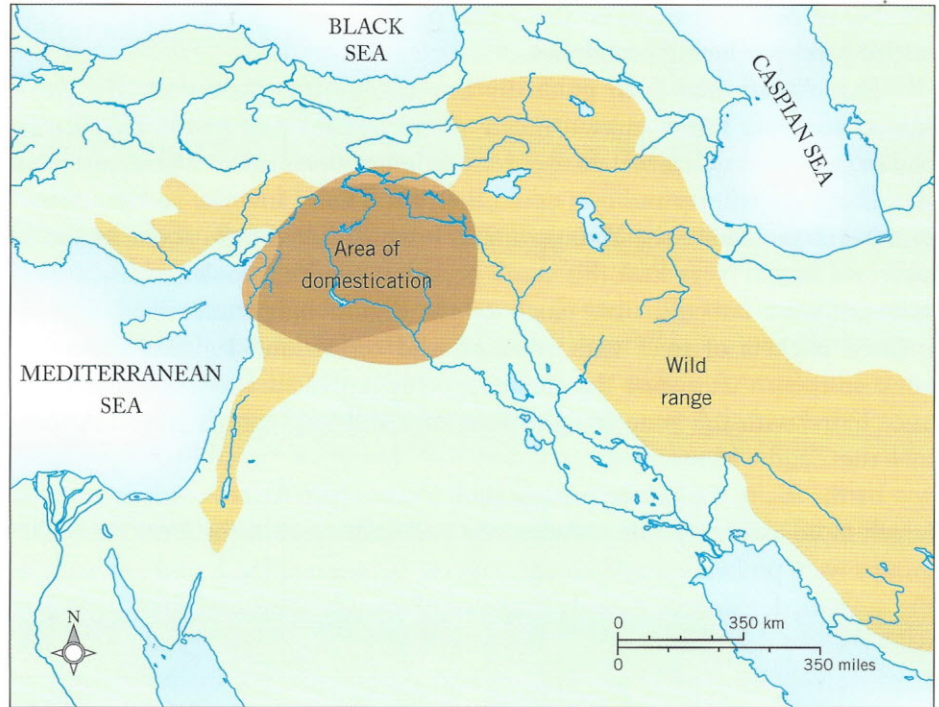
In the Early Epipalaeolithic period (18,000–12,000 BC) a move towards larger, more sedentary communities was well under way in the Near East. The groups were probably transhumant, moving between uplands and lowlands as the seasons demanded. A wide range of plants was now exploited including wild emmer wheat and barley, legumes and acorns, while small game was hunted, with gazelle, fallow deer and hare dominating the catch. In order to maintain the larger community, food was now carefully stored – a strategy that required forward-planning and a high degree of communal consent which further implies some kind of coercive authority.

Settled communities and a more complex form of social organization developed further during the Late Epipalaeolithic (12,000–9600 BC), most spectacularly in the Levant where the contemporary culture is called Natufian. Permanent settlements for all-year-round occupation were now fairly widespread and extensive exchange networks were operating, bringing obsidian from central Turkey to make flaked tools, black basalt for mortars to grind seeds and seashells from the Mediterranean for personal decoration. Further east, in the Zagros Mountains, villages of stone-built huts developed, supported by an economy based on collecting hard seeds from wild cereals and pulses and exploiting wild sheep.

By 9600 BC, then, in spite of the stress caused by the climatic downturn of the Younger Dryas, the hilly flanks were occupied by communities who had established a high degree of sedentism and were now exploiting a variety of natural resources including the wild versions of those that were soon to become domesticated and cultivated staples.

The crucial step into full food production took place in the Aceramic Neolithic period (9600–6900 BC), which may be divided into an Early and a Late phase around the date 8800 BC. During this period the gathering of wild cereals intensified, the methods of cultivation and harvesting creating

4.2 The area where the domestication of sheep first took place.



conditions of selection that favoured genetic modifications leading to the creation of domesticated species. By the Late Aceramic Neolithic fully domesticated cereals are found throughout the hilly flanks zone. Einkorn and chickpea occurred mainly in the north, with barley predominating in the Levant. In parallel with this, selected animal species, once intensively hunted, were now domesticated. Indigenous sheep and goat are found throughout the hilly flanks region, with domesticated pig and cattle appearing in more localized areas.

What triggered the change to a fully domesticated mode of subsistence is a matter of debate. The transition coincided with the improvement of climate following the Younger Dryas and is associated with a significant increase in population. One scenario would be to argue that with the ameliorating climate, allowing a return to a more sedentary existence in larger communities, birth rates increased and population began to rise sharply. The move to food production could then be seen as a result of the pressure to raise the holding capacity of the environment by intensifying food yield. This has a neat logic about it. But there are other possibilities. Perhaps the move to domestication was the result of processes already well established in the Early Epipalaeolithic period and the more assured food supply, encouraging larger clusters of people to settle together, provided the spur to the population explosion. These are the



two extreme explanations – in reality it was probably the combination of the two that created the new dynamics.

The most striking characteristic of the Aceramic Neolithic period is the dramatic growth of elaborate settlements, some of considerable size. At Jericho, in the Levant, the early settlement, *c.*8000 BC, reached an extent of 2.5 ha (6 acres) and was enclosed with a wall of stones set in mud, fronted by a rock-cut ditch. At one point a circular tower had been built against the inside of the wall. Even more impressive was the settlement of Çatalhöyük in central Turkey which extended over an area of 13 ha (32 acres) and comprised a large number of closely packed rectangular houses. Many villages are also known scattered throughout the region, displaying differing degrees of sophistication in their architecture. The appearance of ritual buildings and religious art in the form of figurines and wall paintings is evidence of a fast-growing social complexity. By the Late Aceramic Neolithic the exchange networks, which had begun to emerge in the Natufian period, bound the whole of the hilly flanks zone in a web of interactions through which spread not only items such as obsidian and seashells, but also ideas and beliefs.

But it was not to last: the few hundred years from *c.*6900 to 6000 BC saw changes caused, or at least exacerbated, by environmental degeneration brought on by overexploitation. The constant tilling of land for cultivation led

4.3 In the Early Aceramic Neolithic period the oasis settlement of Jericho was surrounded by a defensive wall. Attached to the inside of the wall was a tower built of stone set in mud, seen here at the bottom of a deep archaeological excavation cut through the tell. The tower represents a major investment by the community in monumental architecture.

to a loss of fertility and erosion, while the cutting down of trees to provide timber and fuel, combined with the intensive herding of goats, further escalated the scale of the environmental disaster. Thus, demands created by the rapid growth of population destabilized the fragile ecosystem to the point where large sedentary communities could no longer be sustained. In some areas like the Levant and northern Jordan large settlements came to an end and communities dispersed into smaller villages, some relying now more on nomadic pastoralism than cultivation. Similarly, in central Turkey, Çatalhöyük was abandoned about 6200 BC and thereafter only small scattered sites are found. Groups of farmers were now moving out to new ecological niches that could sustain their agricultural systems. In Iraq as the settlements in the Taurus Mountains were abandoned, so new settlements appeared further south on the plains between the Euphrates and the Tigris. Further east, in south-west Iran, new villages sprang up at this time along the eastern edge of the alluvial plain, while in Syria there seems to have been a similar migration from the hills around the Upper Euphrates westwards towards the Mediterranean coast.

The seventh millennium, then, was a time of change in south-west Asia – a time when farming communities were on the move, seeking new lands to provide sustenance and space for their rapidly growing populations.

Taking to the Sea

Around 7000 BC a Neolithic economy was established on the island of Crete. Five hundred years later the plain of Thessaly, on the Greek mainland, was fast being colonized by farming communities. While the evidence from these settlements is clear enough, the processes by which these dramatic changes took place remain obscure. What is beyond doubt, however, is that voyages by sea must have played a significant part.

We have already seen that, as early as 10,000 BC, the inhabitants of the Franchthi cave, on the Argolid, had access to obsidian from the island of Melos and tuna fish, probably caught off the east coast of northern Greece. Evidently a maritime capability existed by this early date in the Aegean. Travel by sea probably took on an increasing importance among the foraging communities of the coastal regions as the sea level rose, fragmenting the larger landmasses in the Aegean and creating ever more islands.

The island of Cyprus occupied a crucial position in the development of these early maritime networks. Lying only 80 km (50 miles) from the coast of Asia Minor and 100 km (60 miles) from the Levant, it was within comparatively easy reach of the heartland where the Neolithic economy developed. Around 10,500 BC hunter-gatherers living on the island were slaughtering herds of indigenous pigmy hippopotamus. They can only have got there by

boat. Some time later, in the mid-ninth to eighth millennia, early farmers had established themselves on the island. The community grew cereals and pulses and had access to domesticated sheep, goats, cattle and pigs and to herds of wild fallow deer. That all of these animals had to be transported to the island by sea in large enough numbers to sustain breeding populations implies the existence of sturdy vessels and assured seamanship. Once established, the pioneer farmers maintained their contacts with the mainland.

Farming was introduced to the island of Crete around 7000 BC. The crucial data come from a deep trench dug down to bedrock in the centre of the courtyard of the Bronze Age palace at Knossos. The lowest layer of occupation debris which accumulated on the natural bedrock was without pottery, but it was decidedly Neolithic producing bones of domesticated sheep or goats, pigs and cattle together with grains of cultivated bread wheat (*Triticum aestivum*). That the pioneer farmers of Crete brought with them the full 'Neolithic package' implies a well-planned colonizing movement, employing flotillas of boats presumably setting out from the mainland of Asia Minor, an origin supported by the fact that bread wheat was a favoured crop in Anatolia. If the starting point had been somewhere in the vicinity of the Knidos peninsula, an island-hopping route could have been taken incorporating Rhodes, Karpathos and Kasos to facilitate the 185-km (115-mile) journey from the mainland to Knossos.

Any estimate of the scale of the colonizing movement is little better than guesswork but the minimum size of population that could have sustained itself would have been a group of about forty individuals. Allowing for between ten and twenty pigs, cattle and sheep/goats and an adequate supply of seed grain, the total minimum load would have been somewhere between 15,000 and 20,000 kg (33,000 and 44,000 lbs) which, allowing for 1 or 2 tonnes of cargo per boat, would imply a flotilla of ten to fifteen vessels. Calculations of this kind can only be very approximate but they give some idea of the magnitude of the venture.

The settlement of Cyprus and Crete by pioneer farmers by 7000 BC was the first step in a process that, over the next five hundred years or so, was to lead to the establishment of farmers on the Greek mainland, in particular in the plain of Thessaly – a region that provided optimal conditions for settlement.

Maritime networks already existing in the Aegean could have facilitated the movement of farming communities coming from Asia Minor and the Levant. The settlement of Crete was part of the initial phase of exploration but the fact that it does not appear to have been followed up may be explained by the rival attraction of the congenial ecological niches offered by the eastern Greek seaboard once the potential of the Greek mainland had become known.

Radiocarbon dates for the earliest Neolithic sites in Greece concentrate in

the period 7500–6500 BC. This is broadly coincident with the latest phase of the Aceramic Neolithic in south-west Asia (dated c.7600–6900 BC), a period of mobility when the initial farming communities began to move out of their original homelands to establish settlements in the Taurus Mountains in central Anatolia and the Mediterranean coastal regions of the Levant. The initial colonization of Crete and the eastern Greek mainland may be seen as part of this general exodus.

The First European Farmers

The Initial phase of Neolithic settlement in Greece took place in the late eighth and early seventh millennia BC. At this stage communities were largely aceramic but by about 6500 BC pottery-making had become widespread, heralding the period that archaeologists distinguish as the Early Neolithic, which lasted until about 6000 BC. During the Early Neolithic settlements proliferated. Some 250–300 have been identified in the eastern parts of Greece and there must be many more yet to be discovered. The normal settlement type at this time was the village, comprising a number of close-spaced rectangular houses covering an area of 1–3 ha (2½–7½ acres). Population estimates

4.4 The valley of the river Pinios, here passing through the dramatic landscape of the Meteora, near Kalambáka, leads from the Pindhos mountains – the backbone of Greece – to the fertile plain of Thessaly beyond.





4.5 Greece and the southern Balkans showing the extent of the known Early Neolithic settlements. The great density in the plain of Thessaly and the other plains facing the Aegean hints at the importance of the Aegean sea routes in the early phase of colonization.

are notoriously difficult to make but an average of about a hundred people per hectare (or $2\frac{1}{2}$ acres) is probably in the right order of magnitude. The individual houses were normally one-roomed structures built of wattle and daub or mudbrick, often on drystone foundations. At one of the more fully explored villages, Neo Nikomedia in the Macedonian Plain, three distinct phases of building have been recognized; in the first two the houses seem to

have been clustered around a larger building that may have been a communal structure of some kind.

The density of the Early Neolithic settlements varies considerably throughout eastern Greece. The early farmers chose ecozones best suited to the mixed farming strategies upon which life depended. One of the most congenial of these regions is eastern Thessaly, where 117 villages have been identified in an area of 1150 sq km (450 sq miles), averaging one village for every 10 sq km (4 sq miles). Close spacing of comparatively large permanent settlements implies that social networks were sufficiently robust to maintain peaceful relations and to allow for inter-village cooperation.

The subsistence economy of the Early Neolithic settlers was based on cultivated crops and domesticated animals, with hunting playing a very minor part. The favoured crops were emmer wheat (*Triticum dicoccum*) and, to a lesser extent, einkorn (*Triticum monococcum*) and six-row barley (*Hordeum vulgare*). The bread wheat so common in the early levels at Knossos is very rare in Greece, suggesting that the pioneer farmers settling in these two regions may well have come from different parts of south-west Asia. Legumes were also important, particularly lentils, peas and bitter vetch. To sustain one person would have required one hectare (2½ acres) of land. With villages of 200–300 inhabitants there would have been ample arable land around each village, given what is known of settlement density.

Systems of food production based on domesticated animals and plants were firmly in place from the initial settlement phase and led to the rapid establishment of stable sedentary communities who placed little reliance on wild resources. The implication must be that the pioneer population arrived with their domesticated animals and seed corn and the generations of experience needed to set themselves up in the alien environments. That they chose ecological niches suitable for the direct implantation of their established practices suggests an awareness of geography that could only have come from knowledge based on reconnaissance.

The pioneer farmers brought with them a range of technological skills that successor communities continued to develop in their new homeland. The manufacture of chipped stone tools, the grinding and polishing of hard stone, spinning and weaving, pottery manufacture and the creation of figurines and 'stamps' from baked clay are among the more apparent in the archaeological record. Together with farming and the permanent settlements, these artefacts typify the 'Neolithic package' which, once introduced into Europe, spread to all parts of the continent.

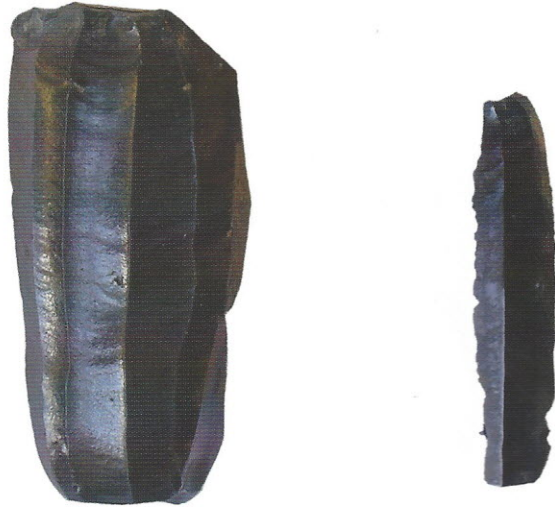
The procurement of raw materials such as obsidian from Melos, favoured for chipped stone tools, raises interesting questions. Obsidian is found in considerable quantity on Early Neolithic sites in the Peloponnese and

Thessaly, but is unknown in western Greece and Macedonia at this stage. This very specific distribution would suggest that the needs of the eastern Greek communities were being met by middlemen willing and able to make the hazardous journey of several hundred kilometres over land and by sea to and from the source on Melos. Who, then, were these maritime specialists? Could it be that they were the descendants of the indigenous Mesolithic population who had been making journeys of this kind for centuries and were well used to fishing for tuna in the offshore waters? The supposition is reasonable and raises the intriguing possibility that these indigenous maritime communities may have been the carriers of the original pioneer farmers.

A further link with the sea is the popularity of seashells for making bracelets and beads, and in particular the *Spondylus* shell, originating in the Aegean, which is found extensively among inland communities. It is quite possible that beads and other shell ornaments were one of the commodities produced by the coastal communities for trade inland along with obsidian. The popularity of seashells may even reflect a reverence for the sea remaining deep in the folk memory of the early farmers.

Apart from obsidian and marine shells there is little evidence of extensive networks of exchange between communities, although it is possible that such exchanges took place in materials that leave no archaeological trace such as woven fabrics or live animals. What evidence there is suggests that the villages were largely self-contained with limited networks linking only to immediate neighbours.

Among the more distinctive of the village-based products was pottery. Some limited knowledge of pottery may have arrived with the pioneer settlers. However, it was not until the Early Neolithic period that pottery-making became widespread. Vessels were hand-made from local clays and were fired usually in small clamps, but production was never on a large scale. Throughout the Early Neolithic vessel forms were restricted to simple bowls and jars and occasionally handled jugs. Most were monochrome but some were painted with white slip or with red iron oxide usually in a zigzag design, and there were some regional preferences in decoration and form, more evident as time proceeded. Simple, even crude, though this pottery was, it holds a deep



4.6 Volcanic glass, known as obsidian, was acquired from the island of Melos to make tools and was widely distributed in eastern Greece. Long, narrow flakes (above right) were struck from cores (left) and were finely worked by pressure flaking to make knives and other tools.



4.7 Above: Figures of clay and marble from Early Neolithic sites in Greece.

4.8 Above right: Pottery from Early Neolithic sites in Greece – Europe's first pottery.



fascination as it represents the first attempt by a European community to create an entirely new material using fire.

Another home product of potential importance to the community was woven fabric, evidenced by spindle whorls and loom weights. It is uncertain whether, at this early stage of domestication, sheep were capable of producing wool but goat hair, flax and other plant fibres could well have been used to form a thread. Flax was used to make fabrics in south-west Asia in the eighth millennium and linseeds have been found on Early Neolithic sites in Greece. Loom weights could have been used for a variety of functions and need not imply the existence of the warp-weighted loom at this early stage. Simple ground-loom were known at the time in south-west Asia and it may have been on some such structure that the Early Neolithic communities of Greece produced their fabrics.

Other aspects of material culture found on the Early Neolithic sites include small figurines usually made with clay but sometimes carved from stone. They are for the most part anthropomorphic, with a particular emphasis on the female form, but males and animal forms are also known. To these we may add pins

and stone ear plugs and elaborately decorated ‘seal stamps’ made from clay or more rarely carved from stone. Ground and polished stone was also used to make axes, bowls and basins. These varied items, while evidently of Greek manufacture, have close similarities to objects found in Anatolia and the Levant in the context of Aceramic Neolithic dates, but in no case are the sets of material found in Greece directly comparable to assemblages found at sites in Anatolia or the Levant. This may be a factor of the incompleteness of the archaeological record, but it could also be a reflection of the nature of the pioneering group. Perhaps we are dealing with bands of adventurers from different geographical regions and with differing cultural traditions coming together to make the voyage to the west. Once settled, this heterogeneous community would draw on the pool of common cultural experience to create a new pioneer culture echoing the old but reconfigured in its new homeland, and now distinctly European.

Consolidation and Expansion

There has been much debate in the archaeological literature about the interpretation of the evidence for the Initial and Early Neolithic settlement in Greece, some observers preferring to see it as the result of the ‘acculturation’ of indigenous Mesolithic communities by ideas emanating from the east, others arguing for an influx of people on a large scale. The archaeological evidence is now strongly in favour of the latter and the recent DNA studies offer additional support.

If, then, we accept the general hypothesis that pioneer communities, moving out of the hilly flanks of south-west Asia at the time of the general exodus around 7500–6500 BC, established themselves in congenial ecological niches in eastern Greece, many questions arise. Were there further incomings? Did some sector of the successor generations move on to ‘colonize’ new parts of Europe? Indeed, how significant were folk movements in the Neolithization of Europe? These are some of the intriguing issues to be explored in the rest of this chapter and the next.

In eastern Greece, after a rapid growth in population following the Initial Neolithic settlement, a long period of stability ensued during which the villages were rebuilt on many occasions, the accumulating layers giving rise to tells several metres high. The population was clearly sustaining itself but there is nothing to suggest stress resulting from overpopulation. In other words, there seems to have been no imperative for new pioneer communities to move out of Greece to find new homelands, yet by c.5500 BC the Neolithic way of life had been firmly established as far north as modern Hungary, over 1000 km (625 miles) north of Thessaly, and as far east as central Bulgaria.

4.9 The initial spread of the Neolithic economy into Europe from the Near East and southern Anatolia would have involved sea journeys to Cyprus, Crete and Greece. It may well be that existing Mesolithic networks, known to have been involved with tuna fishing and the fetching of obsidian from the island of Melos, played some role in the transport of people, animals and grain.



Across this large and varied territory a number of different Early Neolithic cultures have been identified, each named after a typical site or a region. Thus, we have the Karanovo I culture in southern Bulgaria, the Kremikovci culture in western Bulgaria and Macedonia, the Starčevo in Serbia and Bosnia, the Körös in southern Hungary and south-west Romania, and the Criș covering the rest of Romania. We will refer to them simply as the Early South-East European Neolithic, since across this whole region there are considerable similarities in material culture – in house types, pottery and other artefacts. It is largely in the nature and location of settlements and the basic economy that regional variations appear.

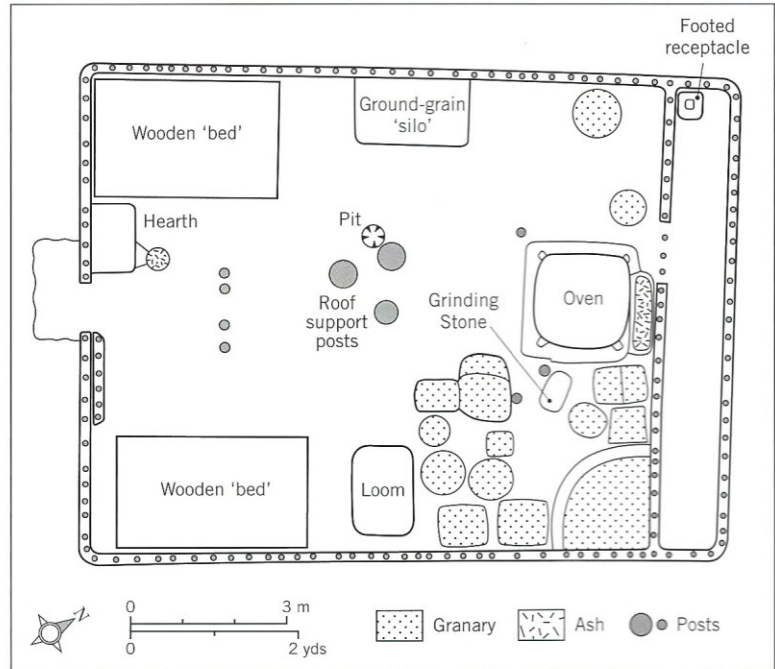
Before considering the Early Neolithic communities of south-eastern Europe, it is necessary to explore the routes by which the ideas characterizing the 'Neolithic package' spread northwards from the Aegean. Of prime importance was the corridor created by the valleys of the river Vardar, which flows southwards into the Gulf of Thermaikos, and the river Morava, which flows northwards to a confluence with the Danube 100 km (60 miles) or so downriver from modern Belgrade. Together these two rivers created a convenient route, linking the north Aegean to the Danube, along which many Early Neolithic settlements clustered. From the Danube easy access could be had across the Great Hungarian Plain northwards along the Tiza and

into Transylvania and westwards along the Sava and Drava. Downriver it was only a short journey to the Iron Gates and the cluster of sedentary Mesolithic villages dominated by Lepenski Vir. Other river routes led into the heart of Bulgaria.

Once out of the hinterland of the Aegean and through the mountain zone there was a significant change, from a warm Mediterranean climate enjoying long hot summers to a more rainy, temperate climate with a shorter growing season and colder winters. The differences were such that the agricultural regimes required modification as the practice of farming moved northwards.

In central southern Bulgaria, in the valley of the river Azmak near Nova Zagora, lies the type site of Karanovo. Karanovo is a tell (a settlement mound) covering an area of 4 ha (10 acres), which grew to a height of 12 m (40 ft) as successive clay-daub and timber buildings were demolished and new ones built upon the debris. The desire to remain rooted at the same spot over many generations may be seen as a deliberate expression of communal stability, the mound itself with the village perched on top symbolizing the community's longevity and legitimacy. The early houses are single-roomed structures, each with its own internal hearth and storage space, with walls built of mud and clay-daub around a framework of small vertical posts. They were clustered closely together, with narrow alleyways between. The stable economy supporting these villages was based on the cultivation of emmer wheat with lesser amounts of einkorn, and the maintenance of herds of sheep/goats, cattle and pigs. In the nearby mountains of the Stara Planina contemporary cave sites have been found where half the animal bone debris recovered came from wild species, the catch particularly favouring red deer. It may be that these sites represent temporary summer camps used by herders looking after flocks and herds as they roamed the upland summer pastures. At such times there would have been ample opportunity for hunting to supplement the diet.

Further to the north-west, in Serbia and southern Hungary, the settlements did not develop into tells, but this does not mean that they were



4.10 A house of Early Neolithic date from Slatina in western Bulgaria. It was built of small timber and mud.

short-lived. In a number of examples the settlement spread laterally, often along the edge of terraces, extending for hundreds of metres, which suggests that successive rebuildings took place next to the earlier settlement. The houses themselves are not well recorded but they tended to be square or rectangular, with mud walls structured on a framework of posts or stakes and often with floors sunk below ground level.

One characteristic of these more northerly sites was their reliance on wild resources. At the type site of Starčevo, in addition to the usual domesticates, there were also red and roe deer, wild cattle, pig and horse, together with beaver, fox, wolf, bear, badger, otter and wild cat. Ducks, geese, swans and birds of prey were caught as well as plentiful river fish reflecting their chosen locations close to major rivers. Among the plant foods represented, einkorn and emmer wheat dominate but millet is also recorded together with acorns and beech nuts. Domesticated animals accounted for around three-quarters of the bones represented in occupation deposits, with sheep and goats being by far the most numerous, although both were found to be considerably reduced in size compared with specimens from the Greek sites. This is probably because the riverside, and often waterlogged, conditions around the settlements were generally unfavourable for the growth and breeding of ovicaprids.

What stands out is the variety of locations chosen for settlement and the way in which the very different ecological niches were thoroughly exploited. The contrast to the Early Neolithic settlement of eastern Greece is quite dramatic. In Greece the 'Neolithic package' of the south-western Asian homeland was adopted in full without selection, though with some rearrangement. In south-eastern Europe, although cultivated cereals and domesticated animals became part of the food-producing regime, allowing a sedentary mode of settlement to be established, and pottery-making, ground stonework and clay figurines became part of the material culture, there was far more cultural selection and local variation. The implication of all this is that the processes by which the 'Neolithic package' were transmitted must have been more complex than simple colonization.

There was no single relentless advance of pioneer farming colonists marching northwards and eastwards from the primary settlement areas in eastern Greece. There may have been some limited pioneering movements setting out along the main corridors such as the Vardar/Morava valleys, but at each stage there would have been interaction with indigenous foragers. At first these interactions are likely to have been cooperative, maintained by exchanges within simple systems of reciprocity. Thus, items of polished stone or perhaps domesticated cattle and sheep may have been exchanged for furs, amber or honey. But it is possible to envisage other situations where relationships became more competitive and confrontational, the farmers taking land or

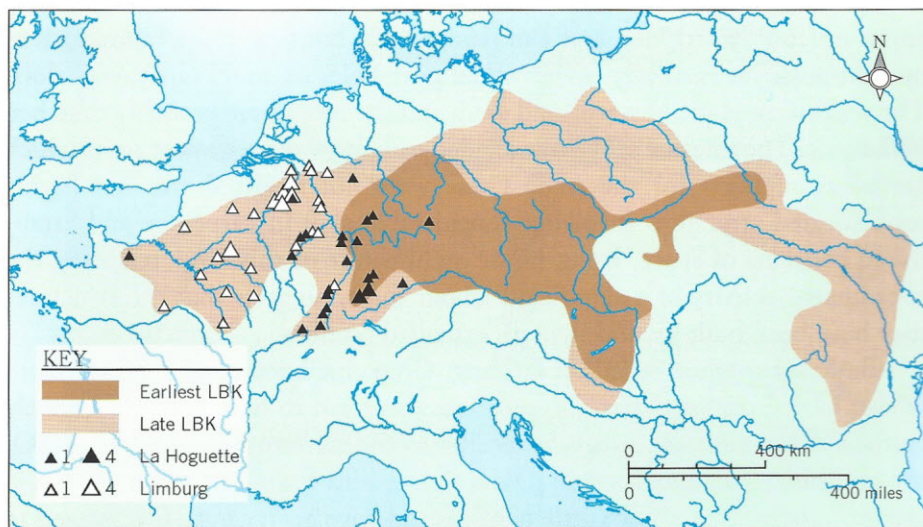
women from the foraging societies. In such situations conflict could have ensued and some foraging groups might have begun to adopt a more 'Neolithic' lifestyle as a way of retaining their womenfolk. In this way elements of the 'Neolithic package' would have been selectively taken up. The reverse processes may also have been at work. As farming communities spread into new ecological niches where wild resources were abundant, there might have been a tendency to moderate the effort put into generating food by placing greater reliance on hunting.

By these disparate processes of colonization and acculturation the Neolithic way of life spread through south-east Europe and across the Great Hungarian Plain over the thousand years from c.6500 to 5500 BC. Wild Europe was being tamed.

Into the Temperate Forests of Europe

In contrast to the varied farming communities of south-eastern Europe, the earliest farmers to spread into the temperate forests of Middle Europe in a broad band stretching from western Hungary to the valley of the Seine display a remarkable cultural similarity. The deciding factor for settlement seems to have been a distinct preference for the light and easily worked loess – a fine, silty clay of wind-blown origin. These early farmers are called the *Linearbandkeramik* group or culture (LBK) – a reference to the linear incised decoration that characterizes their pottery.

The Earliest LBK sites are found fairly widely spread from northern Hungary and Austria, through Slovakia and the Czech Republic, to about the



4.11 The extent of the Early Neolithic *Bandkeramik* culture in Europe at about 5300 BC. The 'Western Neolithic', characterized by pottery from La Hoguette and Limburg, which appears to be broadly contemporary, may well have developed from a separate movement coming from the west Mediterranean.

4.12 *Opposite:* The plan of an early *Bandkeramik* settlement at Janskamperveld, Geleen, Holland, exposed in the excavation of 1991. Almost the entire settlement, covering three or four generations of occupation, has been examined.

Middle Rhine. This settlement took place roughly between 5500 and 5300 BC. The Middle phase saw a consolidation and infilling of this area lasting about two centuries before a final extension in the Late phase, c.5100–5000 BC or a little later, took settlers westwards into eastern Belgium and the Paris Basin and northwards into central Poland. In the following millennium or so a number of regional groups developed, recognizable by their distinctive pottery styles and house forms, but there was no significant extension of the territory occupied. That Neolithic communities could colonize the forests of Europe, at the rate of some 1500 km (940 miles) in five hundred years, has excited the imagination of archaeologists. We will return to some of the possible explanations later.

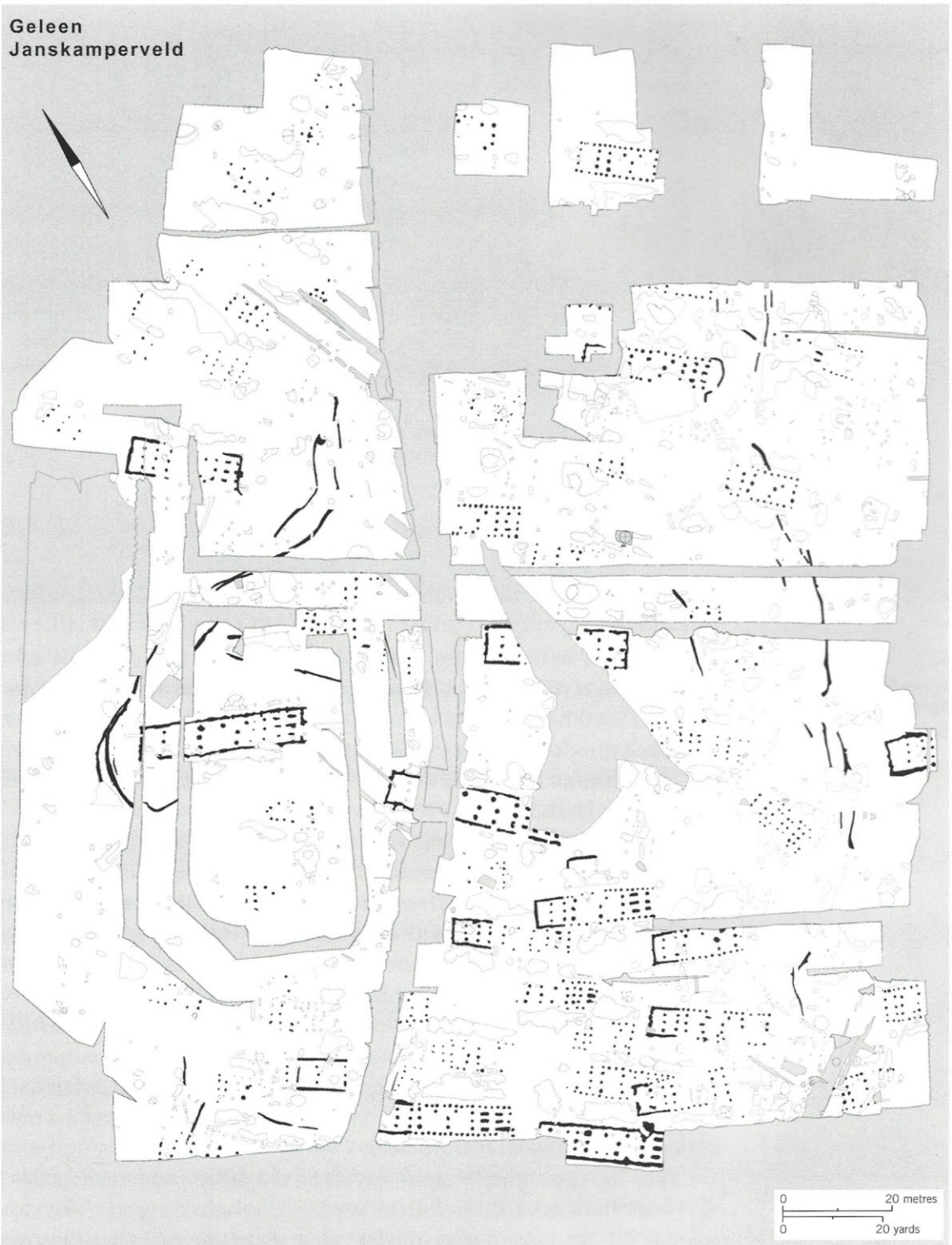
The early farmers restricted their colonization to a very distinct ecological zone. The favoured settlement area was the band of deciduous forest stretching across Middle Europe between the foothills of the Alps and the less fertile glacial outwash of the North European Plain. In their chosen environment the early farmers favoured the valleys of the smaller streams that flowed through patches of loëss, but settlements did extend northwards across the plain where similar well-watered habitats with fertile soils could be found. For the most part they were located, not on the stream banks, but set back along the edge of the flood plain where they could benefit from land constantly refertilized by flood waters and nutrient-rich ground water.

The LBK settlements often give the impression that they were large villages, but when plans are separated into their different phases it is usually found that only a few buildings were occupied at any one time. In other words, what might appear to have been villages were in reality a few large farm-houses clustered together, rebuilt many times over.

The LBK houses were very distinctive. They were massive long-houses 30–40 m (100–130 ft) long and 5 m (16 ft) wide, built around a framework of upright posts set vertically in individual post-holes or, more rarely, wall slots. The walls were made of wattle and daub and the roofs were probably thatched with reeds. The internal space was divided usually by three rows of posts which served as supports for the roof. These were not rough shacks but highly sophisticated structures involving considerable skill in carpentry and established concepts of space. Long-house architecture of this kind, requiring the coordinated activity of a significant labour force, suggests that the structures may have been built by, and housed, extended families.

Basic subsistence rested on farming. Crops included emmer and einkorn wheat, barley, peas and flax. Poppy seeds also seem to have been deliberately cultivated, but this was a feature specific to the westernmost settlements. Of the domesticated animals cattle predominate, with fewer sheep and goats and surprisingly few pigs. The cattle herds would have been carefully managed to

Geleen
Janskamperveld





4.13 *Linearbandkeramik* pottery from settlements in the Merzbach valley, Germany.

provide milk, butter, cheese and perhaps blood, which could be taken by tapping into a vein without detriment to the beast. At the appropriate time, when the herd had to be culled, meat would have been available together with valuable byproducts such as hides, horns and bones (for making implements and glue). Since cattle are by nature forest-browsers they would have fared well in the forest landscape.

The material culture of the LBK sites is similar over the entire area. Most characteristic is the linear decorated pottery, which consists of simple bowls with narrowing mouths ornamented overall with incised linear decoration.

Stone tools were made both by chipping, to make blade tools and projectile points, and by grinding, to create the various axes and adzes including the characteristic 'shoe last celt', which is an elongated chisel-like tool with a squarish cross section probably used in woodworking. Raw materials were carefully chosen, with certain types of favoured stone being transported over considerable distances of up to 200 km (125 miles). Although isolated in their woodland clearings the LBK communities were evidently linked by exchange networks extending over wide areas.

Was the dramatically rapid spread of the LBK phenomenon the result of colonization or of the acculturation of indigenous foragers? The strongest support for the colonization model comes from the fact that the complete

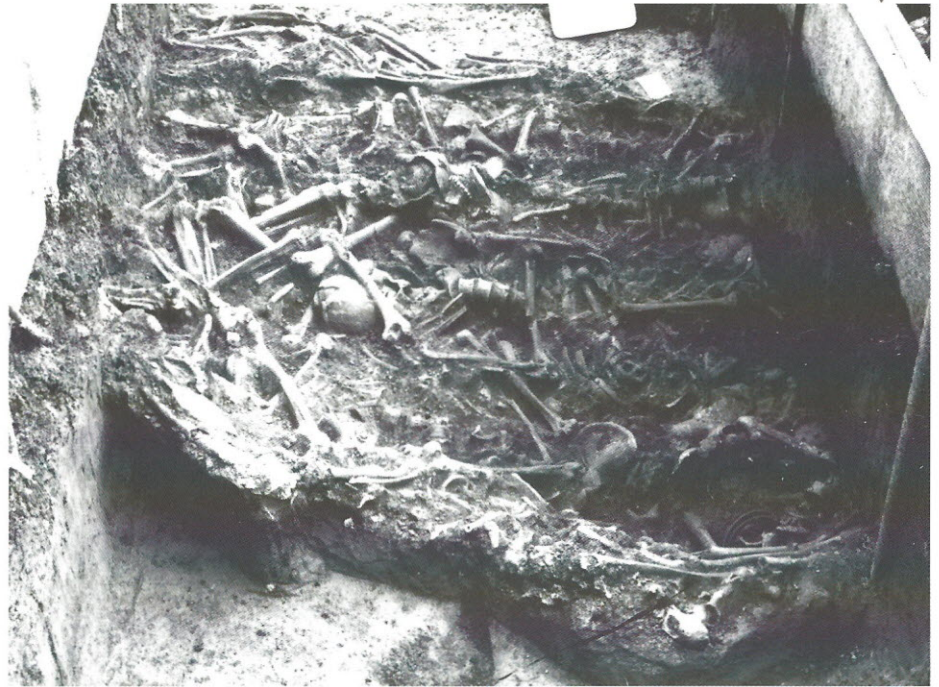
'Neolithic package' was adopted over a wide area in a comparatively short period of time, with the dispersed groups nonetheless retaining a distinct identity. The highly characteristic long-house that typifies the LBK has no known antecedents in the region, pottery and ground stone tools appear for the first time, while cereals and sheep and goats did not occur in their wild forms in the LBK zone. Of further relevance is the apparent sparsity of indigenous Mesolithic groups in the forested zone; indeed, there is some evidence to suggest that the foraging population was already in decline. Hunting seems to have played only an insignificant role in the LBK economy and the chipped stone tool assemblage derived little from Mesolithic tool kits. Thus, it is argued, the colonists moved easily and quickly through the forest zone, encountering no opposition and coming into contact with few indigenous people.

Those favouring the local adoption model point to the sophisticated exchange networks already in operation among the foraging groups, which provided a mechanism by which desirable commodities and innovations could quickly spread. It is also argued that the apparent mobility of small settlements in the Earliest LBK is more akin to the behaviour of foragers and that in the earliest sites there is a greater reliance on wild animals. Moreover, some archaeologists claim that there are distinct traces of Mesolithic technology in Earliest LBK flintworking. A further point that may be relevant is that sheep and goats together with pottery-making appear very early in the west, where they are characteristic of the La Hoguette culture thought to represent local foragers selectively adopting Neolithic attributes spreading from the Mediterranean via the Rhône valley (see below, p. 125).

On balance the colonization hypothesis seems to be the more convincing, but the relationship of the incoming groups with the indigenous population should not be underestimated. There is now evidence in Germany to show that some Late Mesolithic groups coexisted with Neolithic farming groups and acquired polished stone axes and grinding stones from them, presumably through exchange. In return one can imagine hunted meat and furs being well received by the farmers. It is quite possible that there was a flow of foragers, particularly women, willing – even anxious – to join what might have been perceived to be the more elite society of the farming group. How long the two communities could have existed side by side is unclear but there is no reason to suppose that assimilation was rapid.

The Earliest LBK culture developed in western Hungary out of the Starčevo–Körös subgroup of the south-east European Neolithic. From there the farming communities spread westwards along the Danube, and from the Danube valley they penetrated the forested hills to the north. This much is reasonably clear. The question that remains, however, is: what drove the

4.14 Excavations at the *Bandkeramik* site of Talheim in south-west Germany exposed a 'death pit' containing thirty-four individuals of whom sixteen were children. Most of the bodies showed signs of violence mainly resulting from axe blows to the back of the head. Three of the adults had been shot from behind with flint-tipped arrows. There can be little doubt that the bodies dumped in the pit had been massacred.



movement? One view is that the intensive cultivation around the settlements quickly exhausted the fertility of the land, forcing the community to move on. This, however, will not do. Not only has it been shown that the rich, well-watered soils of the central European valleys can sustain crops for very long periods but it is now known that many of the LBK sites were occupied over many generations, perhaps for several centuries. Another view is that a sedentary lifestyle encouraged population growth. This is, indeed, likely, but whether population growth alone was sufficient to set off the rapid spread of pioneer farmers remains doubtful. Recent surveys have shown that much fertile land remained after the initial thrust forward and only later was there infilling.

We are left, then, to accept that there was a social imperative to move on into the unknown. How might this have worked? If we allow that population increase was a real force, then in each generation there would have been a need for young men to move away from the household and set up on their own. All it requires was for society to create value systems making it socially desirable for new settlements to be established at a distance from the home base in order to set up a momentum favouring forward colonization. This imperative could then be strengthened if, in the interests of gaining enhanced status in a competitive situation, distance became a measure of prowess. This is, of course, purely speculative, but there is no reason to suppose that the 'pioneer spirit' is a characteristic only of recent societies. To put some figures on the speculation:

allowing a generation to be twenty years, it would need new settlements to be established at an average distance of 60 km (37 miles) from the home base for the LBK communities to have extended across the 1500 km (950 miles) in five hundred years. Three days' trek from the ancestral home would still have allowed social networks to be maintained.

Once the limit of colonization had been reached, inner colonization became the only strategy available to cope with population growth. With it would have come readjustments in the social system. The development of distinct regional groupings with characteristic pottery styles and the appearance of defended enclosures seem to herald a heightened sense of identity and an attachment to place. It is likely that social tension, even the periodic outbreak of hostilities, may have become more commonplace. One discovery, dating to the end of the LBK period, may be a reflection of this. At Telheim, in the Neckar valley, a pit some 3 m (10 ft) long had been dug to contain over thirty bodies of men, women and children dumped together without ceremony. Two of the adults had been shot in the head with flint-tipped arrows, while a further twenty, including children, had been dispatched with blows to the head made with stone axes, adzes and other heavy instruments. While various explanations of this gruesome discovery are possible, the level of violence suggests a society under stress. Perhaps here we are witnessing the result of a rout following inter-village conflict.

From Hilly Flanks to Temperate Forests

The initial spread of the Neolithic way of life, from its place of origin in the hilly flanks of south-west Asia to almost within sight of the North Sea and the Baltic, took place at lightning speed between 7000 and 5000 BC. It was clearly a complex process, only dimly discernible within the mass of detritus that comprises the archaeological record. The movement began with the pioneering settlement of boatloads of farmers from Asia Minor and the Levant seeking out ecological niches on Crete and in the east of Greece comparable to those of their homeland, where their traditional farming methods could be implanted. Then followed a period of consolidation and a general diffusion of the farming package eastwards into Bulgaria and northwards into the Great Hungarian Plain. It is a fair assumption that, in these rather different environments, the new farming communities that developed owed much to the indigenous foraging populations, and it may well be that the actual genetic contribution from the pioneer settlers of eastern Greece was comparatively slight. Finally, among these new farming groups in the western part of Hungary there developed a dynamic pioneering spirit that saw the rapid spread of a highly distinctive assemblage of cultural beliefs and practices

throughout the forests of northern central Europe. The magnitude of the changes over these two millennia cannot be overestimated. The spread of farming through the middle of Europe involved the movement of people: it is the scale of this mobility that is the most remarkable part of the story. At some times and in some places it is almost as if there were a competition to move on and see what lay beyond. Perhaps, in a sparsely populated landscape, this was a natural human reaction.

But this is only part of the story. In the maritime regions of Europe comparable changes were in progress that had a dynamic of their own. These will be the subject of the next chapter.