The History of Civilization

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The Dawn of European Civilization
The Dawn of European Civilization

By

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PREFACE

The material basis and spiritual context of modern life are the cumulative result of the achievements and discoveries of the past. Europeans share with the Chinese and even with the aborigines of Australia a part of this cultural heritage. With the genesis of that common substratum however we are not here immediately concerned; it has been described by M. de Morgan in an earlier volume in this series. My theme is the foundation of European Civilization as a peculiar and individual manifestation of the human spirit.

But on this topic sharply opposed views are current. One school maintains that Western Civilization only began in historic times after 1000 B.C. in a little corner of the Mediterranean and that its true prehistory is to be found not in Europe but in the Ancient East. On the other hand, some of my colleagues would discover the origin of all the higher elements in human culture in Europe itself. I can subscribe to neither of these extreme views; the truth seems to me to lie between them. In such a field it would of course be presumptuous to pretend to have attained a final synthesis. I can but present in all due humility the results of an earnest attempt to survey all the facts as a whole.

The Occident was, I would submit, indebted to the Orient for the rudiments of the arts and crafts that initiated man’s emancipation from bondage to his environment and for the foundation of those spiritual ties that co-ordinate human endeavours. But the peoples of the West were not slavish imitators; they adapted the gifts of the East and united the contributions made by Africa and Asia into a new and organic whole capable of developing on its own original lines. By the sixteenth century B.C. the new organism was already functioning and the point had arrived when the Westerners were ready to assume the rôle of masters. Among the Early Bronze Age peoples of the Ægean, the Danube valley, Scandinavia, and Britain, we can recognize already the expression of those very qualities of energy, independence, and inventiveness
which distinguish the western world from Egypt, India or China. But this does not justify the contention that the mutual rôles of the Ancient East and the Modern West, as they existed at the dawn of history, had been mysteriously reversed in a more remote antiquity.

My task is then to exhibit the creation out of the cultural capital common to many lands of the new force, the growth of which has ultimately transformed the face of the world. Since the germs of the new are evidently active in the Middle Bronze Age that period puts a natural term to the enquiry. But the existence of such divergent schools of thought necessitates a careful study of the evidence.

The Orientalists indeed treat the humble productions of early man in Europe with a certain contempt and have relied largely on *a priori* theories. But their opponents have lavished a loving care on the rude artefacts of our forerunners and by patient research have built up a powerful case in support of their thesis which cannot be demolished by a few generalizations. The material itself must be examined and the reader must judge which view allows of its co-ordination into the most logical and coherent whole. To that end the continent has been divided into several provinces, the spatial relations of which at different epochs are illustrated by four maps. Within these provinces the sequence of observed phenomena is well known; disputes begin with the interrelation of the groups. Here I have tried to set forth the material objectively in its proper order and to expound the several views of competent authorities upon its interpretation.

But it must be remembered that our material is only the skeleton of an organism which once was clothed with flesh and which still is immanent in every moment of our lives. The continent which is so neatly mapped for us is itself a heritage from prehistoric times. Peasants with stone hoes and axes opened up its valleys to cultivation; hunters and herdsmen blazed the trail through the primæval forests; mariners in dug-out canoes sailed the seas to the isles of the West; prospectors with picks of horn and flint revealed the treasures of the earth and crossed mountain passes in search of merchandise. These explorers were the forerunners of Greeks and Phœnicians; the paths they discovered have been followed by Roman roads and modern railways.
The monuments of early man are but insignificant bits of flint and stone, bronze and baked clay. Yet such fragments embody concretely the achievement of our spiritual ancestors. In such rude implements are revealed the preconditions of our gigantic engines and of the whole mechanical apparatus that constitutes the material basis of modern life. Progress is an indivisible whole in which the invention of a new way of hafting an axe formed a necessary prelude to the invention of the steam-engine or the aeroplane. In the first innovations the germs of all subsequent improvement were latent; and the first steps on the path of discovery were the hardest. Thus the achievements of our nameless forerunners are in a real sense present in our cultural heritage to-day.

In conclusion, I should like to express my deep indebtedness to many workers in the same field, not excepting those whose conclusions I have been unable to accept. Moreover, to supplement their published works which I so often cite, Mr. M. C. Burkitt, Sir Arthur Evans, Sir John Forsdyke, Mr. W. A. Heurtley, Dr. Ferencz Laszlo, Dr. Adolf Mahr, Mr. Harold Peake, Dr. P. Reinecke, Prof. Tallgren, Dr. P. Vouga, Prof. A. J. B. Wace and others have very kindly given me valuable advice and assistance on several points. To Miss M. Joachim I owe a further debt of gratitude for reading the proofs. For permission to reproduce here illustrations from their publications I am indebted to the courtesy of Dr. Ailio (Helsingfors), the Accademia dei Lincei, the Trustees of the British Museum, the British School at Athens, the Editors of the Bullettino di Paletnologia Italiana, the Cambridge University Press and Messrs. Wace and Thompson, the Comisión de Investigaciones paleontologicas y prehistoricas and Prof. H. Obermaier (Madrid), Sir Arthur Evans, Prof. Kozłowski (Lemburg), the Greek Ministry of Public Instruction, Dr. J. Schránil (Prague), Mr. R. B. Seager (Crete), Dr. H. Seger (Breslau), the Royal Anthropological Institute, the Society of Antiquaries of London, the Société des Antiquaires du Nord (Copenhagen), the Société d’Anthropologie de Bruxelles, Dr. Stocký (Prague), the Schweizerisches Landes-Museum (Zurich), Prof. A. M. Tallgren (Helsingfors), Prof. Tsountas (Athens), the University of Bordeaux, Faculty of Letters, the K. Vitterhets, Historie och Antikvitets Akademien (Stockholm) the Director of the Prähistorische Abteilung of
the Museum für Völkerkunde (Berlin), Dr. P. Vouga (Neuchâtel), and others.

I might add that the index is especially designed to enable the layman to locate at once the explanation (usually illustrated by figures) of the technical terms inevitably employed.

V. GORDON CHILDE.
When this book was first published in 1925, large tracts of Europe were blanks on the archaeological map; in few of the remaining areas had the evidence, dispersed among local museums and the pages of inaccessible periodicals, been assembled in systematic monographs. Only a vague picture could be constructed by piecing together the scattered fragments and filling in the gaps by inferences. Since then fourteen years of feverish archaeological activity have transformed European prehistory. The unknown, or scarcely known, tracts of Macedonia, Wallachia, and Southern Hungary have been scientifically explored. Startling new discoveries in regions that seemed so well charted as England, Denmark and Greece have invalidated what seemed well-established truths—the genuinely neolithic culture of England, for instance, was first defined by Leeds in 1927! Detailed surveys of several provinces have not only conveniently assembled accumulated data, but have invested them with fresh significance.

To correct its deficiencies, the original text had not only to be enlarged; it had to be completely rewritten. The apparent simplicity of the picture, offered in 1925, proves largely due to ignorance. The new discoveries introduce fresh complications as they raise the abstractions of pre-history nearer to the concrete complexity of history. But the essential outlines of the thesis, originally advanced, still holds good. Our deepened knowledge of the archaeology of Europe and of the Ancient East has enormously strengthened the Orientalists' position. Indeed we can now survey continuously interconnected provinces throughout which cultures are seen to be zoned in regularly descending grades round the centres of urban civilization in the Ancient East. Such zoning is the best possible proof of the Orientalists' postulate of diffusion.

Indeed revolutionary discoveries, published even during 1938, warn us that the picture here presented is still in a high degree provisional. But further postponement of the
new edition seems indefensible. Perhaps we are standing at
the end of an era of free research. Over a large part of our
Continent prehistory has been harnessed to the service of a
political dogma. Reliable additions to knowledge there can
hardly be expected now. It will be useful to sum up
objectively the position attained before September 1938.

I have to thank Dr. Grahame Clark, Prof. Daryll Forde,
Miss Winifred Lamb, F.S.A., and Mr. R. W. Hutchinson, F.S.A.,
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V. GORDON CHILDE.

University of Edinburgh.

March 1939.
THE DAWN OF EUROPEAN CIVILIZATION
THE DAWN OF EUROPEAN CIVILIZATION

CHAPTER I

SURVIVALS OF FOOD-GATHERERS

Despite a startling refinement of industrial equipment and a masterly graphic art Pleistocene Europe altogether lacked civilization in the economic sense. During the last Ice Age collective hunts on open steppes and tundras in South Russia, Moravia and France yielded such plenteous and reliable supplies of mammoth, reindeer, bison and horse flesh, that the hunters could establish relatively permanent camps and enjoyed leisure to cultivate art. But they remained, none the less, pure food-gatherers, dependent on what the environment offered them. With the passing of glacial conditions, the old herds vanished; Forest, invading the open lands, rendered obsolete the familiar technique of communal hunting, and so the culture based thereon shrivelled and decayed. Indeed last century it appeared that Europe, abandoned by reindeer and mammoth-hunters, was left an empty wilderness for neolithic immigrants to subdue to pasturage and tillage.

Forty years' researches have erased the last outlines of that picture. Archaeologists have discovered the remains left by various communities occupying Europe continuously since the close of the Ice Age, but still lacking the hall-marks of neolithic civilization. Their remains constitute cultures that are termed mesolithic, because in time—but only in time—they occupy a place between the latest palæolithic and the oldest neolithic cultures. At the same time botanists and geologists have defined more precisely the changes in environment to which the mesolithic cultures were adaptations. Modern vegetation was only slowly established in the glacial
landscape; a temperate climate did not abruptly replace an arctic one.

In northern Europe phases in the colonization of the once frozen plains by forest trees have been determined with great precision by pollen-analysis (i.e. a quantitative study of the pollen grains preserved principally in peat mosses). The first immigrants were birches and willows, then came pines, later the hazel, soon followed by elms, limes and oaks—the mixed oak woods—lastly, in Denmark, the beech. But of course the composition of a forest is profoundly affected by topographical and geological as well as climatic factors so that even on the North European plain itself the local variations are large and significant. Stages in the gradual amelioration of climate can also be distinguished, largely on the basis of the same botanical evidence. In North Europe a cold Pre-Boreal regime of long duration was superseded by a continental Boreal phase, characterized by summers longer and warmer than to-day, but severe snowy winters. Next a relatively abrupt increase of rainfall and westerly winds affected northwestern Europe without reducing the average annual temperature so that the climate of Denmark was really Atlantic, and mixed oak woods attained a maximum extension at the cost of pine woods. In Britain on the contrary excessive rain and wind caused deforestation in exposed areas. Gradually the course of the Atlantic storms shifted again allowing a second period of forest growth in England, but inducing some contraction on the Continent. This phase, still warmer than to-day, is termed the Sub-Boreal. It ultimately ended with the onset of modern cold wet weather in an exaggerated form in the so-called Sub-Atlantic phase. Of course the terms Boreal, Atlantic and so on, are not strictly applicable to Switzerland or South Germany and are meaningless in Mediterranean lands: they were devised in Denmark and Sweden, where alone they are accurately descriptive.

In the meanwhile the distribution of land and water was also changing. A general tendency to land sinking or transgression of the sea, was interrupted in the North by local

1 Clark, 1936, 23-40; note the cautions by Bertsch, BRGK., XVIII (1928), 1-65.
2 Childe, Scotland, 9-12.
3 BRGK., XVIII, 65.
SURVIVALS OF FOOD-GATHERERS

periods of land-elevation or marine regression. At the end of the Ice Age the heavily glaciated regions were depressed; round the Scottish coasts the late glacial sea has left the so-called 100 foot beach while corresponding strand-lines in Scandinavia may be 200 m. above sea-level to-day; the Baltic depression was occupied by a frozen sea communicating with the Arctic Ocean—termed the Yoldia Sea. An elevation, perhaps a rebound of the earth’s crust on the removal of the superincumbent ice, raised strips of the Scottish coast above their present relative levels and isolated the Baltic depression; this was occupied by the Ancylus Lake, rendered slightly brackish by a small inflow of salt water across Central Sweden. At the end of Boreal times persistent sinking opened the Belts so that salt water poured into the Baltic depression, forming the Littorina Sea, larger and saltier than the modern Baltic. England was completely separated from the Continent, and in Scotland the same marine transgression allowed whales to travel up the Forth Estuary to above Stirling. The resultant extension of areas occupied by warm salt water was perhaps the cause of the shift in storm-tracks that brought about the Atlantic phase of Northern climate. But north of a line through the south of Zealand, the land was subsequently re-elevated so that the shore line of early Atlantic times is now represented by the 25 ft. raised beach in Scotland and corresponding raised strands in Norway, Sweden and Finland. The re-elevation was, however, interrupted by a second transgression, a second Littorina maximum, affecting parts of Scandinavia.

This changing environment constitutes for the archaeologist a provisional chronological framework, but contemporary men had to adjust their cultures to it. To small groups of food-gatherers the temperate forests offered greater facilities for picking up a bare livelihood without intensive social co-operation or a highly specialized kit-bag than had the bleak hunting-grounds of the Ice Age. Mesolithic groups appear in general isolated and poorly equipped in contrast to Magdalenians or Predmostians. But all had acquired, or themselves domesticated, dogs whose co-operation would be of greatest assistance to man precisely in the pursuit of the smaller, less

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1 Clark, 1936, 7-22; Childe, Scotland, 9.
4 DAWN OF EUROPEAN CIVILIZATION

gregarious game of the new woodlands. Several of the mesolithic cultures are clearly due to palæolithic survivors thus adjusted to a new environment.

The Swiderian culture, represented by assemblages of small flint tools collected from sand-dunes in Russia and Poland, sometimes under fossil turf-lines of Atlantic age, is characterized by small asymmetrically tanged-points (Fig. 1) used presumably as arrow-heads, but morphologically descended from the large dart-heads used by the South Russian mammoth-hunters. Such was their ultimate response to the extinction of the mammoth.

Descendants of the Franco-Cantabrian Magdalenians who combined with hunting and collecting fishing with the harpoon in the ancestral manner, created the Azilian culture. The Azilians like their ancestors lived by preference in caves where they buried their dead too. The famous cave of Ofnet in Bavaria contained a nest of twenty-one skulls, buried without the trunks, but not belonging certainly to Azilians. Because eight of the skulls were brachycranial, anthropologists used to think that the burial indicated the immigration of a new race into Europe, but now admit that at least a tendency to round-headedness existed among Upper Palæolithic Europeans. The Azilians' equipment seems poor. The type fossil is the harpoon of red-deer's antler (Fig. 2), flat and clumsy in comparison with the ancestral Magdalenian instrument of reindeer antler. Flint blades and gravers persist, but tend to be diminutive. The cores could be used for wood-working, but were not specialized

1 Clark, 1936, 62; similar cultures are here reported from Belgium and Germany.
2 Obermaier, Fossil Man in Spain, 1925, 340f.
3 e.g. in Ariège, L'Anthr., XXXVIII (1928), 235.
4 See C. S. Coon, Races of Europe, to be published in 1939 for anthropological points.
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into axes. However, some heavy wedge-like tools from the cave of Bize (Aude) may denote responses to the needs of primitive carpentry. And in the late Azilian deposit in the Falkenstein Cave (Hohenzollern) an antler sleeve was found of a type later used for mounting axes and adzes. (Here the idea might have been borrowed from the neighbouring Forest peoples.) The only reminiscences of Magdalenian art are highly conventionalized figures painted on pebbles.

The cave deposits suggest that the Azilians lived in very small and generally isolated communities; their isolation was not however complete since shells of *Columbella rusticana*, imported from the Mediterranean, reached the Falkenstein Cave. Some sort of boat must have been available since Azilians encamped on small islands. Azilian encampments are found on the slopes of the Cantabrian mountains and the Pyrenees, of the Massif Central, the Jura, Vosges and Black Forest, Alpine foothills, and finally on the south-west coast of Scotland. In south France the Azilian succeeds the Magdalenian almost immediately, presumably in Boreal times; the Scottish sites are situated above the 25 ft. beach and must be Atlantic in age. The discrepancy must indicate the slow rate of migration by short stages presumably along tracts of coast now submerged.

Descendants of the local Aurignacians created a very similar culture in early post-glacial times in the Crimea and

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1 *Germania*, 18 (1934), 81-8.
Trans-Caucasia. They too used caves for dwellings and sepulchres; they had tamed a local wolf or jackal to help them in the chase; in the Crimea "harpoons" come only from late layers and are made of bone, slotted and armed with flint flakes as in the Forest province. Moreover geometric types—at first triangles and lunates, then also trapezes—were in favour.

The Tardenoisian culture survives in the archaeological record almost entirely in the form of pigmy flints or microliths, ingeniously worked into regular geometrical shapes—triangles, rhombs, trapezes and crescents—or into microgravers (Fig. 3) that may be a by-product in their manufacture. All were

![Fig. 3. Geometric microliths (2-5) and microgravers (1) from Franconia. After Gumpert.](image)

presumably parts of composite tools of wood or bone, but no one knows why the little blades should be so carefully trimmed. Their makers camped exclusively on sandy soils, that would be lightly wooded, and sheltered at first often in caves, but also in flimsy huts, partly sunk into the sandy soil. At Muge on the Tagus and Teviec, now an island on the coast of Morbihan, Tardenoisians settled on the open shore, hunting and collecting shell-fish and leaving mounds composed of the debris of their repasts. Skeletons, some brachycranial, were buried in these

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1 Clark, 1936, 190-4.
3 Obermaier, op. cit., 324; *CIA.*, Paris, 1931, 362.
midden heaps in the contracted attitude—at Teviec wearing crowns of red-deer antlers, protected by stones on edge and covered with a heap of boulders.

A tendency to reduce the size of flint blades was common to many Upper Palaeolithic industries, but led regularly to geometric forms only in Africa. Burial in shell-middens is also characteristic of the North African Capsian. It is therefore believed that the Tardenoisians include immigrants driven north by the incipient desiccation of the Sahara at the close of the European Ice Age. But they spread over an enormous territory in Europe including the greater part of the Iberian Peninsula, France, Britain, Belgium, South and Central Germany, Poland and Russia. Perhaps several waves of immigrants coming across Spain, Asia Minor and the Caucasus

should be invoked to explain this dispersion. In any case Tardenoisians had reached Britain, Belgium and South Germany in Boreal times. But in both Britain and France and probably too in south-west Germany and Portugal Tardenoisians still survived, retaining their primitive economy and microlithic traditions in industry, when a neolithic or even a Bronze Age economy had already been established among neighbouring groups. And certain Tardenoisian types—trapezes and lunates—used by later communities in the Peninsula, France and South Russia, may denote the absorption of Tardenoisian hunters by food-producing peoples. Microlithic must not be mistaken for mesolithic.

1 Clark, 1936, 211-13.
2 Ibid., 217, 1932, 57.
3 e.g. at Sauveterre (Lot-et-Garonne) Tardenoisian microliths were associated with finger-tipped cordoned pottery and tanged and barbed arrowheads, Coulonges, Inst. Pal. Hum., Mem. 14 (1935), 26.
4 Childe, Danube, 18.
5 Sherds of decorated “cave” pottery were found at least in the upper levels of the middens.
Asturian is the term applied to the culture of strand-loopers who succeeded the Azilians on the coasts of North Spain and appear in Portugal too. They lived very largely on shell-fish during a period of greater rainfall than the present and are characterized in the archaeological record by a pick-like tool formed by chipping a beach pebble to a rough point.

Though inhabiting wooded countries, none of the communities so far described give any sign of a sustained effort to master this element in their environment by the elaboration of specialized carpenter's tools. Peoples occupying the forested plain of North Europe on the contrary did develop adzes and axes for dealing with timber. To emphasize this adaptation to their environment they may be grouped together as the Forest folk. Their ancestors had advanced as far north as Jutland, before the end of Pre-Boreal times. The pioneers in the colonization were known down till 1936 only by stray discoveries of "Lyngby axes"—reindeer antlers on which the brow tine has been trimmed to form an adze or an axe edge or the socket for a flint blade (Fig. 5). In 1936 a camp of the reindeer-hunters was located on the banks of a shallow mere at Stellmoor (Ahrensburg), near Hamburg. The reindeer were killed with arrows tipped with asymmetrically tanged flint points (of Ahrensburg type), fish or birds speared with barbed harpoons of reindeer antler that had been carved with flint gravers. Each year the first-fruits of the chase, weighted with a stone in the breast, were thrown into the mere as offerings to the spirits of the land; a reindeer's skull, mounted on a post was

Fig. 5. "Lyngby axe" of reindeer antler, Holstein. (f.)
planted on the shore like a totem pole. Stellmoor seems to be a temporary camping place for hunters whose homes presumably were situated farther south and whose ancestors had created the "eastern facies" of Magdalenian culture. Chisel-like tools of antler are in fact common in the Magdalenian of Petersfels (Wurtemburg)\(^1\) and something like a true Lyngby axe was found in the "lös-Magdalenian" of Sagvar in Hungary, and recurs at Pekarna in Moravia and in Moldavia.\(^2\)

In Boreal times the Forest folk had spread all over the still unbroken North European plain from southern England to Finland, and had achieved a very nice adjustment to their environment of pine woods, interrupted only by lakes and rivers. In England, Germany and Denmark they had apparently joined forces with the Tardenoisians; they had at least learned to make geometric microliths in the Tardenoisian manner. And while hunting and fishing expeditions brought the widely scattered groups into contact from time to time, equipment was already being differentiated locally to meet divergent conditions. Within the larger continuum local facies or cultures can be distinguished in England,\(^3\) Denmark and North Germany,\(^4\) the East Baltic\(^5\) (Kunda) and perhaps the Norwegian coast. But the Maglemose\(^4\) near Mullerup and other classic sites in Zealand supply material for an adequate picture, applicable with modifications to the rest.

These were summer-camps, submerged each winter, whither men repaired for hunting, fowling, fishing and nut-gathering. For these ends they employed many devices and a highly specialized equipment—slotted bone points armed with flints (Fig. 6, 3), several kinds of "harpoon" (Fig. 6, 1-2), bone fish-hooks, nets of lime bast with pine-bark floats, perforated stone mace-heads and wooden clubs. East of the Baltic conical bone arrow-heads were employed (Fig. 99, below) for killing fur-bearing animals with minimum damage to the pelts and a specialized antler pick for breaking the ice. Bone needles were

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1 Brock, *Die altsteinzeitliche Kulturstatte von Petersfels*, 43.
2 Dacia, V-VI (1934-5), 12, pl. III.
3 *JRAI*, LXIV (1934), 101-28; no bone work survives in the settlements, but characteristic harpoons have been found in Holderness, near Cambridge and in the Thames and dredged up from the North Sea. Clark, 1932, 17, 115.
4 Full description in Clark, 1936.
made for netting, flint gravers for cutting bone, small disc scrapers (Fig. 6, 4) for dressing skins, and split boars' tusks for knives. The wood worker was now provided with chisels of antler, socketed chisels made from marrow bones of large game (Fig. 6, 8), perforated antler adzes, and flint core-axes or exceptionally flake-axes (Fig. 6, 5-6) mounted as adze-blades in perforated antler sleeves (Fig. 6, 7). East of the Baltic, where flint was scarce, the adze-blades were pebbles sharpened, like the antler tools, by grinding. In England the flake-axe was still unknown.

Communications were maintained most easily by water in boats, presumably of skins, which have not survived, though the paddles that propelled them are extant. For land transport over the winter snows dog-sledges were perhaps available east of the Baltic.¹ Dogs of a wolfish type were everywhere domesticated and may be the ancestors of modern sledge-dog

¹ A runner was recovered from a Boreal peat in Finland, SM., XXXVIII-IX (1931-2), 60; XLI, 121; XLII, 22.
breeds. The electrical properties of amber had already been recognized as a magic virtue so that the substance was collected in Denmark. Aesthetic satisfaction was obtained by decorating bone implements with geometric patterns, generally outline, by a series of points in the so-called drill-technique.

The Boreal forest cultures may be derived without remainder through the Lyngby complex from Upper Palaeolithic cultures of East and Central Europe. Links between their axe-like tools and the Lower Palaeolithic hand-axes seem totally lacking. Only the Finmarkian of Norway and Carelia offers remote possibilities of affiliation with an East Siberian cycle since both exhibit implements of Middle Palaeolithic type associated with gravers.

The marine transgression that ushered in the Atlantic phase broke up the unity of the Forest cultures and offered new opportunities to certain groups. Rich oyster banks combined with sealing and sea-fishing allowed communities to settle down at sheltered spots along the Danish and South Swedish coasts. The Ertebølle culture represents the appropriate adjustment. The sites are marked by huge shell-heaps (that may be 100 yards long and 30 yards wide), the refuse of a sedentary population, still, however, practising a gathering economy. The exposure of new deposits of superior flint resulted in an increasing substitution of flint for bone in making heavy tools. Flake-axes were preferred to picks, plump green-stone axes were sometimes made by grinding, as earlier in the East Baltic, but perforated antler axes—no longer adzes—and sleeves for axes were still made. The only microliths manufactured were transverse arrow-heads. Fish were not speared with harpoons but caught with hook and line. A radical innovation was the manufacture of pottery in the form of large jars with pointed bases and troughs that may have been used as blubber lamps. A taste for personal adornment is indicated by bone combs and armlets. The dead were perhaps buried in the middens.

While the coastal populations thus took advantage of a new environment, the communities inhabiting Norway, Central

1 Dwelling places on high strands of the North Sea and Arctic Ocean have yielded flake- and core-axes, tanged points, gravers, and some "Moustieriform" tools, but no bone-work, Bœ and Nummedal, Le Finmarkien, Oslo, 1936.
2 Clark, 1936, 138-56.
3 The burials may be intrusive: Clark, 1936, 156.
Sweden, the East Baltic lands and even the interior of Jutland and Schleswig-Holstein remained true to the Boreal way of life and preserved much of the old equipment—particularly harpoons or, as in the Gudenaa culture of Jutland, geometrical microliths—throughout the greater part of the Atlantic phase. Similar survivals to the south and west might be expected, but only at Lower Halstow on the Thames estuary is a culture of mesolithic character dated botanically to Atlantic times. The famous site at Le Campigny, Seine Inferieure, once the type station of a mesolithic culture, now turns out to be a typical settlement of the intrusive Western neolithic culture just as in Denmark itself the alleged mesolithic type fossils—the core-axe and the flake-axe of flint—have been proved to persist into the second phase of the local neolithic.

Many prehistorians have wished to explain the innovations seen at Ertebølle—notably the pots and the ground stone axes—by some sort of immigration from the south-west. But the impossibility of identifying there a mesolithic Campignyan culture seems fatal to migrationist theories. Still it leaves open an alternative: neolithic peoples may have reached the North Sea coasts early enough to instruct the Danes in pot-making. The Forest folk of the North may be credited with the

Fig. 7. Ertebølle pot, antler axes and bone combs, Denmark. (4.)

1 Mathiassen, "Gudenaa-Kulturen", Aarbøger, 1937.
2 Clark, 1936, 158.
3 Nordmann, "Havnelevfyndet", FM., 1929.
4 The antiquity of pots and other relics from middens (geologically dated) may have been over-estimated by confusing the two marine transgressions; Årsberättelse, Lund, 1937-8, 1-18.
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devolution of a serviceable axe and even the invention of the “polished stone celt”—the typologists’ criterion of “neolithic”—through the transfer to stone of techniques first applied to bone. Favourably situated for a food-gathering existence and well equipped to exploit their advantages, their environment offered no inducements to change their economy, no cereals to cultivate, no sheep to tame. Still less did it impose upon them the stern discipline that led to city life.

In general the mesolithic cultures just described fill gaps in time and prove the occupation of parts of Europe from the glorious days of mammoth hunting. None illustrates in any sense a transition from the old food-gathering economy to a new food-producing one. Is it not significant that mesolithic cultures are most richly represented in regions remote from the oldest historical centres of civilization and the native habitat of wild cereals and wild sheep? Whatever part mesolithic folk may have formed in neolithic populations, the flocks of sheep and the seeds of grain on which the new economy was based were not carried by wind or intertribal barter, but brought by actual immigrant shepherds and cultivators.

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</tr>
<tr>
<td>6800 B.C.</td>
<td>Yoldia Sea</td>
<td></td>
<td>? Azilian</td>
</tr>
<tr>
<td>6800 to 5000 B.C.</td>
<td>Ancylus Lake</td>
<td>Kunda, Maglemose, etc.</td>
<td></td>
</tr>
<tr>
<td>5000</td>
<td></td>
<td></td>
<td>Western ? Neolithic</td>
</tr>
<tr>
<td>after 5000 B.C.</td>
<td>Littorina Sea</td>
<td>Ertebølle Gudenaa, Halstow etc.</td>
<td>Neolithic I</td>
</tr>
</tbody>
</table>

1 By counting the annual varves of clays laid down by the melt-waters of glaciers, geochronologists claim to be able to give an absolute chronology of the post-glacial period. But, no complete series of varves existing at any one spot, the record has to be compounded by correlating many partial series. Uncertainties in such correlations, in connection with the climatic phases and as to the annual character of all varves, render the figures given somewhat speculative. Clark explains the method (1936, 4-6), but consult also, de Geer, Geografiska Annaler, XVI (1934). The double maximum of the Littorina transgression, not generally admitted till 1937, introduces further complications.
The now desiccated zone of North Africa and Hither Asia had been grassy prairie when Northern Europe was tundra or ice-sheet. And therein grew the wild grasses that under cultivation became our wheats and barleys; sheep and cattle fit for domestication roamed wild. In such an environment human societies could successfully adopt an aggressive attitude to surrounding nature and proceed to the active exploitation of the organic world. Stock-breeding and the cultivation of plants were revolutionary steps in man's emancipation from dependence on the external environment. They put man in control of his own food-supply so far that population could—and did—expand beyond the narrow limits imposed by the naturally available supply of wild fruits and game. But the expansion of population led by its very conditions to the expansion of the revolutionaries themselves—the primitive half-sedentary farmers—or their transmutation by a second revolution into a settled peasantry producing surplus food-stuffs for its own surplus offspring who had become artizans and traders, priests and kings, officials and soldiers in an urban population.

The second revolution was accomplished first in the valleys of the Nile, the Euphrates and the Indus. The considerations adduced in the preceding paragraph, would lead us to expect that the first or neolithic revolution too began in the same east Mediterranean area. By 3000 B.C. archaeology and written history reveal Mesopotamians and Egyptians already grouped in vast cities any one of which might, like Erech, measure 2 square miles in area, and in which secondary industry and trade offered an outlet for the surplus rural population. But beneath the oldest historical buildings in Sumer and Assyria some 70 feet of debris from prehistoric villages bear substantial witness to the immense antiquity of settled life in the Tigris-Euphrates valley. Behind the monumental
cemeteries of the first Egyptian Dynasties, hundreds of prehistoric graves, ranged in the consecutive periods termed Badarian, Amratian, Gerzean and Semainian open a no less extensive vista back to the remote beginnings of food-production on the Nile.

In *New Light on the Most Ancient East* I have tried to sketch in some details in that prehistoric background of Oriental history. And I have tried to show too how the first revolution that precedes it had to spread, and how the growing demands of the new urban centres of population and wealth must involve the propagation both of the arts and crafts on which the second revolution rested and of the economy that sustained it. To find food for rising generations the simplest step was to bring fresh land under cultivation. To supply the needs of Mesopotamian or Egyptian cities the Anatolian or Syrian villages thus formed must turn themselves into cities producing a surplus of farm-produce to support industrial workers and traders. And villages, thus urbanized, must become secondary centres of demand and for diffusion; they must in turn repeat the process of propagation, generating thereby tertiary centres to carry on the work. We should thus expect a hierarchy of urban or semi-urban communities, zoned, not only in space, but also in time and in cultural level around the metropoles of Egypt, Mesopotamia and India. How far does prehistoric Europe confirm such anticipation?

By its spatial position and by special favours of the winds and currents the great island of Crete is easily accessible from the Nile, from Syria, from Anatolia and from peninsular Greece. Its fertile lowlands guarantee a living to farmers and orchardists; its resources in timber, copper and other raw materials can supply the needs of secondary industry; its natural harbours are not only bases for fishermen, but havens for merchants who can transport Cretan produce to urban centres and bring back in return the manufactures and also the science of older cities.

The ruins of neolithic villages have formed a tell, 6.5 m. high, beneath the oldest Minoan levels at Knossos in Central Crete where the Minoan civilization was first identified. But trial pits have revealed but little of the neolithic culture.¹ It was formally neolithic in that pebbles were ground and polished

to make plump celts (axes and chisels). But obsidian was imported from Melos and from Yali so that the farmers were hardly self-sufficing. For the later levels indeed the term neolithic is not even formally correct since a copper flat axe was found on a house floor with stone celts. Stone was also drilled to make spheroid and pear-shaped mace-heads and worked into studs and even vases. The latest houses consisted of agglomerations of small chambers with fixed hearths and stone foundations for their walls.

Pottery, though hand made, was of fine quality, self-coloured grey, black or brown, often burnished, sometimes so as to produce a decorative rippled effect. The forms cannot be called primitive: the vases may be provided with genuine handles (including the wish-bone variety) instead of mere lugs and even with short spouts. Goblets on tall, half-solid pedestals and a globular jar with strap handles on the belly appear before the period ends. Ladles are common as in Lower Egypt and Western Europe. The potter decorated her products with incised patterns including triangles and ribbons filled with punctures.

For their fertility rituals the farmers modelled in clay or carved in soft stone highly conventionalized figurines of the "Mother Goddess", seated or squatting (Fig. 8). As amulets they wore miniature stone axes pierced for suspension (axe-amulets).

Since palæolithic food-gatherers have left no relics on the island, we may assume that the earliest Cretan farmers were immigrants who brought their neolithic equipment with them. "Neolithic Crete" writes Evans, "may be regarded as an insular offshoot of an extensive Anatolian province." His table (Fig. 8) shows many Asiatic relatives to the squatting figurines. The self-coloured pots, with handles and spouts, have a general Anatolian aspect, the fine grey wares can be paralleled in the "Chalcolithic levels" of Megiddo and in the deepest layers of North Syrian tells. The mace-heads too belong to an Asiatic family but recur, like the axe-amulet, in the neolithic village of Merimde in Lower Egypt, which also yielded plump axes and clay ladles. But punctured ribbon

1 Engberg and Shipton, "The Chalcolithic Pottery of Megiddo" (O.I.C., Studies, 10), p. 61.
2 Iraq, III (1936), p. 53.
3 Childe, NLMAE., pp. 59-61.
Fig. 8. Neolithic figurines from Crete and their relatives. After Evans.
decoration and pedestalled goblets have analogies also in the Balkans (e.g. at Vinča, p. 87), and the wish-bone handle is typical of the Macedonian Bronze Age.

The "neolithic" phase was ended by a "quickening impulse from the Nile, which permeated the rude island culture and transformed it" into the Minoan civilization. Evans suspects an actual immigration of predynastic Egyptians, perhaps refugees from the Delta fleeing from Menes' conquest. At least on the Mesará the great plain of southern Crete facing Africa, Minoan Crete's indebtedness to the Nile is disclosed in the most intimate aspects of its culture. Not only do the forms of Early Minoan stone vases, the precision of the lapidaries' technique and the aesthetic selection of variegated stones as his materials carry on the predynastic tradition. Nilotic religious customs such as the use of the sistrum, the wearing of amulets in the forms of legs, mummies and monkeys, and statuettes plainly derived from Gerzean "block figures", and personal habits revealed by depilatory tweezers of Egyptian shape and stone unguent palettes from the early tombs and, later, details of costume such as the penis-sheath and the loin-cloth betoken something deeper than the external relations of commerce.

At the same time even more explicitly Asiatic traits can be detected among the innovations distinguishing the "Metal Age" from the "Neolithic" civilization. Some might indeed have been transmitted via Egypt: stone paint-pots consisting of two or more compartments hollowed out of a stone parallelepiped with perforated corners which were especially favoured in the Mesará, are common to Sumer and Egypt in Early Dynastic times. But Minoan metallurgy is based entirely on Asiatic traditions; the copper-smith cast axe-heads with a hole through the head for shafting in the Mesopotamian manner, the artists treated rosettes and similar figures in the Asiatic, not the Egyptian style. The most striking Minoan pot-forms—the pyxis with cylindrical neck and string-hole lid, the jug with cut-away neck and the side-spouted jar have parallels on the Anatolian, not on the African side; the so-called tea-pot with curious spout (Fig. 9) recurs—

1 Childe, *NLMAE*, fig. 29 (incorrectly attributed to Amratian phase).
THE ORIENT AND CRETE

without the handle—as far away as Tepe Hissar near Damghan and even Anau in Turkestan. The technique of glaze paint that distinguishes Minoan pottery had been earlier employed by the Tel Halaf potters of North Syria. So in religion the cult of the Double-Axe is foreshadowed by Tel Halaf amulets. The use of engraved bead and button seals as contrasted with carved amulets is a very ancient North Syrian-Iranian practice later adopted in Egypt as in Crete.

Fig. 9. Early Minoan III “teapots” and button seal. After Evans.

How far fresh Anatolian or Syrian colonists—merchants or artizans—joined with Egyptian refugees in founding the Minoan cities is for us a secondary question. Minoan civilization was not brought ready made from Asia nor from Africa, but was an original native creation wherein Sumerian and Egyptian techniques and ideas were blended to form a novel and essentially European whole. The admittedly Nilotic and Oriental elements that we see superadded to the Cretan neolithic culture, may be treated as concrete expressions of the transformation of the island’s economy in response to the


2 *Iraq*, II, fig. 51, 5.
demands of the great consuming centres that arose, round about 3000 B.C., on the Nile and the Euphrates. In supplying their needs the Cretan farmers’ sons might find a livelihood in trade and industry; their self-sufficing villages would become commercial cities.

On the basis of the relations subsisting with historical centres, dates in terms of our reckoning have been provisionally given to the nine Minoan periods into which Sir Arthur Evans has divided the "Bronze Age" of Crete in accordance with the stratigraphy observed at Knossos. His scheme is reproduced below with minor adjustments for the earliest dates.

<table>
<thead>
<tr>
<th>Period</th>
<th>Date in years B.C.</th>
<th>Egyptian Dynasties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Minoan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E.M.I</td>
<td>3300—2750</td>
<td>before IV</td>
</tr>
<tr>
<td>E.M.II</td>
<td>2750—2400</td>
<td>IV-VI Old Kingdom</td>
</tr>
<tr>
<td>E.M.III</td>
<td>2400—2100</td>
<td>VI-IX Old Kingdom</td>
</tr>
<tr>
<td>Middle Minoan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.M.I</td>
<td>2100—1900</td>
<td>X-XII (Middle Kingdom)</td>
</tr>
<tr>
<td>M.M.II</td>
<td>1900—1700</td>
<td>XII-XIII (Hyksos)</td>
</tr>
<tr>
<td>M.M.III</td>
<td>1700—1550</td>
<td>XIV-XVII (&quot;Hyksos&quot;)</td>
</tr>
<tr>
<td>Late Minoan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L.M.I</td>
<td>1550—1450</td>
<td>XVIII (New Kingdom)</td>
</tr>
<tr>
<td>L.M.II</td>
<td>1450—1400</td>
<td></td>
</tr>
<tr>
<td>L.M.III</td>
<td>1400—1200</td>
<td></td>
</tr>
</tbody>
</table>

The foregoing scheme can be used only with caution. The earliest synchronism based on an actual and dated interchange of commodities is afforded by M.M.II polychrome vases found sealed in an Egyptian tomb of Dynasty XII after 1850 B.C. For subsequent phases cross-dating (Minoan objects in dateable Egyptian contexts or dated Egyptian imports in Crete and Greece) reduces the margins of error to half a century or so. But though predynastic and Old Kingdom types occur in Crete before 1900 B.C., we have no dated Minoan imports in Egypt to provide lower limits for the earlier periods. And valuable imports may be preserved and copied in a provincial centre long after the models have gone out of fashion in the metropolis.

Secondly the scheme is based primarily on the ceramic sequence established at Knossos in Central Crete; it is not applicable without adjustment to other parts of the island. Thus the ceramic style characterizing L.M.II at Knossos was not in vogue in East Crete where the local artists kept closer to the older tradition and painted their pots in a style termed L.M.Ib. This may have happened before. The finest M.M.II polychrome ware is very rare in East Crete. It has been

assumed that the quarter was largely depopulated for two centuries though the city-ruins and cemeteries do not explicitly demonstrate any discontinuity between M.M.I and M.M.II.¹ A simple escape from this contradiction is to assume that the classical M.M.II ware like the classical L.M.II was a local style confined to the palaces of Central Crete while provincial potters were still carrying on the M.M.I tradition. The East Cretan series would be inflated by assimilating it too strictly to the Knossian.

But at Knossos the Early Minoan period is poorly represented owing to the levelling carried out by subsequent builders; our picture of it is largely filled out by material from sites in East Crete and the Mesará that have yielded sherds similar to those from the E.M. layers at Knossos. But during Early Minoan times Cretan culture was far from uniform, and in potting local idiosyncrasies prevailed over levelling tendencies. Exact parallelism cannot therefore be assumed, and the antiquity of an object from say East Crete might be exaggerated by assigning it a position based exclusively on the Knossian sequence. Minoan chronology is further complicated by the circumstance that the majority of non-ceramic remains of the earlier periods have been discovered in collective sepulchres, used over several generations.

However, no attempt can be made here to evoke in a few pages an adequate picture of Minoan civilization. We must content ourselves with a brief outline of the economic development and some reference to the industrial products that are relevant for comparative purposes.

As in neolithic times the foundations of Minoan economy were fishing, the breeding of cattle, goats and pigs (sheep are not osteologically attested till Late Minoan times)² and the cultivation of unidentified cereals together with olives and other fruits. But now specialized craftsmen—jewellers, copper-smiths, lapidaries—must have been supported by the surplus produce of the peasantry. And so in addition to rural hamlets, larger agglomerations of population must be assumed though no Early Minoan township has been fully excavated. Soundings at Vasiliki³ in East Crete and beneath the palace of Knossos

¹ Åberg, Chron., IV, 201ff; Pendlebury, Crete, xxxi, 300-2.
² Hazzadakis, Tylissos à l'époque minoenne (1921), 77.
³ Described in Boyd Hawes, Gournia.
give hints of the existence of complexes of rectangular houses of brick and timber on stone foundations, like the contemporary cities of Anatolia and Mainland Greece. But even as late as M.M.I we find the rural population living in isolated house-complexes more reminiscent of a big farm than even a village. A dwelling of that period at Chamaezi was an oval walled enclosure, measuring 20 m. by 12 m. and divided by radial walls into eleven compartments—exactly like the Iron Age courtyard houses and wheel dwellings of Western Britain!

Similar conclusions might be drawn from the graves. The standard Minoan burial practice at all periods was collective interment in a family or communal ossuary used for many generations. This practice, foreign to Egypt, Sumer and the Anatolian plateau, was current all round the Mediterranean, going back to Mesolithic times among the troglodyte Natufians of Palestine. In the Minoan ossuaries the bones are generally lying in the utmost disorder. The dislocated condition of the skeletons, which has been observed in collective tombs farther west too, has been taken as evidence of secondary burial; the remains would have been deposited in a temporary resting place until the flesh had decayed. Xanthudides' careful studies of the Mesarā burials have, however, shown that the disordered condition of the bones was due in the main to disturbances by those undertaking later interments who showed little respect to the former occupants of the tomb in making room for a fresh interment. The bodies had generally been placed on the floor of the tomb in the contracted attitude. Similarly traces of fire, sometimes noted on the bones, are due to ritual or purificatory fires kindled within the ossuary rather than to cremation.

The ossuaries themselves may be natural caves (E.M.I to M.M.I), rectangular stone chambers, imitating two-roomed houses, or circular enclosures commonly termed tholoi. In the Mesarā the tholoi vary in internal diameter from 4·10 to 13 m. and are entered through a low doorway, formed of two megalithic uprights supporting a massive lintel and often entered from a small walled enclosure. The walls are from 1·8 to 2·5 m. thick and the inner courses oversail one another as if the whole

1 Evans, P. of M., I, 147.
3 Xanthudides and Droop, Vaulted Tombs of the Mesard.
had been roofed with a corbelled vault on the principle employed in the Cycladic tomb illustrated in Fig. 25, 1. While it is hard to believe that a space 30 or 40 feet across could really have been spanned by a false dome, the smaller chambers certainly do deserve the name of tholoi, or “vaulted tombs”. In an early example at Krasi\(^1\) in East Crete, 4·2 m. in diameter, the corpses must, as in the Cyclades and Attica (pp. 51, 67), have been introduced through the roof, since the door, only 0·5 m. high, was completely blocked by an accumulation of bones and offerings; the “door” would in fact be purely symbolic as in Egyptian mastabas and some British long barrows.

Evans has compared the Cretan tholoi to Libyan and Nubian closed tombs of later date, but Mallowan, followed by Peake, would find the prototypes of the Minoan tholoi in circular brick constructions of unknown, but certainly non-sepulchral, use which he had discovered in the chalcolithic Tel Halaf township at Arpachiya in Assyria that goes back at least far into the fourth millennium B.C.\(^2\) By that date the device of corbelling was certainly well understood in Hither Asia, but it is not attested in Egypt before the Second or Third Dynasty. In fact, the Minoan tholoi, like the contemporary rectangular ossuaries, may be just imitations in permanent material of dwellings for the living, since round houses are attested by a model from Phaestos. As the tholos tomb was current also in the Cyclades, pottery and ornaments of Cycladic character were abundant in the early tholos at Krasi and Cycladic idols occur even in the Mesara tombs, Marinatos seems inclined to think that the type of sepulchre may have been introduced by families from the small islands.

In East Crete (for instance at Mochlos) the house-tombs may be grouped to form small cemeteries such as should correspond to a township where several lineages lived together. Tholoi are more often isolated as if the territorial unit corresponded to a single family or lineage. But in the Mesara small cemeteries are known—three tholoi and a rectangular ossuary at Koumása, three tholoi at Platanos, etc. Such aggregations imply the association of several kinship groups in a single village, but no actual settlements anterior to Middle Minoan have been yet identified in the vicinity. Both in the Mesará and at Krasi when the tholoi had become congested, accessory

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\(^1\) \(A. \Delta., 1929, 103.\)

\(^2\) \(Iraq., II, 20, figs. 13-14.\)
chambers were built on to the original mausoleum to receive subsequent interments, mostly of Middle Minoan date. And by M.M.II there developed the practice of excavating in the soft rock sepulchres designed for a single small family—irregular chambers entered by a short passage or antechamber—as attested by the Mavro Speleo cemetery near Knossos. A small tholos seems to have been built in an excavation in a hill-side in the same period. Subterranean chambers became the standard form of tomb in Late Minoan times in Crete as in Mycenaean Greece. But even before the end of Early Minoan, individual burial in small stone cists, in clay coffins (larnakes) and in jars (pithoi) grouped in cemeteries as contrasted with ossuaries, was beginning to compete with ossuary practice, and steadily increased in popularity during later periods. The clay coffins have early parallels both in Mesopotamia and Egypt whereas jar burial is a specifically Anatolian rite.

The variety of burial practices coexistent in Early Minoan times, like the variety of ceramic traditions, suggests that the island had been colonized by distinct communities which had not yet fused to form a single people with an homogeneous culture. But they seem to have lived together peaceably, as no fortifications have been found, and as members of a single economic system in view of the uniformities in types of metal tools, stone vases, jewellery and seals. This system secured and distributed foreign materials, gold, silver, lead, obsidian, marble, and perhaps amber (from the tholos of Porti), Egyptian and Asiatic manufactures such as fayence beads and stone vases that were copied locally and perhaps Cycladic figurines. Individual artizans needed seals (buttons, beads and prisms) that might bear scenes symbolic of their craft; merchants stamped therewith bales of goods exported to Asine and other mainland ports. But no regular system of writing and ciphering was yet needed nor publicly sanctioned for correspondence or accounts. Though sepulchral furniture discloses considerable personal wealth, neither monumental private tombs, palaces nor temples indicate concentration of wealth in the hands of capitalists human or divine. Cult was conducted in rustic sanctuaries and grottoes. Its symbols—stone figurines imported from the Cyclades or imitating predynastic

1 BSA., XXVIII (1926-7), 263-96. 2 Man, XXIX, 1929, 18.
Egyptian block figures, phalli and model horns of consecration as in Anatolia, dove- pendants as in the Cyclades and Assyria, and votive double-axes of copper and lead —while foreshadowing the distinctive apparatus of later Minoan ritual, still appear in forms appropriate to domestic worship.

In Middle Minoan times power and wealth began to be concentrated in the hands of dynasts residing in Central Crete and combining political and religious authority. Palaces that were also temples, factories and warehouses were erected at Mallia, Knossos and other sites. Specialization invades the domain of domestic industry. The potters' wheel, symbolizing the industrialization of the ceramic art, is attested from M.M.I. The wheel itself was a large clay disc which itinerant potters could carry about with them as they do to-day. Wheeled vehicles are first represented at the same period by a model four-wheeled cart from Palaikastro. They could hardly be serviceable without roads maintained by some authority with more than local jurisdiction. And in fact during Middle

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Fig. 10. The Minoan "Mother Goddess" and (left) Horns of Consecration, from a sealing. After Evans.

1 Koumása, tholos X.
3 Mochlos (Ibid., 102); cf. Iraq, II, fig. 51, 7.
4 Mochlos (P. of M., I, 101).
6 BSA., Supplementary Volume, Palaikastro, 1923, 17.
Minoan times the divergent local traditions that had persisted throughout the preceding period were gradually fused until Crete came to enjoy a single civilization. But the distinction between province and metropolis becomes prominent. The provincial potters of Eastern Crete could not compete with the experts employed in the palaces of Knossos or Phaestos in turning out polychrome ware of egg-shell thinness.

The priest-kings organized more effectively trade with Egypt, Melos, peninsular Greece, and other foreign lands where even the egg-shell pottery has been discovered—in Egypt in a Twelfth Dynasty tomb sealed some time after 1850 B.C. And this commerce must have substantially augmented their real wealth. For its administration a civil service would be required. And the perpetual corporation thus instituted needed a socially sanctioned system of keeping records and accounts. In fact a conventional script of an ideographic type was developed during M.M.I and used for accountancy. The idea was presumably borrowed from the Minoans’ correspondents in Egypt or Syria where writing had been in use for a thousand years. The actual conventions were local, though several signs have Egyptian analogues and the numeral forms are reminiscent of early Sumerian, while the use of a clay tablet as a vehicle of writing is an Asiatic habit.

Increase of wealth is usually accompanied by increase of population. The palace of Knossos was surrounded with an extensive town of two-storeyed houses, known not from actual excavation so much as from a mosaic attributed to M.M.IIb. The native population would be swelled by the immigration of craftsmen attracted by the wealth of Minoan courts and towns. So professional potters from Asia may have introduced the potters’ wheel and trained native apprentices in its use. And other specialists such as fresco-painters may have arrived to minister to courtly desires for refinement. But if new arts were introduced by immigrants, the Minoan schools these founded were original and creative both in devising fresh techniques and in creating a new naturalistic style that owed little to Oriental models. In beholding the charming scenes of games and processions, animals and fishes, flowers and trees that adorned the Middle Minoan II and III palaces and houses we breathe already an European atmosphere.¹

¹ Spearing, *Childhood of Art*, 230, 353.
The development of Minoan civilization was interrupted by catastrophes which may be taken to mark the end of the phases termed M.M.II, M.M.III and L.M.I. The disaster in each case seems due to earthquake and was followed by reconstruction of the ruined palaces. But about 1400 B.C. hostile forces razed them to the ground. The hegemony in the Aegean had passed to Mycenae on the Mainland (p. 76). But urban civilization still flourished in Crete for two centuries. Gournia, for instance, in East Crete, now covered six acres and comprised some sixty houses. And the richly

![Image of Minoan axes and seal impressions]

**Fig. 11.** Minoan axes, axe-adzes and double axe (§), and seal impressions (¶). After Evans and M. A.

furnished Late Minoan cemeteries comprising corbelled tombs (partially subterranean), rock-hewn chamber tombs, pit-caves and shaft-graves as well as larnax burials, remained in use in places even into the Iron Age.¹

This inadequate sketch must be supplemented by a brief reference to certain industrial products that will be cited in later chapters dealing with less progressive parts of Europe. Tools and weapons are particularly relevant in this context. Obsidian was used for knives, sickle-teeth and arrow-heads (including the transverse type). Fine hollow-based specimens are found even in Late Minoan tombs. At least in Early Minoan times stone was used even for axe-heads; notable is a

"jadeite" celt from the tholos of Kalathiana in the Mesara. But copper was being used for celts even in the latest "neolithic" phase and soon ousted stone. Copper ore exists in East Crete and may have been exploited in Early Minoan times. The addition of tin to copper to facilitate casting is attested as early as M.M.I, though the standard alloy containing 10 per cent of tin was not firmly established till M.M.III. Bronze was known to the Sumerians before 2700 B.C. and knowledge of its qualities was probably transmitted thence to the Aegean via Anatolia (p. 36). But the Minoans' demand for tin may ultimately have been supplied from lodes in Etruria, Cornwall or Bohemia, since in each country we shall encounter ambiguous hints of contact with the Aegean world (pp. 120, 230, 320). Iron is represented by a ring from a Middle Minoan tomb in the Mavro Speleo cemetery, but was not used industrially before 1200 B.C.

For axes the flat celt of the copper age did not lead, as in Cis-alpine Europe, to flanged and socketed forms, but was superseded by the shaft-hole axe (Fig. 11, 1) that had been current from prehistoric times in Mesopotamia. After Middle Minoan III the single-bladed axe was ousted in Crete by the

1 P. of M., II, 14.
two-edged variety, also known to the Sumerians, that had as early as E.M.II become a fetish or symbol of divine power. Finally the axe-adze—a combination of two Sumerian types of shaft-hole axe—is illustrated by a gold model assigned to E.M.II and actual specimens from the M.M.I farm at Chamaezi (Fig. 11, 3); by M.M.II the Minoans had evolved the peculiar Cretan variant of Fig. 11, 4. For chisels or adzes an elongated flat celt was used.

Early Minoan daggers are triangular or provided with a very short wide tang (Fig. 12, 1), and sometimes given longitudinal rigidity by means of a midrib cast on both faces. They were attached with small rivets, sometimes of silver, to their bone or wooden hilts that were surmounted by globular or hemispherical pommels of stone or ivory, laterally perforated for transverse rivets to hold them in position. During Middle Minoan times the blades, still either flat or strengthened with a midrib, were elongated and assume an ogival form (Fig. 13). Some have a flat tang, like Asiatic daggers, and the rivets are large. But the palace of Mallia has yielded a genuine rapier, attributed to M.M.I, which is shown by its elongated pommel and its attachment to the hilt to be a development of the Sumerian series illustrated in the Royal Tombs of Ur. And in M.M.III the great rapiers from the Shaft Graves of Mycenæ (Fig. 14, 1-3) are clearly elongations, to the surprising length of 93 cm., of the native types of Fig. 13. The pommels are improvements on the Early Minoan form approximating to

1 P. of M., I, 103, n. 3
2 Xanthudides and Droop, pls. XXIII, LIV.
Fig. 14. M.M.III rapiers (Mycenae) and L.M.I. hilt (Crete). After Evans.
Fig. 21, 3, while the hilt-plate of type 1 preserves a reminiscence of the distinctively Egyptian crescentic gap. In L.M.Ib type 2 develops into the rapier with horned guards (Fig. 14, 4), and then in L.M.III into a short sword with flanges carried right round the hilt. But towards the close of the period a new type, adapted for cutting as well as thrusting and apparently evolved beyond the Balkans, appears to herald the collapse of Aegean civilization.

Some Early Minoan dagger-blades might really have been mounted as spear-heads—that must be the case with a two-pronged weapon from Mochlos. But the classical Minoan spear-head, going back to M.M.III, was provided with a socket, formed by folding a wide, flat tang into a tube (Fig. 15). This device had been employed by the Sumerians from the beginning of the third millennium.

In the Early Minoan tholos ossuaries flat slips of stone perforated at each end or in one instance from Platanos at the four corners are common. They resemble in plan the archers' wrist-guards found in tombs of the Beaker culture in Western and Central Europe (pp. 216f.), but were actually used as whet-stones.

Minoan pottery is too rich and varied to be described here in detail. During Early Minoan times self-coloured burnished wares like the local neolithic and Early Anatolian and Cycladic fabrics were current. They are generally dark-faced. In E.M.II the potters of Vasiliki in East Crete covered their vessels with a red ferruginous wash which they relieved with dark blotches deliberately produced by the reducing agency of a glowing piece of charcoal. But from the first the Minoan potter could produce a clear buff ware, probably fired in a kiln. By coating the vessel with a lustrous glaze paint he obtained a surface resembling that of the self-coloured burnished fabrics upon which patterns were drawn in white paint. Alternatively the glaze was used as medium for producing dark patterns on a

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1 Arch., LIX, 105ff.
2 P. of M., I, fig. 72.
3 Frankfort, Studies, II, 90.
light ground. During Middle Minoan times red and yellow were combined with white, but the light on dark system was predominant. In Late Minoan on the contrary this style was abandoned altogether in favour of dark on light. Spiral patterns appear first in E.M.III and perhaps denote Danubian influence transmitted through the Cyclades, but the Sumerians had decorated metal objects with spirals in filigree work as early as 2750 B.C. Some main forms of Early Minoan pottery have already been mentioned on p. 18.

Throughout the Minoan epoch vessels of stone, metal and wood competed with the potters' products and reacted upon their forms and decorations. Indeed from its inception a wealth of stone vases distinguishes the Minoan civilization from contemporary Helladic and Anatolian cultures. Though

![Fig. 16. Egyptian representations of Vapheio cups.](image)

the Egyptians excelled in transforming hard stones into vessels, stone vases had been used in Mesopotamia and Syria too since the fourth millennium and were made in Cyprus before the oldest pots. Of importance for comparison are the block vases already mentioned that may have been copied in clay in the Danube valley and the birds’ nest vases that might be the prototypes for certain Almerian pots; both forms are Early Minoan.

Metal vessels may have been in use even in Early Minoan times and were undoubtedly quite common in later periods. But the competition of plate on the tables of the rich did not involve any degradation of the ceramic art in Crete as it did in Mesopotamia and Egypt. Two shapes are noteworthy—a two-handled tankard or cantharos with quatrefoil lip (represented by a silver specimen from Mochlos allegedly M.M.I)

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1 *Swedish Cyprus Expedition, I* (Stockholm, 1934), I-12.
2 *P. of M., I* , fig. 139a; cf. van der Osten, *The Alishar Hüyük*, 1928-9, Chicago O.I.C. Publication XIX, pl. XI.
which is known in pottery from Hittite times in Anatolia and the Middle Bronze Age of Hungary and in alabaster from Shaft Grave IV at Mycenæ, and the so-called Vapheio cup of M.M.III to L.M.II (Fig. 16),¹ the curious handle of which may after all be inspired by a wooden model; a clay cup with a rather similar handle turned up at Nienhagen in Saxo-Thuringia apparently in an Early Bronze Age cemetery.

Minoan costume, like the Egyptian, did not require fastening with pins so that, apart from a few hairpins, these toilet accessories, so common in Mesopotamian, Anatolian and Central European graves, are missing in Bronze Age Crete. On the other hand the Minoans, like the Egyptians, Sumerians and Indians were skilled at shaping and perforating hard stones for beads. Rock crystal and carnelian were used from Early Minoan times as well as ivory and fayence. Two amorphous lumps from the tholos of Porti have been identified as amber, but Evans has questioned this diagnosis.² By L.M.I amber was certainly reaching Crete regularly from the Baltic, and a gold bound amber disc from the cemetery of Knossos (L.M.II)³ is almost identical with one found in a Middle Bronze Age grave in Wiltshire. Segmented beads of fayence, copying stone beads that go back to E.M.II⁴ (Fig. 12, 2a) were being manufactured in Crete from M.M.III. Similar beads have turned up as imports in the Danube valley, Spain and Southern England, but these seem to be of Egyptian manufacture (p. 326, below).

¹ P. of M., II, 175.
² Xanthudides and Droop, 69.
³ Arch., LXV, 42.
CHAPTER III

ANATOLIA THE ROYAL ROAD TO THE ÆGEAN

In the fifth century the Royal Road from Mesopotamia to the Ægean, led not to the Levantine coasts alone, but on across the plateau of Anatolia—a promontory of Asia thrust out towards Europe. Here ran the route along which Persian armies marched to impose Oriental culture on Greece, along which diplomatists, scientists and merchants travelled to transmit more peacefully and successfully, Babylonian ideas to the young Ionian States. Two millennia earlier the plateau was already a bridge across which merchant caravans could transport products of Mesopotamian civilization towards barbaric Europe; the Taurus’ wealth in ores had induced colonies of Assyrian merchants to settle in Cappadocia and maintain continuous communications with the cities on the Tigris and Euphrates. But earlier still the riverine cities’ demands had been transforming native peasant villages into little townships, inducing them to sacrifice self-sufficiency for the profits of industry and trade. Indeed, when the archaeological record, as laid bare by recent excavations in Turkey, begins, the transformation is already far advanced; in the lowest levels yet reached copper is already competing with stone and bone. In other words nascent industries and trade are already beginning to absorb the surplus rural population, and the husbandman and shepherd are producing foodstuffs beyond their own needs to support the artizans and pay for their raw materials.

This native Copper Age culture, permeated with more eastern traits, extends from the Taurus westward to the shores of the Hellespont. Over this vast area close inspection of the record reveals, embraced within a general unity, local divergences till in north-western Anatolia the material has an almost European aspect. It is known primarily from Hissarlik, the ancient Troy, a key position on the Hellespont commanding at once sea-traffic up the straits and a land route’s crossing to
Europe. There Heinrich Schliemann last century distinguished seven superimposed prehistoric cities, but left a multitude of crucial issues for more scientific excavations, still in progress in 1939, to settle. It will simplify the subsequent exposition if we summarize here in tabular form the cultural sequence as disclosed in the latest provisional reports.1

| Troy VIIa | the "Homeric" city, dated by Mycenaean imports to the early twelfth and late thirteenth centuries B.C. |
| Troy VI | destroyed by an earthquake and similarly dated between 1500 and 1300 B.C. |
| Troy V | represented in places by 2·5 m. of deposit and divisible into four or five phases. |
| Troy IV | with 2 to 5 phases and 1·85 m. deposit. |
| Troy III | 1·85 m. deposit. |
| Troy II | 1·60 m. deposit; reconstructions of the enclosing wall mark three phases, a, b and c, but two or three additional layers, the latest marking a terrific conflagration, are recognizable above the IIc floors. |
| Troy I | 4·4 m. of deposit and four main phases, each subdivisible. |

The sheer depth of the overlying occupational debris suffices to exclude dates as low as 1600 B.C. that have been proposed2 for the destruction of Troy II. And a few hints are available in addition to dead reckoning for estimating the absolute age of the several cities. Grey pottery comparable to the Middle Helladic of Greece begins only in Troy Vc or Vd. Sherds from Id to Va are described as Early Helladic and would in Greece be older than 1900 B.C. Secondly at Alisar in Central Anatolia, West Anatolian goblets such as appear first in Troy Vc were imported towards the end of the "Copper Age"; but this Copper Age stratum preceded a horizon, dated by inscribed tablets to the nineteenth century B.C.3 It is thus hardly possible to place the beginning of Troy II appreciably later than 2500 B.C. By dead reckoning it might easily be pushed back a couple of centuries earlier so that Troy I in any case takes us well into the fourth millennium.4

Troy I was already a little city or township, girt by a massive stone wall5 and ruled perhaps by a chief whose palace

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1 *AJA.*, XLI (1937), 563-6, 595. 
2 Åberg, Chronologie, III, 154ff.; IV, 1-12. 
4 A deposit found on virgin soil at Kum Tepe in the Troad is supposed to be still older. *AJA.*, XXXIX (1934), 33. 
5 *AJA.*, XLI, 597.
was a long rectangular hall, 12.8 m. long by 5.4 m. wide, entered through a porch at the west end. But pending the full publication of recent discoveries a more complete and accurate picture of the earliest civilization of north-western Anatolia may be obtained by supplementing the data being gleaned at Troy by those from the cemetery of Yortan in Mysia and above all from the five superimposed townships of Thermi in Lesbos of which towns I to IV are parallel to Troy I.

Even the earliest settlement consisted of clusters of two-roomed houses, closely juxtaposed along well-defined but crooked and narrow streets. The mud-brick walls rested on foundations of stones, sometimes (in Thermi I and IV and Troy I) laid not horizontally but obliquely in herring-bone formation, an arrangement often employed in the brick architecture of Early Dynastic Sumer. And as in Mesopotamia the doors were pivoted on stone sockets. Some houses in Thermi were provided with low domed ovens of clay only 3 ft. high. Especially in Thermi III pits (bothroi) were often dug in the house floors and carefully lined with clay.

Anatolian economy rested on the cultivation of wheats, barley, millet and presumably vegetables, perhaps also of vines and fruit-trees, the breeding of cattle, sheep, goats and pigs, and fishing with hook and line or with nets. Axes and rare adzes were made from pebbles ground and polished and also from stags’ antlers pierced for a shaft-hole, knives and sickle-teeth from flint blades simply trimmed. Stone battle-axes with cylindrical butts occur already in Thermi I or II and reveal the local ancestry of ornate weapons like Fig. 21, 1. Bone splinters, pointed at both ends, served as arrow-heads, while the armoury comprised also sling-stones and maces with spheroid stone heads.

But trade already brought metal even to Lesbos, and at Thermi I and Troy I there were specialized smiths available to work it. A crucible was found on virgin soil at Thermi, and small metal pins and trinkets were comparatively common at all levels. Most were made from unalloyed copper, but a pin from Thermi II contained as much as 13 per cent. of tin, and a

1 *A.J.A.*, XLI, 18.
2 Lamb, *Excavations at Thermi in Lesbos*.
3 On bothroi in general see *JHS.*, LV (1935), 1-19.
4 *Einhorn* is attested, though perhaps later, at Troy and Kusura (*Arch.*, LXXXVI, 10), emmer only at Thermi, where there are some traces of vines.
bracelet of this rare metal was found in town IV. Indeed by the
time of Thermi II and III metal was common enough for
large implements to be left lying about for modern excavators
to find. Their discoveries include chisels with rounded butts
as in Egypt and in Sumer in Jemdet Nasr times, flat axes and
an axe with the sides hammered up to form low flanges,\(^1\) and
flat-tanged daggers like Fig. 20, 2-4, but still without the
prominent midrib. Though the shaft-hole axe so common in
Mesopotamia is not represented in West Anatolian metal
work,\(^2\) the daggers and pins suffice to show that the local smiths
were trained in the Asiatic rather than the Nilotic school of
metallurgy.\(^3\)

Trade was not however exclusively with Asia nor confined
to metal and ores. Emery and marble vases were imported
from the Cyclades, while copper bird-headed pins from Thermi I
and polished bone tubes (like Fig. 27, 1) from III and IV are
further reflections of intercourse with Ægean islands.

Despite the specialization of the metallurgical industry and
the ramifications of commerce, pot-making was not sufficiently
industrialized for the use of the wheel. The self-coloured,
burnished vases, varying in hue from deep black to brick red
and often copying gourd or leather vessels, are representative
of a tradition common to the whole of Anatolia. A conspicuous
peculiarity throughout the province is the popularity of genuine
handles in addition to simple lugs. Forms distinctive of West
Anatolia are bowls with lugs growing from the inverted rims
(Fig. 17, 1), jugs with cut-away necks (Fig. 17, 2-3), tripod vessels,
and collared pyxides with string-hole lugs and lids (Fig. 17, 4).\(^4\)
Significant changes in form, documented by the stratigraphy of
Thermi, are the expansion of the ends of the tubular lugs on
the bowls to the “horned lugs” in town III and the contem­
porary transformation of tripod legs into models of human feet.
Decoration was effected by means of bosses, ribs, burnedished

\(^1\) As also at Ahlatlibel, near Ankara.

\(^2\) There is a copper battle-axe from Yortan in the Louvre and two
shaft-hole axes rather like Fig. 11, 1, from the Copper Age cemetery at
Ahlatlibel, near Ankara (\(Türk Tarih Arkeolojya ve Etnografya Dergisi, II\)
(1934), 90; \(Archiv. f. Orientforschung, XI\) (1936), 47, fig. 7.

\(^3\) For the distinction see Childe, \(Bronze Age.\)

\(^4\) Bowls on a tall hollow pedestal are missing from Troy, Yortan and
Thermi, but have been found at Kum Tepe, which may be earlier than Thermi
and in the earliest strata at Alisar, van der Osten, \(The Alishar Hüyük, OIP., XXVIII, 67; A f A., XXXIX, 33f.\)
grooves and incisions and, later and at Yortan, thin white paint, the patterns being always rectilinear.

Spinning and weaving would be domestic arts too. Their importance is attested by the numbers of spindle-whorls, often decorated. The weaver may have used perforated arcs of clay up to 9 cm. in length, represented in Thermi III, that seem to be forerunners of the narrower crescentic loom-weights so common in the Hittite levels of Kusura and Alishar.

The domestic fertility cults of a superstitious peasantry may be illustrated by numerous female figurines of stone and clay, the former always highly conventionalized in the manner of Fig. 8, 13-16; clay figurines begin later at Thermi and sometimes indicate the division between the legs. But at Troy itself the "Mother Goddess" (if such she be) was represented on a more monumental scale: an owl-like visage had been carved in low relief on a stone slab, 1.27 m. high, that was found standing just outside the city gate. But to domestic cult again

1 Arch., LXXXVI, 35, fig. 15; Alishar, fig. 30.
2 Very similar figurines turn up sporadically as if imported in Mesopotamia about 3000 B.C.; Speiser, Tepe Gawra, pl. LIII, b. Frankfort, "Iraq Excavations," OIC Communication, 19, fig. 24.
3 AJA., XLII, pl. XX.
belong clay phalli from Thermi and perhaps a horned clay spit-support (? altar) rather like Cretan horns of consecration. The dead were apparently buried, if adults, outside the towns in regular cemeteries—enclosed in jars, judging by the case of Yortan.

After the long period of relatively peaceful development represented by the 4 metres of "Troy I" and the four successive townships at Thermi unrest led to a concentration of power and wealth. Though its population was already dwindling, Thermi V was fortified with a stout stone wall supplemented by complicated outworks. Even so the site was soon deserted; it has yielded vases imported from Troy IIa, but none of those proper to the later phases of that city. At Troy potent chieftains had arisen who exploited to the full the strategic advantages of their site and concentrated in the city West Anatolian trade to the ruin of their rivals. Troy II was now encircled with a new stone wall, surmounted with a parapet of
mud-brick. But, though larger than Troy I, the circuit of Troy II still enclosed only some 7,850 sq. m., or less than two acres. Its ruler built himself a palace of the “megaron” plan—a hall with central hearth, 66 ft. long by 33 ft., preceded by a porch 33 ft. long and wide (Fig. 18). After several reconstructions the citadel was taken by hostile assault and set on fire. But before the final catastrophe the defenders had hidden many of their valuables. Our knowledge of Trojan metal-work and jewellery is mainly derived from these hoards that the plunderers had missed.

Ere its destruction Troy II had become economically, if not physically, a city. Through its monopoly of Hellespontine trade, its citizens amassed wealth to support an industrial population and pay for imported goods. Tin was obtainable in such abundance that bronze containing the standard proportion of 10 per cent. tin and 90 per cent. copper was in general use. Gold, silver, lead, obsidian were also imported; lapis lazuli from Iran and amber from the Baltic are also represented in hoard L, the date of which is not, however, quite certain. Specialist jewellers, potters and other craftsmen, trained in
Asiatic schools, settled in the rich city. The jewellers introduced solder, filagree work and the trick of making beads from two grooved discs of gold soldered together—all devices employed by Sumerian jewellers in the early third millennium.

The potters’ wheel was introduced in the time of Troy IIb or IIc, but the products turned out by the new specialist craftsmen carry on the native traditions in form and surface appearance. Shapes easily recognized as emerging first in Troy II are anthropomorphic lids and jars (“face-urns,” Fig. 19, 2 and 6), jugs with flaring mouths (Fig. 19, 4), and curious two-handled goblets (Fig. 19, 5). But these appear already hand-made in phase IIa and are merely exaggerated expressions of tendencies inherent in the earlier and more generalized Anatolian tradition. The representation of the “Mother Goddess” on the face-urns is significantly like that on the handles of early Sumerian funerary jars\(^1\); but the

\(^1\) Childe, *NLMAE.*, fig. 75.
convention is already foreshadowed in the stele from Troy I. Side-spouted jugs, multiple vessels, jugs with double necks, zoomorphic vases are essentially Anatolian and not confined to Troy II. Improvements in the preparation of the clay and firing, probably introduced at the same time as the wheel, allowed the potter to produce harder, paler and less porous vessels. But to preserve the effect of the old self-coloured vases, their surfaces were normally covered with a ferruginous wash that turns red on firing (red wash ware)—a device popular at Ališar and farther east, and employed even in the Middle Danube basin.

Despite the abundance of metal, stone, flint, obsidian, bone and antler were still freely and almost predominantly employed for axes, battle-axes, agricultural implements, knives, awls, pins and combs. The battle-axes carry on the tradition of Troy I, but include some superbly polished weapons of semi-precious stones (Fig. 21, 1) (from Treasure L) that must be ceremonial.
The jewellery from the hoards not only demonstrates the wealth of Troy, but the divergent ramifications of its commerce. Many items are specifically eastern; the earrings and lock-rings with flattened ends, the spiral filagree work (Fig. 22, 3), the gold disc beads, etc., may be regarded as Sumerian and the technique of the knot-headed pin\(^1\) was known there as in predynastic Egypt.\(^1\) Pins with double spiral heads (of which Fig. 22, 3, is a glorified version) are found all across Anatolia and Iran to India and Anau.\(^2\) A “spear-head” identical with the Cycladic specimen of Fig. 23, 1, from Treasure A, belongs to a family represented also in Central Anatolia, Cyprus, and Iran.\(^3\) Earrings like Fig. 22, 1, are worn by foreign dancing girls depicted on an Eighteenth Dynasty tomb-painting.\(^4\) At the same time as we shall see, so many types familiar at Troy recur in south-eastern and central Europe as to give the impression that Trojan tin came from Bohemia and their copper perhaps from Bulgaria. On the other hand, bossed bone plaques, like the Sicilian specimen shown in Fig. III and rather more distant British analogies to the earrings and twisted armlets from Treasure A may indicate exploitation of western lodes. The bossed bone may belong to Troy III or IV rather than II.\(^5\) Ring pendants of stone, recurring in gold in Wallachia and Transylvania, might disclose one source of Trojan gold. Copies in East Prussia and Sweden may be counterparts of the amber beads from Treasure L. If Troadic trade was founded to satisfy the Oriental demands for metal, Troy II was itself a centre whose demands influenced our Continent. Yet Trojan merchants and officials seem to have managed their business without writing. They certainly did not, like the Cretans, adopt the use of stone seals. But they did copy Asiatic stamp seals in clay.

The old native fertility cult continued without any notable changes, but the figurines, now predominantly of stone, are all highly conventionalized (Fig. 8, 15), and the phalli are made of stone.

For the development of European culture Troy II represents the most significant moment in West Anatolian prehistory, but

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Fig. 22. Gold earring and pendant from Treasure A, pin from Treasure D, bracelet from Treasure F, and knot-headed pins (4). Museum f. Vorgeschichte, Berlin.
not of course its end. After the sack of Troy II important settlements termed Troy III, IV and V were built on the site. All lasted long enough to need several local reconstructions, all were urban in the sense that they comprised specialized potters and smiths and relied upon trade, and in all the pottery attests unbroken continuity of culture. Face-urns and two-handled goblets were still being made in red wash ware in towns III and IV, and the fabric at least remained in vogue also in V. But in the latter township the wash was sometimes used as a paint, but only to produce a simple cross on the insides of shallow bowls. Similarly pottery termed Early Helladic and bone tubes of Cycladic type, like Fig. 27, r, were still being imported even in the earlier phases of Troy V. In this town and also in IV, the American expedition has uncovered the ruins of domed ovens.

In the latest layers of Troy V a new pot-fabric emerges either through autochthonous developments or through fresh stimuli from without. It is a fine grey ware owing its colour to the reduction of the iron oxides in the selected clay by controlled firing in a kiln—what is termed Minyan ware—and is accompanied by an oxidized red variant. These are the characteristic native wares of Troy VI and VII too.

With the sixth town Troy once more attained the full dignity of a city. It was surrounded with a new stone wall enclosing an area of 15,000 to 18,000 sq. m. or about 4 acres. Trade across the Aegean is attested by the importation of Minoan-Mycenaean pottery of L.M.I to L.M.IIIa styles, and these imports fix the age of the settlement. From Troy VI comes the earliest osteological evidence for horses in the Troad. The dead were now cremated, their ashes enclosed in urns of Minyan ware and buried in a cemetery outside the city walls. The cemetery of Troy VI was in fact an urnfield like those that begin in the Middle Bronze Age of Central Europe.

Troy VI was not, as had generally been thought, the city sacked by Agamemnon and his Achaeans. It was destroyed by an earthquake but promptly rebuilt on a smaller scale by the old inhabitants. Imported Mycenaean sherds show that the reconstructed city, VIIA, flourished in the thirteenth and well

1 A.J.A., XXXVIII (1934), 229ff.
4 A.J.A., XLII, 42.
into the twelfth century B.C. Its end was violent, and the date inferred from the pottery agrees remarkably well with the Greek tradition of the Trojan war. Thereafter European barbarians usurped the throne of Priam. In the squalid town of Troy VIIb socketed axes of Late Bronze Age form, cast by Central European methods, and fluted and wart-ornamented wares allied to the Danubian Lausitz fabric leave no doubt as to the origin of these invaders. On the other hand, the continued production of wheel-made vases in the old Minyan technique and of native form demonstrates the persistence of the old Anatolian population in alliance with or subjection to the Central European intruders.

Other points in Troy may be documented from Dörpfeld Troja und Ilion, Berlin, 1902, and H. Schmidt, Heinrich Schliemann’s Sammlung Trojanischer Allerländer, K. Museen zu Berlin, 1902.
Chapter IV

Maritime Civilization in the Cyclades

The Cyclades are scattered across the Ægean, remnants of a land-bridge between Anatolia and Greece affording a passage for cultural ideas from Asia to Europe. To mere food-gatherers or self-sufficing peasants, the islands, often small and barren, offered no attractions. But to mariners crossing from Asia to Europe they offer convenient halting places and lairs to any pirates who might wish to prey on more peaceful voyagers. Moreover they contain raw materials of the sort needed by urban civilizations—copper (Paros and Siphnos), obsidian (Melos), marble (Paros and others), emery (Naxos). Accordingly while unoccupied by neolithic men, the Cyclades were early colonized by communities that could find a livelihood in commerce and perhaps in piracy too. Such communities must have lived near the shore and presumably in townships. But only at Phylakopi in Melos¹ has a Cycladic settlement been fully explored. There three consecutive townships could be distinguished, preceded by some earlier occupation represented by sherds collected beneath the oldest house-floors. The city has been partially engulfed by the sea, but must have extended well over 4 acres. The first town was apparently unfortified, the second and third girt with strong stone walls, 20 ft. thick in the latest phase. Fortified settlements are also known at Chalandriani² on Syros, on Paros³ and elsewhere. But these fortifications seem relatively late. Soon after the foundation of Phylakopi II M.M.Ib polychrome vases were imported from Crete; the city is accordingly hardly older than the twentieth century B.C.; it is frankly Middle Cycladic.

For the remaining islands and for earlier periods we are reduced to estimating the size and stability of the settlements

¹ For Phylakopi see Excavations at Phylakopi in Melos (Society for Promotion of Hellenic Studies, Supplementary Volume, IV, 1904).
² For tombs on Amorgos and Paros, see Tsountas, Κυκλαδικά, in Έφ. Ἀρχ., 1898; for Syros and Siphnos, ibid., 1899.
³ A.M., XLIII (1917), 10ff.
from the cemeteries. Few have been fully explored but they were admittedly extensive. Three on Despotikos comprised 50 to 60 graves each; on Syros one cemetery at Chalandriani was composed of nearly 500 graves, a second of more than 50; on Paros Tsountas mentions nine cemeteries of from 10 to 60 graves. Of course all these burials are not contemporary. While it has been customary to assign most cemeteries to the Early Cycladic period (before 2000 B.C.), Åberg¹ has shown that

¹ Chronologie, IV, 71, 84.
some graves must be Middle or even Late Cycladic. Fortunately Cycladic imports in Egypt, in Crete, at Thermi and Troy, and on Mainland Greece suffice to show that the islands’ culture reached its zenith in the third millennium. Marble idols like Fig. 23, 2, were imported into Crete chiefly during E.M.III, a blade like 23, 1, from the same tomb on Amorgos, was included in treasure A of Troy II; Cycladic marble vases were used in Thermi I-III, and the bird pins of Thermi I recur on Syros; a pin with double spiral wire head like Fig. 27, 9, was found in an Early Helladic tomb at Zygouries; “frying pans” with spiral decoration like Fig. 24 were found in the oldest Early Helladic township at H. Kosmas in Attica, and in the E.H.III level at Asine; duck vases (like Fig. 28, 2) were imported into Ægina in Early Helladic times though they continued to reach Eutresis in Boeotia during Middle Helladic I (pp. 66ff.). Finally a zoomorphic vase of Parian marble was recovered from a predynastic grave in Egypt.¹

The inference that the density of population on the islands was made possible by trade and manufacture is confirmed by the list of exports just given. And of course that list is by no means exhaustive. Obsidian was quarried on Melos and exported as nuclei or blades to Crete, Mainland Greece and the other islands. The Cycladic grave goods comprise the products of specialized craftsmen—smiths, jewellers, lapidaries—and prove the use of copper, tin,² lead, silver and other materials which in some cases must have been imported. The rôle of maritime intercourse is further emphasized by the frequent representation of boats on the vases (Fig. 24).³ But the islanders do not seem to have needed writing for their business transactions and did not even make regular use of seals like the Minoans. The prominence of weapons in the tombs (especially of Amorgos), and the fortification of the settlements may indicate that piracy was already combined with legitimate trade. In any case being dependent on overseas trade, the prosperity of the islands might be expected to decline when that trade was “cornered” by monopolistic princes in Crete and the Troad. A real contraction of population during Middle Minoan II-III and Late Minoan I-II would be perfectly

¹ Frankfort, Studies, ii, 103.
² One dagger from Amorgos was of unalloyed copper, but a ring contained 13.5 per cent. tin.
³ On Ægean ships see Marinatos in BCH., LVII (1933), 170ff.
comprehensible. In that case the bulk of our material would really be Early Cycladic.

But this Early Cycladic culture was by no means homogeneous. Culturally the islands fall into a southern and a northern group overlapping only on Naxos.\(^1\) To the former

belong Melos, Amorgos, Despotikon, Paros and Antiparos; to the northern Syros, Siphnos, Andros and also Euboea. The contrast is revealed in burial practices as well as in grave-goods. In the southern group, though shaft-graves and chamber tombs of uncertain age are plentiful near Phylakopi,\(^2\) the early graves were normally trapezoid cists. In the oldest cemeteries\(^3\) (the

\(^1\) Äberg, *Chronologie*, IV, 59f.
\(^2\) Phylakopi, 234-8.
Pelos group), definitely antedating Phylakopi I, the cists served as ossuaries and contain several skeletons together with vases like Fig. 28, 1, and "fiddle idols" like Fig. 8, 10-12. The later tombs were individual graves; they contain idols like Fig. 23, 2, marble vases and weapons. On Syros in the northern group rectangular or oval tombs were built in excavations in the hillside and roofed by corbelling (Fig. 25). But these too served as individual graves, and the single body was introduced through the roof. As at Krasi in Crete, the door (only 50 m. square) was merely a ritual element. In Euboea

the tomb was a pit-cave, excavated in the ground and containing only a single corpse (Fig. 25). The pottery from the northern isles includes dark-faced fabrics often decorated with running spirals and excised triangles (Fig. 24). Technically it corresponds to the Early Helladic I of the Mainland though Cycladic imports at Eutresis prove that on the islands this fabric remained current in Middle Helladic times. Favourite forms are the so-called frying pans and globular or cylindrical pyxides with lids. In some graves on Syros pottery of this class is associated with marble idols like Fig. 23, 2, which are

1 'Εφ. Αρχ., 1899; cf. p. 48, above.
2 Papvasileiou, Περί τῶν ἐν Ἑβοβᾶ ἀρχαῖων ταφῶν, Athens, 1910.
3 Goldman, Eutresis, 182.
common to both groups of islands. Other graves on Syros and Naxos contain sauce-boats, jugs with cut-away necks and other vessels decorated in lustrous glaze paint in the style of Early Helladic III (p. 65). Finally Anatolian forms are common in the northern isles and one tomb group on Euboea contained exclusively Troadic vases (like Fig. 19, 3-4) and daggers (like Fig. 20, 2).

The fish emblem carried by (northern) Cycladic boats had been the standard of a predynastic parish in the Delta that did not survive into historic times in Egypt. So Fish-folk from the Nile may have fled to the Cyclades when Menes conquered the Delta. Other Cycladic traits—the tweezers (Fig. 26, 2), the popularity of stone amulets and particularly the type represented in Fig. 27, 4; the use of palettes (though the Cycladic specimens are generally more trough-like than the Egyptian and Minoan) and the preference for stone vases may also be Nilotic traits.

1 Åberg, Chron., IV, 102, nos. 13, 15; in both graves the "frying-pans" were decorated with concentric circles so that those with running spirals may be earlier.
2 Åberg, Chron., IV, 86; Congres Int. Arch. Athens, 1905, 221.
4 These palettes, perforated at the four corners, resemble, but only superficially, the wrist-guards of the Beaker complex; cf. B.S.A., III, 67.
Metal work, pottery and dress on the contrary are rather Asiatic than African. Broad flat celts were used as axe-heads. Shaft-hole axes are represented only by an axe-hammer and and axe-adze from a hoard at Cythnos. Daggers with a stout midrib and rivets, sometimes of silver as in Crete, are common chiefly on Amorgos. Spear-heads were slotted for mounting as shown in Fig. 26; the type with hooked-tang, shown in Fig. 23, 1, has already been connected with Asiatic models on p. 43.

At least in the northern islands clothing had to be fastened with pins as in Anatolia, and the types with double-spiral and bird heads have already been encountered in that area. Rings, bracelets and diadems of copper or silver were also worn as in Asia. The silver diadems resemble gold ornaments from an E.M.II tomb at Mochlos in Crete and from the Royal Tombs of Ur. Some of the beads and amulets may be Asiatic, notably the dove-pendants that are found even in the early tombs of the Pelos class. The so-called phallic (or winged) beads (Fig. 27, 3) might be compared with the fly-amulets of Egypt

1 B.M., Bronze, fig. 174.
2 Evans, P. of M., I, 97; Woolley, Ur Excavations, The Royal Tombs, pi. 139.
3 Åberg, Chron., IV, 62-3.
and Mesopotamia, but probably derive from a form fashioned of deers' teeth by the mesolithic Natufians of Palestine. A speciality of the northern isles was the decorated bone tube designed to contain pigments (Fig. 27, 1). But similar tubes have been found in Troy IV and Va, and at Byblos in Syria as well as on Levkas in Western Greece.

The self-coloured sepulchral pottery belongs in a general way to the same Anatolian tradition as the early Cretan, and some vase forms such as the pyxides are in the same vague way Anatolian. Even the curious frying-pan form so common in the northern graves recurs, in copper, in a "royal tomb" at Alaca Hüyük in Central Anatolia. (The excised decoration and the form of the handles show that these odd utensils are copied from wooden originals.) On the other hand, the running spiral design on North Cycladic pottery is in a general way a Danubian motive.

As already indicated Cycladic culture declined when Minoan palaces indicate a Cretan grip on maritime trade and the warlike Minyans occupied the Helladic cities. On most islands only a few graves are dated by long rapiers or imported Minyan vases to Middle and Late Cycladic times. The "halberd" of Fig. 26, 3, comes apparently from such a tomb. But her resources in obsidian secured to Melos a share in Minoan commerce, and Thera too benefited from her neighbours' wealth until a volcanic convulsion overwhelmed her inhabitants. Phylakopi II was a fenced city with regular streets. Imported M.M.I-II polychrome pottery and Minyan vases from Greece found together on the earliest house floors show how close was the island's connection both with Crete and with the Mainland. Conversely the matt painted Middle Cycladic I pottery of Melos is significantly like the Early Bronze Age or Cappadocian ware of Alişar, in Central Anatolia, as if the island had also connections with the East. At a later stage in Phylakopi II a large building equipped with pillar-rooms like a Cretan palace and decorated with a frescoe of flying fishes in M.M.III technique might be the residence of a Minoan governor or consul. The potters' craft was industrialized, but

1 Cf. Childe, *NLMAE.*, fig. 36 (Gerzean).
3 Åberg, *Chron.*, IV, 13, 87; *AJA.*, XXXVIII (1934), 229, 231.
4 *MSAN.*, 1896, 30.
5 On Thera see Åberg, *Chron.*, IV, 127-37.
the wheel-made vases were decorated with lovely naturalistic patterns in matt painting imitating the Minoan style of M.M.III-L.M.I (Fig. 28, 3). But though ceramic technique

![Cycladic pottery: 1, Pelos; 2, Phylakopi I; 3, Phylakopi II. (L.C.)](image)

and style changed there is no break in the tradition; matt paint had replaced the glaze medium at the beginning of Phylakopi II or even earlier though the patterns at first were geometric as in Early Cycladic. In Late Mycenaean-L.M.III
times the fortifications of Phylakopi were strengthened; the walls were now 20 ft. thick, and near the gate a stair-case led up to a tower or rampart-walk. Most of the other islands have yielded traces of occupation at this time, but their culture now was just a variant of the Mycenaean "koine" described on p. 77.
CHAPTER V

FROM VILLAGE TO CITY IN GREECE

‘NEOLITHIC A’

The Greek peninsula has so far yielded no remains of palaeolithic food-gatherers. When the archaeological record begins it was already occupied by “neolithic” peasants who must have been immigrants already possessed of a rich equipment, constituting the Sesklo culture.1 Particularly in the wide valleys of Thessaly and Central Greece they found an environment which they could exploit from small self-sufficing hamlets, continuously occupied. They lived in modest round or rectangular huts of wattle and daub or of stone or perhaps mud-brick on stone foundations. A model from Sesklo shows a house with gabled roof. The repeated reconstruction of such dwellings has converted the settlements into little tells (toumba or magoula). Such mounds are very numerous but generally small: 100 by 75 m. is an average area for a Thessalian tell, but at Hagia Marina in Phocis the mound covered 300 by 200 m. From the stratigraphy of these tells two phases, A and B, of neolithic culture followed by a “Bronze Age” civilization can be deduced.

In phase A the villagers lived by cultivating cereals, probably also vegetables and fruit-trees, and breeding cattle, sheep or goats and pigs. For preparing foods stone pestles and mortars were employed as well as saddle-querns. The carpenter used adzes of two types—the bevelled celt (D) and a sort of shoe-last celt (B), quite like the Danubian form (Fig. 29). Both may be made either from pebbles or from sawn blocks. A textile industry is attested by whorls, generally flat, and spools.

1 Mylonas, ‘Η νεολιθική Εποχή της Ελλάδα, Athens, 1928, gives a good general survey of the Stone Age in Greece.

2 Barley is attested for period A at Tsani, wheat, barley, figs, pears and peas for period B at Sesklo and Dimini, vulgare wheat from Rakhmani IV (D).
Unspecialized potters built up by hand delicate vessels, imitating baskets or perhaps even metal vessels  in an extremely fine burnished ware, generally red, in the Peloponnese sometimes black or mottled. The pots might be decorated with simple rectilinear patterns formed by wedge-shaped or round punctuations or by lines in white paint. In northern Greece the vase surface was more often covered with a white slip on which designs were painted in red; in Central Greece and the Peloponnese the white slip is often omitted. The patterns, often very elaborate, are clearly derived from basketry

2 The surface colour is determined by the firing, an oxidizing atmosphere yielding red, a reducing black. See Blegen, *Prosymna*, 368-9; *Hesperia*, VI, 491-6.
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originals, but each hamlet developed its own distinctive style of painting. A few stone vases were found at Sesklo.

Though self-sufficing communities, the neolithic hamlets were not mutually isolated; they exchanged pots\(^1\) and doubtless other commodities. War is not attested; the only definite weapons found were sling-stones, probably used by hunters. Peaceful commerce outside the province is disclosed by the general use of obsidian. At Tsani a stone button seal bearing a cruciform design was found, and clay models of seals are reported from Sesklo, Hagia Marina and from Nemea in the Peloponnese. The type is certainly Asiatic. Such seals generally occur in a "chalcolithic" milieu, and copper may

\[ \text{Fig. 30. Pottery of Sesklo style, white on red and red on white. After Wace and Thompson (4).} \]

well have been known to the "neolithic" Greeks. Some of their pots seem to imitate the shape and even the rivets of metal vases, and at Hagia Marina Soteriadhes\(^2\) claims to have found riveted copper daggers on virgin soil in a Sesklo settlement. Still, no sustained effort was made to secure regular supplies of metal.

Surplus energies were devoted rather to domestic fertility cults. For these figurines were modelled in clay, depicting, often with considerable verisimilitude, a female personage, standing or seated, or, in one example from Chaeroneia, nursing an infant (the "kourotrophos") (Fig. 31). Model thrones or altars (Fig. 32) were also manufactured. Cremation burials in pits are reported from a cave near Argive Heraeum.\(^3\) As ornaments and charms the peasants wore bracelets of stone or

\[ ^{1} \text{Wace and Thompson, p. 241.} \]
\[ ^{2} \text{Mylonas, op. cit., fig. 64.} \]
\[ ^{3} \text{Blegen, Prosymna, 24-7.} \]
Spondylus shells (as on the Danube), and stone nose-plugs as in the al’Ubaid culture of Sumer.

The basketry pottery, the figurines, the use of brick and above all the stamp seals suggest an Asiatic origin for the neolithic Greeks, but in North Syria rather than Anatolia. Technically the chalcolithic pottery of Cyprus\(^1\) is very like the red-on-white ware described above and may constitute a link

\(^1\) *Report*, Dept. of Antiquities, Cyprus, 1936 (Nicosia, 1938), 28; Schaeffer, *Missions en Chypre*, 110.
with the Tel Halaf complex farther east. At the same time connections with the cultures of the Lower and Middle Danube valley are already discernible; significant common elements are shoe-last adzes, triangular altars, shell bracelets.

The Sesklo culture just described is found all over Thessaly and Central Greece and extends into the Haliakmon valley and Western Greece and into the Peloponnese. And phase A endured for a long time: at Tsangli five out of ten metres of settlement debris are attributed to it, and four out of eight occupational levels at Zerelia. But eventually the continuity of tradition was interrupted. Changes in ceramic technique, in art, in architecture and even in economy not only define a new period, but also may betoken infiltrations of new peoples. But since the break is nowhere complete, it may be assumed that the old population absorbed, or was subjugated by, the new settlers. The latter’s cultural affinities seem to lie in the Balkans, but the manifestations of their advent differ in different regions.

‘Neolithic B’

At Dimini near the Gulf of Volo a completely new settlement was founded in phase B. In contrast to the earlier open hamlets it was defended by a complex of stone walls (Fig. 33). Sesklo was probably fortified at the same time. In both citadels houses of the megaron type with porch and central hearth were erected. At Dimini and Sesklo the bevelled adze (D) went out of use, and axes (Fig. 29, C) were employed for the first time. These were hafted at Dimini with the aid of perforated antler sleeves. Copper and gold were now imported; they are represented respectively by two flat celts and a ring-pendant (Fig. 34, 2), all from Dimini. In East Thessaly the vases were now decorated with spirals, normally combined with the older basketry patterns; the designs may be incised or painted in white or warm black on a buff, red or brown ground and may then be outlined with a second colour—black or white; the high pedestalled bowl or fruit-stand appears for the first time. Fortifications, megaron-houses, antler mounts, gold, spiral motives, polychromy, pedestalled bowls are all combined as traits of the Arnişd culture in Transylvania. Twelve years ago it looked as if Dimini had been
founded by invaders from the Alt valley who imposed their culture also on the inhabitants of Sesklo, Rakhmani and other East Thessalian villages. But now polychrome Dimini ware has turned up in the Peloponnese at Gonia near Corinth and at the Argive Heraeum, though at the latter site spirals are missing. Sites really intermediate between Ariusδ and Dimini have not been disclosed by explorations in the intervening region. A bodily transfer of any north Balkan culture to Greece accordingly seems improbable to-day.1 Perhaps the admitted similarities between Dimini and Danubian sites should be explained as parallel modifications of a cultural continuum extending right across the Balkans. For instance while spiral motives might be regarded as Danubian elements in Greece, the technique of vase-painting, even beyond the

1 Wace in ESA., IX, 123.
Balkans, must be considered a south-eastern trait (see pp. 87f. below).

In Western Thessaly and Central Greece the break is less abrupt. But everywhere the bevelled adze went out of fashion to make way for blunt-butted or flat axes (types A and C). And Danubian influence has been seen in the appearance of black or grey (carboniferous) wares which may be decorated by striped burnishing, flutings or corrugations, incisions, beading, and thin white paint, bear spiral patterns and form pedestalled bowls. Admittedly all these peculiarities, save white painting, occur also north of the Balkans in the Middle Danube basin and reflect a cultural continuity now extending from the Peloponnese to Hungary. But Crete and the Levant might provide as likely sources for black burnished wares, pedestalled bowls and blunt-butted axes as the Danube basin (p. 16). And in any case local styles of painted ware, decorated with exclusively rectilinear designs, though no longer in red-on-white, carry on the ceramic traditions of period A into period B. And in Boeotia and the Peloponnese the black surface of carbonaceous ware was sometime simulated by a coat of lustrous (glaze) paint applied to the old red wares; this has been termed "neolithic Urfrinis".

1 Frankfort, Studies, II, 40-5.
The influx of new settlers in period B had not involved an immediate transformation of the economic structure of Hellas. Despite the copper axes from Dimini, phase B can be termed neolithic as legitimately as phase A. A civilization of Bronze Age character appears in the tells of Central Greece only in a subsequent stratigraphical phase. To this the name “Early Helladic” (E.H.) has been given and it can be subdivided into three phases, E.H.I, E.H.II, and E.H.III, like the Early Minoan period.

The “neolithic” population, swollen by the immigrants received in phase B, might have sought an outlet for the surplus in trade and industry. In many cases the Early Helladic townships have been built upon the sites of neolithic villages; sometimes specifically neolithic elements, such as Dimini ware, are found on the oldest “Bronze Age” floors. But on the whole it looks as if the new economy was introduced by fresh invaders, coming ultimately from Anatolia. Several Early Helladic towns are new foundations on sites chosen with a view to trade rather than agriculture. Architectural tricks, such as herring-bone masonry (Eutresis, H. Kosmas) and pits sunk in the house-floors (bothroi), and ceramic novelties—self-coloured pyxides, jugs with cut-away necks, bowls with tubular and horned lugs growing from the inverted rims and askoi—suggest a transfer of Anatolian culture across the Aegean. But if that means colonization, it was at least a complex process. All innovations do not occur simultaneously. One of the earliest pots from Asine is more like a Copper Age pot from Ališar than any West Anatolian form. In the Peloponnese and Attica Cycladic features point to the islands as a route on which the colonists might have lingered. In Central Greece on the contrary, Troadic and Macedonian traits are more conspicuous, as if borne by a more landwise migration. And generally there is some overlapping between Early Helladic and “Neolithic”.

In any case the resultant Early Helladic civilization exhibits an explicitly urban character. All settlements indeed still depend on farming, often combined with fishing. Viticulture is now definitely attested by grape-seeds from Hagios.

1 Frödin and Persson, Asine, 204.
Kosmas. But everywhere trade and industry offered outlets for surplus population. Copper, tin, lead, gold and silver were mined or imported, distributed and worked. Stone axes are so rare that metal must have been generally employed for tools. Though few have survived we have an axe-adze and a flame-shaped knife like the Troadic example of Fig. 20, 1, from an E.H.II level at Eutresis. Obsidian was still used for arrowheads (hollow-based), knives and sickle-teeth.

The people lived normally in long rectangular or apsidal two-roomed houses (Orchomenos) or in agglomerations of small chambers (Zygouries). The wall foundations were of stone, but the superstructure was often of mud-brick supporting a roof. By E.H.III tiles were employed. The houses were generally closely grouped, and some settlements (e.g. Ægina) were already girt with walls, but their areas are unknown. In the rustic townships of Central Greece such as Orchomenos the houses were oval or apsidal and more scattered. At Tiryns and Orchomenos monumental circular buildings were erected perhaps for sacred rather than domestic purposes.

The ceramic industry was not industrialized since Early Helladic vases are all hand-made. The fabrics that appear first (from E.H.I onwards) are dark and self-coloured, burnished and decorated with incised and excised patterns. In a later phase (E.H.II) begins a buff ware which is covered with a dark glaze paint to reproduce the effects of the old burnished fabric. It is generally known as Urfinnis and probably denotes Cretan influence though red wares had been coated with a rather similar "glaze" in late neolithic times. In E.H.III the glaze paint is used as the medium for producing dark geometric patterns on a light ground—chiefly in the Peloponnese—or as a ground on which similar patterns are drawn in white—in Central Greece. The rectilinear light-on-dark designs recall Cretan E.M.II-III patterns, but are also foreshadowed on the black neolithic B vases of the Mainland. Distinctive Early Helladic II-III shapes are sauce-boats (also manufactured in gold), hour-glass tankards, askoi and globular water-jars at

1 The round foundations at Orchomenos are also Early Helladic rather than "neolithic". *Abh. Bayer. Akad.*, VIII, 1934, 8.
3 *JHS.*, XLIV (1924), 163.
first with ring-handles, later with flat vertically pierced lugs, on the belly (Fig. 35).

The importance and wide ramifications of Early Helladic commerce are illustrated not only by the materials used, but by actual foreign manufactures imported or copied locally: leg amulets as in Crete and Egypt (Hagios Kosmas), Cycladic bone tubes (Hagios Kosmas and Levkas), frying pans (Hagios Kosmas, Eutresis, Asine), marble idols and palettes (Hagios Kosmas) and a double-spiral pin like Fig. 27, 9 (Zygouries). From Asia came an arm-cylinder of twisted silver wire (like a gold one from Troy II) found in a grave on Levkas and a two-handled goblet like Fig. 19, 5, copied locally with other Troadic forms at Orchomenos. In the E.H.III level at Asine lumps of

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1 This form resembles the Corded Ware amphora, Fig. 81. (cf. Fuchs, Die griechische Fundgruppen der frühen Bronzezeit, 1937), but also good Anatolian forms (Germania, XXIII, 62).
clay stamped with E.M.III-M.M.I seal-impressions must have sealed bales of merchandise or jars of oil brought from Crete. And the Early Helladic merchants themselves felt the need of seals; seals, probably imported, have been found at Hagios Kosmas, Asine, and other sites. One from Asine is almost identical with a sixth Dynasty Egyptian seal.

The defensive character of some settlements and the existence of arrow-heads might warn us not to treat all these foreign relations as entirely pacific. Anatolian forms and fabrics at Orchomenos and in E.H.III levels at Eutresis, and on Ægina, Macedonian wish-bone handles from Lianokladhi, Orchomenos, anchor ornaments from Orchomenos, sherds of Corded Ware from Hagia Marina and the E.H.III town of Eutresis might be due to an influx of new settlers from the Troad, Macedonia and farther north.

The marble figurines of Cycladic type may denote a cult of a mother goddess. Clay horns of consecration from Asine point to rites like the Minoan and Anatolian. But the principal superstitious impulse to accumulation of wealth was supplied by the desire for a good burial. In the Peloponnese and Attica the dead were buried in family vaults outside the settlements. At Zygouries the tombs were pit-caves or shafts cut in the rock, one of which contained fourteen skeletons. At Hagios Kosmas in Attica the earlier ossuaries were cists with a false door facing the township. The cists were later replaced by built ossuaries like Fig. 25, 1, but still used as collective tombs; in each case the bodies, in the contracted attitude, had been introduced through the roof. In Levkas the bodies were buried, contracted or sometimes allegedly burned, in jars or cists. But these individual graves have generally been grouped in or under circular stone foundations, 5 to 9 m. in diameter, which sound like denuded cairns and contained in addition burnt layers termed “pyres” by Dörpfeld. Such cist and jar burials accord with Anatolian practice, but their assembly within a circle brings them into line with the family tombs of Attica and Corinthia. Now collective burial had been practised in Crete and the Levant, but was not in vogue in Anatolia. It cannot then have been introduced by immigrants from that quarter though it might have been developed out of local neolithic cave burials (p. 59).

In the stratigraphical record the Early Helladic culture is
succeeded by another, the appearance of which is taken to mark
the beginning of a new period, termed Middle Helladic. The
latter in turn passes over into the Mycenaean period, also
termed Late Helladic to complete the analogy with the Minoan
system. In a total deposit of 6.5 m. at Eutresis, 4 m. are
accounted for by E.H. ruins, and 2 m. out of 4.5 at Korakou are
likewise Early Helladic. Now Cretan connections make possible
absolute datings for the Helladic periods. Pottery typical of
developed Middle Helladic was found with M.M.Ib imports
at Phylakopi on Melos, and M.M.II imports occur in the M.H.
settlement on Ægina. Seals and sealings of E.M.III type occur
in the E.H.III level at Asine, where an Egyptian Sixth Dynasty
seal1 was also found. Hence the end of the Early Helladic
period can hardly be later than 2000 B.C., and E.H.III might
go back at least to 2400 B.C. Hence at least for the Peloponnesian
and Attica 3000 B.C. might not be an extravagant estimate for
the beginning of the "Bronze Age"—E.H.I. But in peripheral regions Early Helladic culture, as defined by its pottery,
seems to have lasted longer than at central points. On Levkas
a rapier, 45 cm. long, from the pyre in E.H. cairn R7, and a
gold mounting from R17 approximate to Shaft Grave types,
current at Mycenae about 1600 B.C. If E.H. persisted so long,
its beginnings in provincial regions may be equally belated.
So the appearance of E.H. sherds above the neolithic levels in
Thessalian mounds affords no accurate terminus ante quem for
the local "Stone Age" periods A and B. From the stratifica­
tion at Orchomenos and Eutresis, however, it appears that
neolithic period B began in Central Greece before Early
Helladic. Hence on any reckoning neolithic A must go back
well into the fourth millennium B.C.

**MIDDLE HELLADIC**

The Middle Helladic period is ushered in by the violent
destruction of Orchomenos and other sites. Many were
reoccupied. But abrupt changes in architecture, pottery,
burial rites and general economy, indicate the dominance of
new and warlike settlers. The latter can be most easily
recognized by their pottery—the reduced grey ware described

(1932), 118.
on p. 45 and unhappily termed Minyan by archaeologists—and by the practice of burying the dead contracted in small cists or in jars among the houses. The martial character of the invaders is disclosed by the deposition in the graves of metal weapons (Fig. 36)—knives, ogival daggers, and spear-heads with a socket, cast like a shoe on one face of the blade (Sesklo, Levkas, Mycenae). Hollow-based obsidian arrow-heads were still used, but now the archer used also grooved stone arrow-

Fig. 36. Spear-head, knives and daggers from M.H. graves in Thessaly. After Tsountas (§).

straighteners like Fig. 109 (Asine, Levkas, Mycenae). Perforated stone battle-axes appear for the first time at Eutresis and Asine and antler axes and sleeves at Asine.

The Minyan invaders did not exterminate the older inhabitants or destroy their economy, but added to the population and accelerated the accumulation of wealth. Malthi now attained its maximum population; the walls comprised, within an area of 3½ acres, 305 rooms, while the citadel was supplied with spring water by an aqueduct. Tin-bronze was now worked by the smiths, and stone moulds for casting spear-heads like Fig. 36, 1, and Minoan double-axes were found even at Dimini in Thessaly.
The potters' craft was soon industrialized. The grey-ware vases were fired in a closed kiln and either formed in a mould or thrown on the wheel. A family of Minoan potters settled on Ægina bringing with them their clay wheel as used in Crete. Perhaps such immigrant craftsmen were responsible for introducing the wheel from Crete everywhere, but there is nothing Minoan about their products.

Fig. 37. Minyan pottery from Thessaly (a), and imitations from Thermon, Ætolia (b).

favourite "Minyan" forms are ring-stemmed goblets, high-handed cups (Fig. 37), craters and amphoræ. Both in hue and form such Minyan vases imitate silver models. But they had to compete with hand-made vessels of the same shape in polished brown or black and glazed red wares. And rather later jars, bowls and other shapes were made by hand in buff or greenish ware decorated with geometric patterns in matt paint (Fig. 38). In form and decoration these agree precisely with contemporary Middle Cycladic vessels from Melos and

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show the same Central Anatolian affinities (p. 54). A beaked jug assigned to M.H.III from Asine seems in fact to be an imported “Early Hittite” product.¹

Trade with Crete was at first interrupted, though obsidian was continuously imported from Melos. But during M.M.II Minoan polychrome pottery was being imported into Aegina and imitated at Eutresis.

Fig. 38. Matt-painted ware from Aegina. (1b.)

Middle Helladic culture typified by Minyan ware and cist graves is found all over Greece as far as the Ionian Islands, Levkas, Thessaly and even Chalcidice. In 1914 Forsdyke² suggested a Troadic origin for the intrusive elements. Now some new metal types—lock-rings with flattened ends and long narrow chisels—like the burial rites are Anatolian. And Minyan ware is common at Troy. But its first appearance

² JHS., XXXIV, 126ff.
72 DAWN OF EUROPEAN CIVILIZATION

there in Vc can hardly be earlier than in Greece. Burials within the settlement are distinctive of Central Anatolia and Iran in contrast to Western Anatolia. And grey wares technically allied to Minyan are certainly characteristic of northern Iran so that perhaps we should look farther east than Troy. On the other hand Persson insists on the “Northern” character of the battle-axes and other new weapons. The Middle Helladic culture would have been established by the intrusion of their wielders from beyond the Balkans. The Anatolian elements—jar-burial, matt-painted ware—would be later additions. But of course battle-axes had long been common in Anatolia as well as north of the Balkans (pp. 36, 42). Many authorities think that the “Minyans” were the first Indo-Europeans to reach Greece. On Persson’s view parallel streams of them from the Balkans would have brought Minyan ware, horses and Ionic Greek to the Troad and the Peloponnese.

MYCENAEN PERIOD

Ultimately the martial character of Middle Helladic culture led to a concentration of wealth in Mainland Greece, the complete urbanization of its economy and the adoption on the Peninsula of the technical equipment created in Crete. This transfer was made possible by the rise of warrior princes in the townships who concentrated surplus wealth and expended some of their accumulation on the support of Minoan artificers and the stimulation of trade. The urban revolution was first consummated at Mycenae, a citadel that commands a main artery of communications between the south-east and the north-west.

The old settlement, founded in Early Helladic times, became the capital of a potent dynasty. The kings and their families were buried with regal wealth in the six Shaft Graves on the citadel. Each deep shaft, save No. II, contained several bodies buried extended and originally encased in wooden coffins. Stelae, carved in low relief with spiral patterns and battle scenes that attest for the first time in Greece the use of war chariots drawn by horses, must once have marked the

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1 Cf., e.g. Schmidt, Excavations at Tepe Hissar, Damghan and Arne in Acta Arch., VI, 1935, 18ff.
2 Frödin and Persson, Asine, 433.
graves. Imported Minoan pottery shows that the earliest
graves, at least goes back to M.M.III, the latest hardly out-
lasts L.M.I (L.H.I). The Shaft Grave epoch falls within the
sixteenth century.

The equipment purchased by the dynasts' concentrated
wealth is thoroughly Minoan. Their palace was equipped with
a light well, like those of Knossos, and decorated with frescoes
in Minoan technique. Most weapons and ornaments are
evidently products of Minoan craftsmen. On figured docu-
ments men wear the Minoan drawers and women the flounced
skirt of the island. Minoan signets and probably the Minoan
script were adopted for official business. The cult of the Mother
Goddess associated, as in Crete, with the symbols of the dove,
the double-axe, the sacred pillar and horns of consecration was
practised with Minoan rites at Mycenae, and draughts were
played as in Crete. No one denies that craftsmen trained in
Cretan schools produced the objects in question though many
must have been executed at Mycenae itself to the order of the
local king.

On the other hand the martial character of Early Mycenaean
civilization, as revealed in the fortification of the city, the
abundance of weapons and the popularity of battle scenes in
art, seems quite foreign to the Minoan spirit. The kings of
Mycenae wore beards; the Minoans generally shaved their
faces. The Shaft Graves form part of a Helladic cemetery,
and grave No. II is really just a "Minyan" cist. In the tombs
Helladic Minyan and matt-painted vases are juxtaposed to
Cretan imports. An arrow-straightener (grave VI), and a
Mainland spear-head like Fig. 36, 1 (grave IV) occur side by
side with Minoan socketed spear-heads and the rapiers of
Fig. 14, 1-2. A round-heeled dagger and a halberd from
grave VI, and perhaps also helmets plated with boars' tusks,
though locally made, are proper to West and Central European
armament, not to the Aegean, and amber beads from grave IV
are unambiguously imports from the North. Other ornaments
may be Anatolian; gold tubes terminating at each end in
double spirals recur in the treasures of Troy II, in a royal tomb
at Alaca Hüyük in Central Anatolia and in an Assyrian grave
of the fourteenth century at Mari on the Euphrates.

1 Arik, Les Fouilles d'Alaca Hüyük (Ankara, 1937), pl. CCXLIX.
2 Syria, XVIII, 1937, 83.
Were then the dynasts who concentrated power and wealth at Mycenae Minoan princes carving out for themselves a kingdom on the Mainland? Or were they rather Helladic chiefs who by trade or by raids had secured Minoan commodities and enticed or compelled Cretan artizans, clerks and priests to settle at their court? The first view, although supported by the supreme authority of Evans, is perhaps the less plausible. The alternative is endorsed by Blegen, Karo, Persson, Wace and most other authorities.1 The indisputable facts are the transfer to the Peloponnese of Minoan artizans and technical equipment and the adjustment of the Helladic economy to allow them to function.

Between 1500 and 1400 B.C. the same process of acculturation was accomplished at other sites which had remained rural townships during the Early Mycenaean Shaft Grave epoch. Here again the change coincided with the rise in the townships of chieftains, concentrating the local wealth for expenditure on the products of secondary industry and trade. These celebrated their elevation by erecting stately beehive tombs or tholoi. Such tombs are significantly located near the heads of southward facing gulfs and along natural trade routes by sea or land. On the east coast these Middle Mycenaean tholoi extend as far north as the Gulf of Volo, on the west to Kakovatos in Elis, probably Nestor's Pylos. A wealth of amber beads from the last-named tombs may explain the westward extension of Mycenaean culture and shows that amber now reached Greece along the well-documented route across Central Europe to the Adriatic; for the beads and spacers are of the same forms as were current from Denmark to Bohemia.

The bulk of the grave goods from such tholoi are, however, either of Minoan origin (such as the Vapheio cups and some vases painted in the L.M.Ib style) or locally produced by craftsmen trained in the Minoan school. So too the palaces now erected at Tiryns and Thebes (neither a megaron) are decorated with frescoes in the Minoan technique. And many jars notably at Thebes bear inscriptions in the Minoan signary.

Still, however much of their equipment may have been Cretan, the Middle Mycenaean cities have an explicitly Mainland

character just as much as Mycenae itself. The tholos tomb may be a Minoan device, but in Crete only one M.M. tholos, discovered in 1939, can be cited as a link between the E.M. ossuaries and the Mainland vaults. Their corbelled chambers, the finest built in ashlar masonry, were entered by a long passage or dromos. Some were erected in an excavation in a natural hill-side but many stood on level ground or (as in Ireland) on a hill-top and were covered by an artificial mound or cairn¹ (Fig. 39). The similarity to tholos tombs in Western Europe is too close to be accidental and is enhanced in the case

![Fig. 39. Mycenaean tholos tomb on Euboea. After Papavasileiou.](image)

of the "Treasury of Atreus" at Mycenae by the addition of a small cell opening out of the beehive chamber. The majority of the tholoi (Kapokli, Dimini, Menidi, Thorikos, Vapheio, Messenian Pylos, Kakovatos, Chalcis) have yielded pottery of L.M.I-L.M.II style, but others are admittedly Late Mycenaean. Among the nine tholoi at Mycenae (which had all been plundered in antiquity) Wace claims to trace a development from simpler (Middle Mycenaean) L.H.II types to the superbly carved "Treasury of Atreus" which would be L.H.III. Evans on the contrary believes in a degeneration; he contends that "Atreus" (the carvings on which are paralleled by M.M.III capitals from Knossos) was originally designed to contain the bones of the

king eventually deposited in Shaft Grave VI. But a very rich tholos found intact at Dendra near Midea, contained no pottery earlier than L.H.III, though the gold and silver vessels seem to be L.M.I products.¹

Throughout the L.H.II phase rural townships subsisted side by side with fenced cities, household crafts competed with specialized industries, and Middle Helladic traditions in potting and cist-burial survived. But by 1400 B.C. the Mainland had thoroughly mastered Minoan techniques and assimilated the Cretan industrial system. Native workers, having been apprenticed to Minoan craftsmen, could turn out en masse rather shoddy articles that satisfied the less refined tastes of the Mainlanders and gradually ousted the products of household industry. Thus equipped the Mainland took over from Crete the political and economic hegemony in the Ægean. Knossos was sacked; the Continental megaron replaced the Ægean palaces at Phaestos and Phylakopi. The Mycenaean cities were more numerous and perhaps more populous than the Cretan; the acropolis of Mycena alone, not to mention unwalled suburbs, covered about 11 acres, that of Asine nearly 9, Gla in L. Copaïs no less than 24 acres. The immense cemeteries of rock-cut chamber-tombs adjacent to each city are even more convincing than the areas. Each tomb, an irregular chamber entered by a narrow passage or dromos, was a family vault. Some contain as many as twenty-seven corpses. Though carefully sealed up after each interment, such tombs were in fact re-opened periodically and used over several generations; vases of L.H.II, L.H.IIIa and L.H.IIIb styles were found in one and the same tomb at Mycenæ, showing its use for burial for at least two centuries (1450-1250 B.C.). And a family likeness could be detected on the skeletons from the same tomb. This collective burial practice, though deeply rooted in the Ægean and still current in Crete in Middle Minoan times, is in sharp contrast to the “Minyan” usage and looks like a reversion to Early Helladic customs or a general adoption of the Minoan rite.

The populous cities sought an outlet for their goods and overflowing population in trade and colonization. Mycenaean pottery and other products were exported in quantities to

Troy, Palestine, Syria, Egypt and Sicily, rapiers to Bulgaria and perhaps the Caucasus. The Αἰγεαν and Ionian islands and even the coastal tracts of Macedonia received contingents of Mycenaean traders, potters and metal-workers and were incorporated in the Mycenaean economic system. Mycenaean colonies denoted by tholos tombs were planted even on the coasts of Asia Minor and Syria. In the fourteenth and thirteenth centuries a complete cultural uniformity prevailed over the whole Αἰγεαν world—a uniformity that embraced the political diversity reflected in the Iliad.

The zenith of Late Mycenaean civilization, as fixed by Mycenaean imports in Egypt and Syria and Egyptian imports in Greece, was reached in the fourteenth century. After 1300 B.C. trade with Egypt declined, wealth diminished, art decayed as piracy and militarism took the place of peaceful commerce. At the same time, fibulae becoming increasingly abundant (like Fig. 118, 2, or with flat leaf-shaped bow) in the tombs especially at Mycenae, Thebes and on Kephallenia, and cut and thrust swords at Mycenae betoken an assimilation of costume and armament to fashions current in the still barbarous north. They are heralds of the cataclysm that submerged the Mycenaean civilization—the Dorian invasion very plausibly dated by Greek tradition about 1100 B.C.

Excavations at the principal sites referred to in the text without other documentation can be found in the following publications:

**Neolithic.**
Dimini and Sesklo (Thessaly). Τσουντας, Αἱ προϊστορικὴ ἀκροπόλις Διμηνίου καὶ Σέσκλον (Athens, 1908),
Chaeronea. 'Εφ. 'Αρχ. 1908, 63f.
Corinth. *Hesperia*, VI (1937), 490-524.

**Helladic.**

1 *Syria*, XIV (1933), 100ff.
3 *Αρχ. Δελτ*, 1917, 151ff.
4 Κανναδίας, Προϊστορική Αρχαιολογία, 367 and 737.
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Levkas. Dörpfeld, *Alt-Ithaka*,

Mycenæ. *BSA.*, XXV (1921-3) (city, tholos tombs).

Arch., LXXXII (1932) (chamber tombs and skulls).

Rodenwaldt, *Der Fries des Megarons von Mykenai* (Halle, 1921).


Messenian Pylos,’ *Ef.* Aρχ., 1914, 99ff.

Vapheio, Laconia, ibid., 1889, 129ff.

Thorikos, Attika, ibid., 1895, 221ff.

Kapokli, near Volo, ibid., 1906, 211ff.

Chalcis. Papavasileiou, Ἰππι τῶν ἐν Εὐβοίᾳ ἄρχαιν ταφῶν, Athens, 1910.
CHAPTER VI

BALKAN CIVILIZATIONS

NEOLITHIC MACEDONIA

Though facing the ΑΕgean, Macedonia was heavily wooded and extremely cold in winter. The forests sheltered herds of red deer, and, judging by an antler from Vardaroftsa, even European elks wandered down the Vardar in the Early Bronze Age. Macedonian culture developed along Continental European rather than ΑΕgean lines. It lagged behind the Islands and peninsular Greece; urbanization was only effected late in Late Helladic times during the thirteenth century B.C. Yet throughout prehistoric times the settlements were stable, so that their sites are now mounds (toumbas). And the demands of urban populations for metals soon broke down the isolation of the neolithic villages.

The earliest settlement in the region so far recognized is a simple outpost of the Thessalian Sesklo culture, planted at Sérvia on the Haliakmon. This Thessalian village was violently destroyed after a time and another was built on its site, apparently by new settlers. Judging by the pottery these new comers, mixed doubtless with straggling representatives of the Sesklo culture, spread all over Macedonia both into Chalcidice and up the Vardar; Macedonia as a whole becomes one province—that of the Vardar culture—in a continuum extending across the Balkans into the Middle Danube basin.

The “Late Neolithic” peasants of the Vardar culture lived in permanent villages of wattle and daub or (at Sérvia) mud-brick huts that at Olynthus were warmed by low-domed clay ovens as at Thermi. The cultivation of fig-trees in addition to wheat and millet helped to tie them to the soil, but

1 BSA., XXVII, 45: the prehistoric age of the antler is not quite certain.
2 For all details of Macedonian culture see W. A. Heurtley, Prehistoric Macedonia, Cambridge, 1939 (cited P.M.).
they bred cattle, sheep or goats and pigs, doubtless practising transhumance like the Vlachs to-day. The extensive seasonal migrations of the flocks would help to explain the wide diffusion of intimate cultural traits across the Balkans and into Greece. Hunting expeditions would contribute to the same result; for game was an important item in the food-supply.

Carpenters used bevelled and shoe-last adzes and unperforated axes, sometimes mounted in perforated antler sleeves. At Sérvia the red and painted Sesklo wares were replaced by black polished wares, decorated by fluting, striped burnishing, incision, or white paint with geometric patterns including spirals. This new fabric is identical on the one hand with those of peninsular Greece in neolithic B times, on the other with the Vinča ware north of the Balkans. Coarse vases may be rusticated as in the Danubian Körös group. At other sites and, Heurtley thinks, rather later the potters produced particoloured fabrics, allied to the polished black, but red and brown in patches, or imitated the black polish by brushing the vase-surface with a dark lustrous paint. Both these varieties have already met us in the Peloponnese (pp. 63, 87). Vases were also decorated with painted patterns generally on a red or dark brown ground. The red vases adorned with black spirals from the last two “ Late Neolithic layers ” at Olynthus in Chalcidice are almost identical with those from Starčevo on the Middle Danube and on the other hand are closely related to the Dimini ware of peninsular Greece. High pedestalled, round-bottomed and carinated bowls, sometimes equipped with lugs modelled to suggest an animal’s head just as north of the Balkans, occur already at Sérvia; later vases are sometimes provided with rudimentary wish-bone handles, and at Olynthus even jugs were manufactured. Flat, waisted pebbles with parallels at Ališar¹ and farther east and occurring already at Sérvia in period A, may, like flat whorls, have been used in a textile industry.

Shell bracelets, as on the Danube, and bone combs, as at Tordos, were used to beautify the person. A piece of obsidian from Sérvia, so translucent that it is thought by Heurtley to be Hungarian rather than Melian, is the sole evidence for

¹ Wace and Thompson, Nomads of the Balkans.
² van der Osten, The Alishar Hüyük, 1928-9, 67, fig. 80; Speiser, Tepe Gawra, 81.
extended trade. Stone vases were manufactured at Olynthus, but from local marble. However, clay imitations of Asiatic seals were current as in the Sesklo culture.

Supernatural powers were conciliated by domestic cults for which female figurines of stone and clay, triangular and quadrangular tables or altars, as at Sesklo and Vinča, and also clay phalli as in Anatolia were manufactured. A contracted skeleton had been buried with simple offerings in a pit at Sërvia.

**The Macedonian Bronze Age**

But even while neolithic peasants were spreading the Vardar culture, new colonists were arriving from Anatolia to introduce a Bronze Age economy, with the so-called Early Macedonian culture. At Kritsana in Chalcidice the later neolithic pottery occurs in the same strata as foreign wares of Anatolian ancestry, and some of the later neolithic pottery from Olynthus too may be Anatolian rather than Vardar. The invasion is indeed attested by new architectural features (mud-brick houses with bothroi in the floors) and new types of stone implement (perforated axe-heads) as well as by the transformation in the potting and the introduction of a whole series of new forms—bowls with horned tubular lugs growing from the inverted rim, jugs with cut-away necks, askoi, handled cups and tankards (Fig. 40). All these forms are typically Anatolian; one demonstrably grew up there. In the earliest Early Macedonian bowls the tubular lugs are turned up at the ends—horned; in Lesbos this horned lug appears first in Thermi III, having grown up out of the simpler tubular lugs of Thermi I (Fig. 17). For once pottery indicates an irreversible movement.

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1. So Heurtley, *P.M.*, 80, n, 3; Mylonas, *Olynthus*, 33, argues for a local origin.

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![Fig. 40. Early Macedonian pot-forms. After Heurtley, *BSA.*, XXVIII.](image-url)
The Anatolian settlers brought with them their knowledge of metallurgy; a crucible was found at Saratse, gold slag at Vardaroftsa. It has indeed been suggested that the colonization was actuated by a desire for the gold, silver and copper ores of Macedonia. But the Anatolians did not implant in Macedonia their urbanized economy. They lived in small hamlets as simple peasants, like their neolithic forerunners. They were content with stone implements (perforated and unperforated axes) and weapons (sling-stones and hollow-based arrow-heads). Metal was very rare; only a couple of pins survive. Not even obsidian was regularly imported, though a few chips were found in the deepest level at Kritsana. Sherds of Corded Ware turned up at Kritsana, Hagios Mamas and Saratse, a heeled battle-axe of explicitly South Russian type (Fig. 41), and a necklace of bored-teeth and grooved bone beads at Hagios Mamas. These objects, together with the appearance of horses’ bones, certainly indicate contact with the Battle-axe folk of the North European-Pontic plain. They offer limiting dates for more northern cultures; they may even symbolize the introduction of Indo-European speech. They denote an infiltration of warrior-bands rather than commercial relations. Such obstinate self-sufficiency makes the chronology of the Early Macedonian Bronze Age peculiarly difficult. Thermi III is evidently a terminus post quem for its inception. A clay hook, found at Hagios Mamas, and a fragment from a face-urn from Vardaroftsa, establish vague synchronisms with Troy II;
an imported sherd of E.H.III ware from the latest Early Macedonian settlement at Kritsana similarly establishes parallelism with developments in peninsular Greece. In any case Corded Ware in Macedonia must be at least as old as in the E.H.III settlement at Eutresis.

The Early Macedonian culture develops slowly in its comparative isolation till the distribution of Minyan ware marks the beginning of a new phase, Middle Macedonian, which must not be too strictly synchronized with Middle Helladic. In the meantime the Early Bronze Age culture had assumed an individual Macedonian aspect. In the pottery the most distinctively Macedonian innovation is the "wish-bone handle"—a wood type that remained characteristic of the region throughout subsequent periods. Notable, too, are indented lugs, similar to those of Palestine, in the "Early Bronze Age" and two-handled tankards, intermediate between the Troadic- Early Helladic ones and the Perjámos type of the Early Bronze Age in the Middle Danube. Such tankards became popular only towards the close of the Early Macedonian phase. Whorls, as in contemporary Greek and Anatolian cultures, are generally conical or biconical. Figurines, so popular in Anatolia, were virtually abandoned in Macedonia. On the other hand curious anchor-shaped ornaments of clay may have had a magical purpose.

In the absence of specialized industry and organized trade to absorb the surplus rural population, the Early Macedonians had to expand. They very soon filtered into Thessaly; in what used to be called neolithic periods III and IV there, culture was essentially Macedonian (jugs with cut-away necks and other Early Macedonian pot forms, wish-bone handles, perforated axe-heads, anchor ornaments). But the neolithic substratum shows through: figurines were still manufactured though they include males as well as females, and in Eastern Thessaly spirals and other designs were daubed on the vases after firing—what is termed "crusted ware." Perhaps the northern forms mentioned on p. 67 mean that Macedonians had reached Central Greece in E.H.III times. A small group of pots from the M.H.II level at Asine is recognizably Macedonian.

1 LAAA, XXII, pl. XXXV, 5; Engberg and Shipton, Chalcolithic Pottery of Megiddo, type 0.
2 BSA, XXVIII (1926-7), 180-94.
3 Frödin and Persson, Asine, 280.
By the latter period Macedonians were established at Lianokladhi in the Spercheios valley, where they had learned from Central Greek neighbours to paint in Middle Helladic matt-paint technique amphorae, tankards and bowls with wish-bone handles (all good Early Macedonian or Early Helladic shapes) with Macedonian patterns including pot-hook spirals (Fig. 42). A similar fabric appears with local "imitation Minyan" ware at Thermon in Aetolia during L.H.II (fifteenth century) and even on Levkas. Heurtley has plausibly connected the makers of this fabric with the Dorian ancestors.

In Macedonia itself the Middle Macedonian period may be considered to begin with the establishment at Molyvopyrgo on Chalcidice of a strongly fortified settlement where Minyan ware was manufactured extensively but mostly without the wheel. Here the fortifications and ring-stemmed goblets and other forms, strictly parallel to the Middle Helladic, suggest a settlement of fresh people. Nevertheless grey ware adorned with grooves occurs even in Early Macedonian settlements.
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throughout the region. Hence Minyan might have arisen south of the Balkans after the arrival of the Battle-axe intruders or, since the Early Macedonians were themselves Anatolians, it might have been brought from Asia in a perfected form by a fresh wave of immigrants to Chalcidice.

In the interior no sort of break is observable. The local potters maintained the old traditions though they revived spiral decoration and later learned to decorate their vases in matt paint, presumably from their Thessalian relatives.

It was not until the thirteenth century B.C. that Mycenaean trading posts were established on the coasts and Mycenaean potters brought even to inland villages the potters' wheel and the L.H.IIIb ceramic style. Within a century, before they had time to become cities, their settlements were destroyed by barbarian invaders. The latters' dark-faced, fluted pottery demonstrates their origin in the Danube basin, presumably in some branch of the Lausitz culture, from which sprang also the intruders in Troy VIIb.

THE VARDAR-MORAVA COMPLEX

Beyond the difficult passes over the Balkans the Vardar neolithic culture is continued at a series of sites in the Morava valley from Pavlovce, some fifty miles south of Niš to the edge of the Danubian löss plains at Vinča on the south bank of the Danube below Belgrade. Even beyond the river a very similar culture appears at several points on the foothills of the Banat and Transylvanian ranges, notably at Tordos in the Maros valley. Here we have definitely reached the region of temperate forests. But the settlements exhibit superficially the same character as the Macedonian. They were permanent villages whose ruins after repeated reconstructions have formed regular tells. At Pločnik near Niš, the deposit is not over 3 m. high, but at Vinča it attains the formidable elevation of 10 m., while Tordos was twice rebuilt after floods.

Such tells ought to present a clear stratigraphical record of cultural development. In practice, however, the information to be extracted even from the extensive reports of Vassits'
excavations at Vinča is very meagre. From the extant data changes in architectural, ceramic and ritual fashions can indeed be detected at various levels at Vinča and Tordos. All efforts to correlate these changes with one another and to use them to define distinct consecutive periods have so far proved fruitless. Life was based on agriculture, stock-breeding, hunting and fishing. The last named activity was especially important on the Danube, where sturgeon and other fish were caught not only with nets (the clay sinkers for which survive), but also with hooks and double-barbed harpoons (like Fig. 43) of antler. The earliest habitations at Vinča and at Starčevo may have been exclusively pit-dwellings half sunk in the loess like those described on p. 97; hence the lowest layers are some-

Fig. 43. Bone combs and ring- pendant, Tordos, and "harpoon", Vinča (4).

sometimes termed "pit levels" by Vassits. But rectangular houses (not of "megaron" type) with vertical walls of wattle and daub supported by posts coexisted with pits from a depth of 8 m., and at other sites. Low vaulted ovens were constructed at Vinča2 from 9 m. upwards and also at Pločnik.

Throughout all levels at Vinča and at all allied sites the carpenter's tool was a shoe-last adze of stone. Perforated celts were not normally used south of the Danube,3 but the stone adzes might be mounted in antler sleeves,4 and antlers might be perforated for use as axes or picks. Occasional whorls and loom-weights (Fig. 45) imply a textile industry. Bone spatulæ, like Fig. 45, were made at Tordos, Starčevo,

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2 Preistorijskaya Vinča, I, 14. (This work, of which four volumes have now appeared, will be cited P.V.)
3 They do occur at Tordos, Dolg., XII, fig. 11, and Lipovac on the Morava, ASPRB., 12, 49.
4 At Pločnik.
Vinča and Pločnik. Weapons are rare, but arrow-heads and mace-heads occur sporadically at Vinča. Obsidian, apparently Hungarian, does not seem to have been found below a depth of 6.5 m.

The Morava pottery, most fully illustrated at Vinča, is astonishingly varied. In the deepest Vinča levels and up to a depth of 7.4 m. rusticated or barbotine pottery, characteristic of the Körös groups (p. 94), is prominent, and the same ware has been reported as far up the Morava as Pavlovce. But grey and black to red polished wares seem equally early though they continue through all levels of the tell. They include most of the varieties and forms already described as Vardar ware—fluted, stripe-burnished, incised, pedestalled and carinated bowls, lugs imitating animal heads. The incised wares are often unburnished, and the designs are generally formed by punctured ribbons and include spirals and meanders which, however, seem rare in the earliest Vinča levels. A puzzling group within the incised class is constituted by the anthropomorphic lids (Fig. 44), which resemble, though by no means exactly, those from Troy II. Such occur at Vinča even in the

1 P.V., IV, p. xv; ASPRB., 12, 27.
2 ASPRB., 12, 56.
3 The earliest spiral at Vinča comes at 9 m. from top, ASPRB., 12, 28, n. 115; they occur in Tordos I, Dolg., XII, 49.
pit levels, to the north at Csoka and Tordos and as far south as Pločnik.

Allied on the one hand to the local burnished wares on the other to Macedonian and Anatolian fabrics are widely distributed "red-slipped" wares, often black inside and round the rim. Sherds painted with spiral patterns in black or white on a red ground, like the Olynthus ware, occur sporadically at all levels at Vinča\(^1\) and are very common at Starčevo\(^2\) just across the Danube. Painted ware was also in use at Tordos,\(^3\) but apparently only in the latest village.

True handles were not in vogue either at Tordos or at Vinča (save for some late intruders), but regular handled mugs were made at Pločnik as in the latest neolithic of Olynthus. On the other hand short tubular spouts (as at Olynthus) were found at Vinča\(^4\) as low down as 8 m., and recur elsewhere while the lugs at Vinča seen to grow increasingly large and elaborate.

In addition to these native Morava wares some quite typical Tisza vases from beyond the Danube were found at Vinča on a floor at a depth of 7.4 m., and again at 4.2.\(^5\) Marble dishes were used at Vinča.

Toilet articles include bone combs from Tordos\(^6\) like that from Sérvia (Fig. 43), many bracelets of Spondylus shell, flat, waisted "knobs" of white limestone,\(^7\) and pieces of cinnabar. Clay stamps are presumably imitations of Asiatic stamp-seals.

Ritual objects, used in domestic cults, were made in profusion in all the villages. The figurines, all female, from the lower levels at Vinča are crudely modelled representations of a nude female. At depths of 7.7 m. and less the features are carefully delineated though the head is conventionally flattened while incisions indicate clothing, including perhaps a loin-cloth compared to the Minoan.\(^8\) Some women are now seated, others nursing an infant. Male figures are found above 6.6 m.

From about the same depth come vases in human and animal form.\(^9\) Model tables and thrones, such as are familiar from

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\(^1\) P.V., II, pl. CXXII, and p. 132.
\(^2\) Painted ware is said to begin later than barbotine, ASPRB., 9.
\(^3\) Dolg., XII (1936), 48; BRGK., XXII (1933), 53, fig. 12.
\(^4\) P.V., IV, pl. VI, sl. 26, c.
\(^5\) P.V., II, 37, 187; IV, 53, 94.
\(^6\) BRGK., XXII, 36.
\(^7\) Interpreted by Vassits as "idols," P.V., II, 103; found also at Pločnik.
\(^8\) Childe, Danube, fig. 35.
\(^9\) P.V., I, 43, sl. 89; sl. 113.
Thessaly and Macedonia were used at all levels and all sites. No cult nor tendence of the dead is attested by well-furnished burials, but Vassits\(^1\) found nine contracted skeletons buried together without funerary gifts, in what he describes as a "collective tomb" with entrance passage at Vinča.

Formally the whole Morava complex is neolithic. The sites belong to self-sufficing communities whose isolation was relieved by frequent intercourse with neighbouring groups. But from the lowest depths disc beads of fayence turn up at Vinča. And at Pločnik five shoe-last adzes of stone, thirteen flat axes and an axe-hammer of copper were found together in a hoard. The whole region is metalliferous, and it might be expected that such resources would soon attract the attention of Anatolian or Ægean prospectors. The fayence beads from Vinča might be taken as evidence that such were indeed working in the vicinity. The Anatolian aspects of the Morava culture (anthropomorphic lids, red-slip ware) and indeed the very settlement of the Morava and Maros valleys have been attributed to prospectors seeking copper and gold.\(^2\)

But no civilization of Bronze Age character, parallel to the Early Macedonian, has been discovered on the north slopes of the Balkans. The Anatolians who established a new economy in Macedonia and peninsular Greece have left no traces in sites hitherto explored in the Morava valley, nor on the south bank of the Middle Danube. Yet, as will appear in the next chapter, north of the river the Early Bronze Age Perjamos culture owes its metallurgical technique at least to Anatolia. In the upper strata at Vinča, indeed (2 to 2\(\cdot\)4 mm. from the surface) Vassits found a group of Bronze Age tankards and cups.\(^3\) But these are explicitly Hungarian, and in Hungary belong to the Middle or Late Bronze Age. They denote intrusions from the north rather than fresh colonists from the south. Apart from that the Morava peasants did not adjust their economy to support the regular trade requisite for a local bronze industry. They were incorporated neither in the Ægean nor in the Danubian commercial system, but obstinately maintained economic independence and relative isolation.

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\(^1\) P.V., II, 9-14.
\(^2\) P.V., I, 149; cf. Childe, Danube, 34.
\(^3\) P.V., II, 135; IV, figs. 200-4.
Such reluctance to sacrifice self-sufficiency has impeded the establishment of a satisfactory chronology for the Morava culture. Evidently that culture was at some time only a northern province in a continuum which embraced also the Vardar valley, the Macedonian coasts and parts of peninsular Greece. This continuum, termed the Vardar-Morava culture, was interrupted by the advance of the Anatolians at the beginning of the Early Macedonian Bronze Age, some time in the Early Helladic period. But how and when was this continuum originally constituted?

High pedestalled bowls from Kum Tepe and the chalcolithic levels at Ališar (p. 35) suggest the possibility of connection between Anatolia and the Balkans before the foundation of the first townships at Troy and Thermo. In that case the Vardar-Morava culture and its branches in Central Greece, might have been one result of the great expansion of Anatolians which had also brought neolithic culture to Crete (p. 16). The advance of these Anatolians would then have produced the Vardar-Morava continuum. Within it, spirals and other northern traits (if such they be) could have been introduced into Macedonia and peninsular Greece as a result of those seasonal migrations and hunting trips postulated on p. 80. Conversely the art of vase-painting, if foreign to the original Anatolian culture, could have been carried northward from Thessaly by the same movements. On this view then Anatolians would have reached the Morava and the Danube at latest by phase B of the Greek Stone Age, probably before 3000 B.C.

A second possibility is that the "Bronze Age" Anatolians, bringing the Early Macedonian culture, pushed the Vardar folk across the divide when they invaded Macedonia. The refugees would have taken their culture with them unaltered, and preserved on the Morava what had been superseded on the Vardar. The parallels to Troy II from Vinča and Tordos¹ would then fall into place. The Morava culture would begin only in the third millennium B.C.

A third view, supported by Frankfort,² Hillebrandt and Tompa among others, attributes the late neolithic cultures of Greece and Macedonia and presumably the chalcolithic of Kum Tepe and Ališar too, to a southward expansion of Danubian

¹ "Face-urns," red slip ware.
² Frankfort, Studies, II, 40.
peasants. The great objection to such a view lies in the
difficulty of explaining the introduction of cereals and domestic
animals into the Danube basin and of finding there any
population to create a neolithic culture if these requisites were
introduced. No mesolithic population, descended from Old
Stone Age hunters, has yet been discovered in the Middle
Danube basin.¹

Whatever its age and however constituted, the existence
of the Vardar-Morava culture conclusively establishes, if not
the diffusion of culture from the Ægean to the Middle Danube
basin, effective opportunities for such diffusion. Moreover it
illustrates admirably the principle of cultural zoning. In the
Vardar valley a Bronze Age economy was established in the
third millennium; even the ceramic industry was industrialized
during the second. North of the Balkans neolithic self-
sufficiency was maintained much longer, and the potters’
wheel was introduced only late in the first millennium.

¹ Fewkes, ASPRB., 12, 17 and 66.
CHAPTER VII

Danubian Civilization

Period I

Immediately north of the Serbian Danube and the Save begin löss-clad plains and slopes which extend, not without formidable interruptions, right up to the edge of the moraines in Poland, Germany and Belgium. These Central European löss lands had been frequented in Aurignacian and Solutrean times by mammoth and reindeer hunters, but mesolithic successors of such food-gatherers survived only among the post-glacial forests on the northern and western fringes. To food-producers, the löss lands, naturally drained, not too heavily wooded and easy to till, offered a domain where they could practice the simplest conceivable sort of farming. With unstinted water supplies and seemingly boundless territories the peasant was free to shift his hut and break fresh ground as soon as his former fields showed signs of exhaustion. And in fact we find prevailing throughout Central Europe a system of nomadic cultivation that does look really primitive—such as the earliest food-producers, undisciplined by environmental limitations, might be expected to invent.

The cultures based upon this economy exhibit considerable uniformity throughout the löss lands. Though the temporary nature of the settlements excludes tell-formation and the stratigraphical chronology derived therefrom, the cultural sequence is well established. Throughout the area three main periods can be recognized before the Early Bronze Age which coincides with period IV. In period I we can distinguish three main groups: the Körös culture in south-eastern Hungary and the Banat, the Bükk culture in north-eastern Hungary and Slovakia, and the Danubian I extending from western Hungary to the northern confines of the löss.

1 For points not otherwise documented see Childe, Danube.
The Korös Culture

The Korös culture is itself just one component of that disclosed in the very deepest layers of Vinča—or shall we say the Vinča culture stripped of refinements, that presuppose settled life. It was based on breeding cattle, goats, sheep and pigs, nomadic agriculture, hunting and fishing. The hunters relied on pit-falls and perhaps arrows tipped with double-pointed bone heads, the fishermen chiefly on nets. The settlements were tiny clusters of huts, interspersed between all sorts of pits and generally situated on the banks of streams or lagoons. The framework of the simple trapeze-shaped huts of wattle and daub was formed of two pairs of poles slanting inwards to support the ridge-pole.

Whorls and loom-weights (Fig. 45) attest a textile industry. The commonest carpenters' tool is the shoe-last adze, as in all "Danubian" cultures and the Morava culture; it might be mounted in antler sleeves. But stone axe-heads were perforated with a hollow borer and antlers were perforated too. Bone spatulae were manufactured as at Vinča and Starčevo. The potter could produce a variety of distinctively ceramic forms equipped with flat bases or even stand-rings, but not with true handles. Instead of rings some vases stand on four nipple-like feet or have a quatrefoil base. Characteristic forms are hemispherical bowls, globular narrow-mouthed jars and curious

1 Dolg., VIII (1932), 32-48.
2 Dolg., IX-X, 75.

**Fig. 45.** Clay loom-weights (†) and bone spatula (‡) of Korös culture.
bottles flat on one side with rows of lug handles on the other; the latter are evidently intended to be carried on the back. Decoration is normally effected by rustication precisely as at Vinča and Starčevo, but a few Körös vases are adorned with representations of men, cattle or stags modelled in low relief. Such figural relief ornament survives locally on Tisza vases of period II and recurs at Vinča and Tordos. The resemblance of the modelled figures to those adorning Early Bronze Age vases from Cyprus and Hittite vases from Ališar is very striking. Red-slipped pots, sometimes painted with designs in white, occur in some settlements near Hodmezővásárhely: they seem to be imports from the Vardar-Morava province (Starčevo).

Trade was sufficiently developed to enable the plainsmen to obtain mountain rocks for querns and adzes, North Hungarian obsidian for knives, and even armlets of Tridacna and Spondylus shell from the Mediterranean. So too they imitated in clay Asiatic stamp-seals; one from Hodmezővásárhely-Kotacpart, being rectangular and decorated with a filled cross, is a peculiarly faithful copy of the favourite Central Anatolian form.

Much of the ritual apparatus of the Vardar-Morava was conserved—clay figurines of women, triangular altars and libation tables (i.e. small bowls on four feet). The dead were buried with scant ceremony and few, if any, gifts, contracted in refuse pits between the huts.

The attribution of the Körös group to period I is not yet quite certain. Körös hut-ruins have been disturbed by graves of period III. Körös sites occupy an area that would be otherwise blank on a map of period I and that is occupied in period II by the Tisza culture. And at Vinča imported Tisza pottery appears stratigraphically later than the rusticated wares, bone spatulae and libation tables of the Körös culture. On the other hand clay stamps belong farther north to period II. Nor is it clear whether we should regard the Körös folk as members of the Vardar-Morava communities who had broken

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1 Dolg., XIII (1937), 45-8.
2 Dolg., XI, pl. XVII, 4-6.
3 Dolg., IX-X, 76.
4 Marburger Studien, I (1938), 30.
5 Dolg., XI, 122; BRGK, XXIV-V, 51.
6 But these are further removed from the Anatolian models.
loose to follow an easier, if less refined, life on the plains or aboriginal food-gatherers who had adopted some elements of the Vardar culture. Their range lay essentially east of the Tisza from the Danube northward to the Körös. But even in the Danubian I culture farther to the north-west Körös elements will be found so that the Körös group may disclose the intermediaries through whose agency neolithic culture was transmitted to the more westerly löss belt.

**Bükk Culture**

Though its territory was contiguous to that of the Körös group, the Bükk culture⁴ does not obviously illustrate the transition from the latter to the classical Danubian I. On the other hand it is so closely allied to the Danubian I, to be described below, that only the divergencies need be emphasized here. Its economy was based on farming but combined with hunting and fishing (by means of hook-and-line as well as nets). Caves were extensively used as habitations, but, according to Hillebrandt,² mainly as winter shelters; in the summer their occupants would have hunted and fished on the Tisza plains. The usual Danubian shoe-last adze is combined with hollow-bored stone axes and perforated antler axes. The potters sometimes imitated gourd vessels as in Danubian I, but at other times followed leather models as in the Troad. Moreover they gave some vases tubular spouts and mounted bowls on hollow pedestals in the same form as the classical vases of period II, or on model human legs as at Thermi. The ornamentation is based on the Danubian spiral system, highly elaborated, but it is executed with very fine incisions. And the Danubian motives may be combined with conventional indications of a human face or even a complete figure in the West Anatolian manner.³ Moreover, in addition to grey wares, clear buff vases were produced and decorated with spiral designs in black paint applied before firing. The Bükk people controlled the obsidian deposits of the Hegyalya near Tokay and presumably exported the material which they certainly utilized.

1 Arch. Hung., V-VI, 19-38; BRGK, XXIV-V, 32-9.
2 A.E., XLIV (1930), 301.
3 Arch. Hung., V-VI, pls. XVIII, 5, XXIV, 13.
The chronological position in period I of the Bükk culture should be fixed by a burial at Nagytetény (Pest) furnished with Bükk I and late Danubian I vases and by the stratigraphy of Tallya (Zemplen), where early Bükk pottery occurred in a layer below Tisza sherds of period II. But the Bükk culture, as defined by the pottery, certainly lasted into period II and then formed an integral constituent of the Tisza culture. The relations of the painted Bükk ware to those of Starčevo and Ariuš and of the pedestalled bowls to those from the last two sites and the Danubian II culture remain debatable.

**Danubian I Culture**

The löss lands west and north of the Danube were first occupied by a neolithic population whose whole culture down to the finest details remains identical from Hungary to North Germany and from Galicia to Belgium. This is the best known culture in Central Europe and perhaps the most classically neolithic in the ancient world. Hence the term Danubian I may be legitimately applied to it in preference to the clumsy and inaccurate terms “linear pottery” or “spiral-mâeander” culture.

The Danubian I economy was based on the cultivation of barley, *Einkorn*, and perhaps also emmer* wheats, beans, peas, lentils and flax, in small plots tilled with stone hoes. Only small herds of stock were kept; a few bones of sheep, oxen and pigs turn up in the settlements, but animal dung was never incorporated in hut walls as is usual where the farmyards are well stocked. To hunting the Danubians made no resort. Danubian I settlement sites are dotted very densely all over the löss lands, but none shows evidence of prolonged occupation. That is a result of the Danubians’ crude agricultural technique, one still illustrated by some hoe-cultivators in Africa to-day. They cultivated a plot till it would bear no more, and then

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1. A.E., XLIX, 86 and 70.
2. Dolg., XII, 49.
4. Emmer is reported only from the Rhineland and Belgium, bread wheat from Poland alone; both might have been borrowed from other populations. Cf. BRGK., XX (1930), 30.
another, and so on until they had used up all the land round the hamlet; thereupon they shifted bag and baggage to a new site not too far distant.

The details of the process that must have gone on all over the province are known from the excavation of Köln-Lindental. The first structures erected at a new site were barns, presumably put up by inhabitants of a hamlet a couple of miles away. After a time the cultivators themselves removed their houses and their families to the vicinity of their new fields. Some twenty-five pit-dwellings were constructed, some of the granaries shifted, and the whole group of buildings eventually surrounded with a trench and palisade to keep out wild beasts. And then after a time the villagers abandoned the site which lay desolate till at length it was reoccupied by a kindred group using rather different pottery. The process thus documented explains how and why the Danubians spread over such a vast area; they simply had to move on to new land every ten or twenty years.

This simple method of getting a livelihood is, of course, incompatible with refinements or the accumulation of capital. Houses so soon to be abandoned must not be over elaborate. The Danubians actually lived in complex pit-dwellings—excavations dug 18 to 30 inches into the löss over an irregular oval area 10 to 35 feet long, and covered over with a wattle

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Fig. 46. "Shoe-last celts." After Seger (4).

and daub superstructure supported by stakes bordering the excavation. Smaller excavations served as work-shops and kitchens, for storage or for refuse. But for drying, threshing, and storing their grain the Danubians erected rectangular granaries that might be 90 ft. long and 20 wide, supported on solid posts.¹

The rest of the Danubians' equipment was equally home-made. Shoe-last celts of stone (Fig. 46) served, if mounted on knee-shafts, as hoe-blades and adzes, or, if perforated, as axes and hammers. Knives, sickles and scrapers were made of flint. No whorls nor loom-weights attest a textile industry;

![Fig. 47. Danubian I pottery. (§o.)](image)

the flax found at Köln-Lindental may have been grown for oil. At Statenice in Bohemia,² a bone implement like the spatulae of the Körös was found.

Two sorts of pots (Fig. 47) were manufactured—hemispherical bowls and globular bottles (some flattened for carrying on the back)—provided with 3, 6 or 9 lugs and clearly derived from gourd models. The resemblance is often enhanced by zig-zag incised lines reproducing the slings in which gourds are carried. But instead of skeuomorphic pattern the peasants often incised on their vases the continuous spiral and mæander designs that are regarded as distinctively Danubian. Some designs perhaps late, suggest human figures, double-axes and other objects. And some coarse vases were just rusticated as

¹ Barns in addition to pit-dwellings have been identified at other sites too. *Germania*, XXI (1937), 213, 217.
DANUBIAN CIVILIZATION

on the Körös. Lugs may be modelled to resemble animals’ heads as on the Vardar and the Morava, while the incised double-axe patterns may be inspired from Crete or North Syria.¹

In principle this economy was essentially self-sufficing. But in practice materials had to be carefully selected and often transported over long distances. The green schist, used for adzes at Köln-Lindental, must have been brought 60 or 70 miles for the Hunsruck or the Taunus; Niedermendig lava from near Mayen was used for querns in Belgium.² Such partiality for selected materials, without destroying self-sufficiency, encouraged intercourse between distinct communities. In fact, a few vases, made from local clays in the Main valley, were transported to Köln-Lindental, 50 miles away. Moreover, in Moravia, Bohemia, Thuringia and even the Rhine valley ornaments made from the Mediterranean Spondylus shell were worn as in Thessaly and on the Middle Danube; they must have been handed on by some sort of inter-tribal exchange from the Ægean or the Adriatic! So too African ivory reached Flamborn near Worms.³ The interchange of goods, thus disclosed, developed into something like regular trade. Particularly on the borders of the Danubian province in Brandenburg, Holstein and West Prussia hoards⁴ of shoe-last adzes turn up. Like the later hoards of bronzes these must be the stocks of specialized travelling merchants. Individuals must already have been finding a livelihood in satisfying the Danubians’ prejudices in favour of selected materials and extending their activities to other still mesolithic tribes. Such were surely the forerunners of the bronze-merchants described on p. 114. And work-shop debris in villages⁵ may indicate even industrial specialization within a community.

The Danubians were a peaceful folk. The only weapons found in their settlements are disc-shaped mace-heads, such as had been used by the predynastic Egyptians, and occasional flint arrow-heads. They were democratic and perhaps even communistic; there are no hints of chiefs concentrating the communities’ wealth. Nor did deities fulfil that function. A

¹ IPEK, XI (1936-7), 16f; P.A., XL (1934-5), 3.
² Buttler, Donau., 32.
³ Buttler, Donau., 36; Marburger Studien, I, 27-9.
⁴ JST., XXIII (1935), 73; Bl.f.d.Vorg., VII, 51; Buttler, Donau., 21.
⁵ Germania, XXII, 220.
clay figurine was found on one Moravian site, but nothing like the multiplicity of ritual objects noted at Vinča and in Macedonia. Even burials were unceremonious, as in the Körös culture. Very few graves have been discovered. The dead were generally buried in the contracted position, more rarely cremated. The skulls that have been examined are all dolichocranial and in a general sense "Mediterranean".

A first clue to the origin of the Danubians is given by their pottery; they must have learned potting and translated preceramic gourd vessels into clay in some region where gourds harden. That does not happen north of the Middle Danube plain, which is accordingly near the northern limit of their possible cradle. To this extent a southern origin for the Danubians is almost universally admitted. In Germany a centre in Czechoslovakia is assumed by most authorities. But here no mesolithic population is known, nor cereals for them to cultivate. And the Danubians' traditional preference for Mediterranean shells should indicate a more southerly cradle. Several speculative theories could be framed: (1) the Danubians came from the Mediterranean or Anatolia, but made no pots as long as they could use gourds and so have left no traces of their presence till they reached Hungary. (2) The overflowing peasant population of the Morava sites, advancing still farther northwards, dispensed with superfluous refinements till their culture was reduced to the bare minimum just described. (3) A still undiscovered mesolithic stock acquired from the Morava or from the Körös peoples, cereals, tame sheep, the potters' art and other "neolithic" traits. The solid fact is that the Danubian I economy is two stages lower down the scale than that of the Vardar-Morava, just as it is two stages farther away from the Ægean.

**Period II**

**The Tisza Culture**

In south-eastern Hungary and adjacent regions the Körös culture gives place to another adapted particularly to exploiting the fish and game abounding in the Tisza and its tributaries. At the village of Kökénydomb, the dwellings—rectangular

1 *Dolg., VI (1930), 50-150; cf. PZ., XXI, 1851.*
houses measuring up to 7.2 m. by 3.4 m., entered through the long side and decorated with painted clay models of bulls' heads—were strung out in a single row along the river bank. The fisherman now employed harpoons of antler (Fig. 43) (as at Vinča) and double or triple rings of bone in addition to nets.1 Stock-breeding and agriculture still provided the basis of life. Grain was stored in large clay jars or rectangular vessels, 70 cm. by 50 cm. by 65 cm. in volume and exactly like the wooden bins used locally to-day.2

The general economy remained neolithic. The materials for axes were drawn from the Banat, Transylvania and northern Hungary, but obsidian was no longer imported. Shells were still imported from southern seas and typical vases were exported to Vinča and Silesia (p. 106), but clay "stamp seals" were no longer used.

Pots, including cylindrical jars and large oval bowls, suitable for cooking fish in, may be provided with indented lugs like the Early Macedonian and short tubular spouts as in the Bükk group. They are decorated with coarse incisions in a thick slip, supplemented by crusting in red and yellow, forming meanders, concentric circles and conventionalized faces, but not spirals; the designs are grouped in vertical panels.

Clay figurines were no longer manufactured, but rattles in animal form may have been used in ritual. The dead were buried flexed in small cemeteries, some after amputation of the feet. Shell or marble buttons with shanks were sometimes worn as brow ornaments.

Danubian II Cultures

A contemporary but less specialized series of cultures extends from the Drave3 and the Upper Tisza to Lower Bavaria, Central Germany, Silesia and Galicia.4 Though less homogeneous than Danubian I, these cultures in view of their wide dispersion may be grouped together under the common name, Danubian II; the term Tisza culture, introduced by Tompa5

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1 BRGK., XXIV-V, 43; Dolg., VI., pls. III, VI.
2 A.E., XLV (1931), 253.
3 Germania, XXII (1938), 215-8.
4 Buttler, Donau., 38-43; PZ., XXI (1930), 6, 10; W.A., XIV (1936), 190.
5 BRGK., XXIV-V, 40ff.
and accepted by some Germans too, to replace the old designation Lengyel-Jordansmühl, must be reserved for the group last described which is quite distinct.

The Danubian II economy combined stock-breeding, and probably also hunting, with cultivation. But explicit evidence for the use of the plough is lacking. And the settlements are scarcely more permanent than those of Danubian I, but were shifted periodically like the latter. The peasants did, however, build rectangular houses entered through the narrow end and ornamented, like those of the Tisza group, with clay bulls' heads. Commerce, as in Danubian I is most clearly attested by the importation from the south of *Spondylus* and *Tridacna* shells. North Hungarian obsidian was distributed all over the Middle Danube basin and northward to Moravia, Western Galicia, Silesia and Bohemia, but in the northern districts it is found only in the earliest settlements as if stocks had been brought by the colonists, but not subsequently replenished by trade. Cubical blocks of clay, perforated at the corners, in which one, or exceptionally two, cups have been hollowed out¹ (Fig. 48) have been claimed as copies of Early Minoan block vases of stone. Clay imitations of stamp seals are attributed to the later phase of the period in Moravia, and by that time copper trinkets began to be distributed in Moravia and Silesia (Fig. 49, 1).

Besides shoe-last adzes, triangular greenstone axes (Fig. 49, 2), hollow-bored axe-hammers and antler axes were employed. A few spheroid mace-heads and flint arrow-heads and, in Bohemia, stone arrow-straighteners,² may point to

¹ Schránil, *Böhmen*, 50; cf. p. 18 here.
² *P.A.*, XXXIX (1933), 50-3.
warlike behaviour. Whorls and loom-weights attest a textile industry.

Characteristic pot forms are hollow-pedestalled bowls (Fig. 50, 1), ladles with socketed handles (Fig. 50, 2), biconical jars (Fig. 50, 3), and variants on the older bottles. Bowls are flat-bottomed and often carinated, but inturned rims do not occur till the end of the period. Handles remain unknown. In Moravia the earliest vases were decorated with spirals, mazes and basketry patterns, incised and painted after firing in white, red and yellow (generally termed crusted ware). In a second phase, defined stratigraphically in Moravia,

white paint alone was employed on a fine burnished red ware, but some red-ware vessels are covered with a white slip and painted in red before burnishing and firing, just as in Thessalian A. In a still later phase which is alone represented in Silesia, Bohemia and Bavaria, coloured decoration went out of fashion, and only low bosses adorn the vase surface.

For domestic fertility cults, similar to those practised in Greece and in the Vardar-Morava complex, the Danubian II people made female figurines, models of animals and doves and zoomorphic vases. The dead were sometimes buried, flexed, in small cemeteries. One near Pécs comprised seventy-eight graves. In late graves in Bohemia and Central Germany the

Fig. 49. Copper trinkets (§), and triangular axe (§), Jordansmühl. After Seger.

\[ Vildomč in Obzor Prähhist., VIII, 1-43. \]
bodies had been cremated. Cattle too were given ceremonial burial in Silesia.

Comparisons with the Ægean and Anatolia offer ambiguous possibilities for dating period II. The resemblances of crusted ware to that of phase C in Thessaly, of the indented lugs on the Tisza to Early Macedonian and of clay stamps and block vases to Early Minoan forms suggest a date round about 2500 B.C. for the period's beginning. On the other hand pedestalled bowls very much of Danubian II form go back to the fourth millennium in the chalcolithic of Alişar and at Kum Tepe; the red on white painted sherds from Moravia recall equally ancient Thessalian fabrics, and a Macedonian neolithic pot from Olynthus shows a panelled decoration rather in the Tisza manner. On this evidence 3300-3000 would seem just as plausible as 2500-2200 as the historical dates of period II.

**Danubian I Survivals in the North**

The expansion of Danubian II farmers, like that of their precursors in Danubian I, was a slow process. Indeed it had begun while Danubian I folk were still spreading down the Oder, the Elbe and the Rhine valleys. Since period II begins with the emergence of the Danubian II and Tisza cultures in the
Middle Danube basin, we may say that Danubian I cultures survived in the north into period II. In fact they outlasted even that period in remote places. Moreover, the Danubian I expansion did not take place in vacuo. In the hill countries between the Danube and the Rhine and in Thuringia, along the rivers of the North European plain and on the sand-dunes of Silesia and Poland, still lived scattered groups of Tardenoisian, Maglemosean and Swiderian food-gatherers. Some of these were absorbed into Danubian communities or copied the Danubians’ way of life. Thus arose various cultural groups, especially Danubian in economy, and equipment, but diverging from the norm in details, particularly in ceramic art. Hence the groups are defined by their pottery. And most flourished in period III too.

(1) Stroke-ornamented ware (Stichbandkeramik) (Fig. 51) distinguishes a group which arose probably in Bohemia and

Fig. 51. Stroke-ornamented vases, Bohemia (§); Rössen vases, Central Germany (ً).

Buttler, Donau., 29, 45.
spread thence back into Moravia, and into Bavaria, Central and East Germany in the wake of the Danubian I groups, and under pressure from the same economic forces. Economically it differs from Danubian I only in a tendency to supplement farming by hunting for which transverse arrow-heads of Tardenoisian ancestry were employed. The arrow shafts were straightened on grooved stones as in the Danubian II culture and farther east. The pots were still round-bottomed, but were decorated exclusively with skeuomorphic zig-zag patterns composed of ribbons executed by a series of distinct jabs instead of continuous lines. In Bohemia, Bavaria and Central Germany the dead were cremated. In Moravia and Poland stroke-ornamented ware occurs in late Danubian II settlements, and at Gleinitz in Silesia an imported Tisza vase was found with stroke-ornamented ware. Late stroke-ornamented ware was even found associated with a Globular Amphora of period III. Hence the culture it defines begins sometime in Period II and persists throughout the period.

The Rössen group arose in Central Germany probably through the adoption by Forest folk of the culture of the last-named group, and spread thence to the Rhine valley. Though the Danubian agricultural economy had been taken over entirely, hunting retained much of the importance that it had enjoyed in the ancestral Forest culture. The increased competition for land, due to the rise of this and other new groups of cultivators, may by now have led to war. The Rössen people were the first in the Rhine valley to fortify their settlements, while weapons—transverse and hollow-based arrow-heads, disc-shaped mace-heads and the old perforated antler-axes of the Forest folk—were relatively common. The Rössen folk lived in rectangular houses with vertical walls and gabled roofs supported by three rows of earth-fast posts, and they also erected rectangular granaries. But their settlements were no more permanent than those of the preceding groups. Their pots are hemispherical or globular in profile, but are often provided with stand-rings and are decorated with

1 P. A., XXXIX (1933), 50-3
2 Buttler, Donau., 60; Altschles., III (1931), 153.
3 The theory of its derivation from the North-west German Megalith Culture, long dominant in Germany, was refuted by Stocký. Boh. Préh., 161, and more conclusively by Buttler, Donau., 44.
4 Germania, XX (1936), 229-43; cf. Fig. 134 here.
rectilinear patterns imitating basketry, and executed in stab-and-drag technique (Fig. 51, 2). As ornaments the Rössen folk wore marble bracelets, disc-beads of shell, bored tusks and deers’ teeth, and marble buttons identical with those from Lengyel. The dead were buried in the contracted attitude.

The buttons of Danubian II type from the graves at Rössen in Central Germany prove that the group even there belongs to period II, while on the Isar, in Alsace and in the Wetterau, Rössen house-foundations have disturbed the ruins of those left by later Danubian I peasants. On the other hand on the Goldberg in Württemburg, the Rössen village was succeeded by a settlement of the Western Michelsberg culture that generally belongs to period III. Hence Rössen flourished in period II.1

The Danubian I peasants themselves persisted, wandering about during period II and in the Rhine basin even into period III, preserving their culture intact, but not unaffected by the example of their neighbours and rivals. Even in their pottery they preserved the old forms and the spiral-mâeander as the basis of their decoration; but the patterns tend to break up and are embellished with punctuations, comb-impressions and other devices. Plastic suggestions of a human face from Köln-Lindenthal, in the manner of Trojan face-urns, may belong to this phase.2

Even in Central Germany the later Danubian I pottery is associated with the stroke-ornamented ware of period II, on the Maas in Holland even with Beaker-ware3 which must belong to period III. Such late Danubian I people re-occupied the deserted site of Köln-Lindenthal. The new village was in all essentials like its predecessor; but it was larger, comprising thirty-five houses, so that population had increased; it was provided with a cattle-pond, as if stock-raising had become more important, and it had in the end to be protected by a defensive stockade. Pressure on the land was becoming serious. In addition to the natural increase of the population and the competitive groups resulting from the conversion of food-gatherers into cultivators, new groups were spreading from the south-east and from the west.

1 Buttler, Donau., 62.
2 Buttler, Donau., 31.
3 Germania, XXI, 5.
By period III the natural growth of peasant populations, the conversion to food-production of food-gathering communities, and immigrations of fresh tribes from beyond the löss lands, had produced a pressure upon the soil that entailed adjustments in everyday life. Inferior lands above the löss were exploited; hunting and pastoralism became more important economically. Settlements were often planted on hill-tops as well as in the valleys and were frequently fortified. Competition for land assumed a bellicose character, and weapons such as battle-axes became specialized for warfare. The consequent preponderance of the male members in the communities may account for the general disappearance of female figurines. Part of the new surplus population may have sought an outlet in industry and trade; imported substances such as Baltic amber, Galician flint and copper begin to be distributed more regularly than heretofore. Warriors would appreciate more readily than cultivators the superiority of metal, and chiefs may already have been concentrating surplus wealth to make the demand for metal effective. Its satisfaction was none the less dependent on the diffusion of the requisite technical knowledge, whether by immigrant prospectors or captives, from the south-east.

A general picture of the period in the löss lands would present a bewildering variety of small conflicting groups. Some of these are admittedly intruders and can be better described elsewhere. From the West Michelsberg folk (p. 277) spread as far as Upper Austria, Bohemia and Central Germany while Beaker-folk (p. 213) reached the Danube near Buda-Pest and spread across Germany and Czechoslovakia as far as the Vistula. From the Pontic-North European plain warriors using battle-axes and cord-ornamented pottery spread as far as Bavaria, Bohemia and Moravia and even into the Middle Danube basin. In other groups there is an injection of types (collared flasks, globular amphorae, and so on) which we shall find in Chapter X to be genuinely Northern. But these hardly suffice to demonstrate a large scale "Nordic" invasion of the Danubian province. We shall describe here only certain cultures which remain essentially Danubian even though they may be found in hill-top forts or in caves.

The Bodrogkeresztur culture is the successor of the Danubian II and Tisza cultures east of the Middle Danube from Hungary to the Banat. Its communities, known mainly from cemeteries, would seem to have been larger than any hitherto discovered; at the patent station the cemetery comprised at least fifty graves, at Jaszladány forty, at Pusztaištánáza thirty-two. Double graves in which one body has been buried with rich furniture, the other with none, suggest a cleavage of society into classes. Trade is attested by flints imported from Galicia, a few objects of gold and several of copper. The latter metal is represented in the cemeteries by two or three rhomboid knife-daggers without midribs or rivet-holes, several quadrangular awls, a flat celt (adze), an axe-adze and a battle-axe. A number of similar battle-axes found stray (Fig. 52) demonstrate the war-like character of even Danubian culture in period III. Whether or no the use of such weapons was introduced by Battle-axe folk (p. 145), the copper weapons must rank as translations of the antler axe, inherited from mesolithic times, and prototypes for the stone battle-axes which are not

Fig. 52. Copper battle-axes, Hungary (§).

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1 Arch. Hung., IV; A.E., XLI (1927), 50-7; WPZ., XIII, 30; BRGK., XXIV-XXV, 53.
2 PZ., XXII, 111.
attested in Hungary at this stage. Stray flat adzes and axe-adzes (Fig. 53) are even more common. Evidently copper was extensively worked and doubtless mined in the province and the industry helped to absorb the enlarged population. Were the miners and smiths immigrants? And if so, did they come from south Russia or Anatolia? Hillebrandt\(^1\) maintains that the metal industry was autochthonous. None of its products has been demonstrably cast; implements like Fig. 53, 1, could

be regarded as translations of the Danubian stone axe-hammers; the flat adzes copy shoe-last celts, the battle-axes antler axes. But the pottery gives hints of renewed intercourse with the Aegean area while the axe-adze represents a combination of two types of Sumerian "axe", both represented at Maikop on the Kuban (p. 148).

Technically Bodrogkeresztur pottery carries on the later Danubian II tradition and the high-pedestalled bowl remains a popular form. The most distinctive new type is the long-necked milk-jug (Fig. 54). But two-handed tankards and a

\(^1\) Arch. Hung., IV (1929), 49.
globular pyxis with string-hole lid¹ (Fig. 54, 1) must be inspired by Anatolian or ΑEgean models. Comparisons of the pot-forms and battle-axes with those of Ališar chalcolithic or Troy I could be used to justify a date about 3000 B.C. for period III on a long chronology, but naturally do not establish anything like a strict synchronism.

*Baden culture* is the term applied to a rather heterogeneous series of cultures which succeeded Danubian II in the Middle² and Upper Danube³ basins, in Czechoslovakia⁴ and Galicia.⁵ Its authors sometimes lived in fortified hill-tops or in caves and kept large flocks of sheep as well as cows and pigs.³ Clay models of animals, replacing female figurines, again emphasize the importance of pastoralism. But *Einkorn* and bread wheats³ were cultivated. Horse-bones³ give the first doubtful indication of the domestication of this animal. Some of the ceramic forms (cups with high handles, some like Fig. 79, 4) and the channelled decoration seem to be inspired from the

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¹ *BRGK.*, XXIV-XXV, pl. XVIII, 8.
² *Dolg.*, XI (1935), 126-44; *BRGK.*, XXIV-XXV, 50.
⁵ *WA.*, XII (1933), 140-67.
south—in Hungary ribbon decoration in the Morava style seems to belong to this period, while channelled ornament is common at Vinča. The weavers’ clay spools are exactly like those from Troy. *Tridacna* and *Spondylus* shells were still imported. And though metal was still rare, seven graves in Lower Austria contained torques of copper wire with recoiled ends—the immediate precursors of the cast ingot-torques of period IV, but in their wiry bodies agreeing more closely with the Copper Age specimens from Ahlatlibel near Ankara. The Anatolian metallurgists whom we shall have to postulate in period IV, may already have been working in the Baden province.

These torques suggest that the Baden culture flourished not long before the dawn of the Bronze Age in period IV, and give limiting dates between 2700 and 1700 B.C. On the other hand at Kiskőrös between the Danube and the Tisza a Bodrogkeresztur grave had been dug into a recently abandoned Baden hut foundation, so that on the Middle Danube the culture must begin early in period III.

*Jordansmühl*, a cemetery of fifty-seven graves in Silesia, gives its name to a northern facies of Danubian III culture. The flexed skeletons were accompanied by high-pedestalled bowls deriving from Danubian II, two-handled tankards (Fig. 88), and bowls with inverted rims related to Bodrogkeresztur types. The late date of the large settlement is indicated by the relatively large number of metal trinkets, including spectacle-spirals (Fig. 49, 1) and cylindrical armlets of copper ribbon. Precisely similar copper ornaments, together with bracelets of *Spondylus* shell or engraved bone and disc-beads of shell were found in the cemetery of thirty-eight graves at Brześć Kujawski on the middle Vistula in Poland. But the characteristic high-pedestalled bowl was missing here. On the contrary in the foundations of houses, some of which seem contemporary with the cemetery, sherds of late Danubian I character came to light. The houses were trapeze-shaped and attained a maximum length of 39 m., the entrance being

1 *Dolg.*, IX-X, 44-52.
2 *WPZ.*, XXIV (1937), 16.
3 *PZ.*, XXII, iii.
4 *AfA.*, V, 136f.; *S.V.*, VII, ff.; for the synchronism with Bodrogkeresztur, see Buttler, *Donau.*, 43.
5 *WA.*, XV (1938), 1-105.
through the wide end which normally faced south. The martial character of the settlers is emphasized by battle-axes of stags' antler accompanying every male interment. The copper ornaments and the disc-beads, identical with those from Bodrogkeresztur graves in Hungary, guarantee the attribution of the cemetery to period III. But here in the north trade had not yet been sufficiently developed to permit of the regular translation of the antler weapons into copper as was happening in Hungary. However, the distribution of remains, comparable to those from Brześć Kujawski, coincides with that of the earliest stray copper implements from Poland so that these Danubian pioneers must have been instrumental in diffusing copper-working northward towards the Baltic coasts. The copper spectacle-spirals from Jordansmühl and Brześć Kujawski might well have been inspired by gold ones such as are so common in Troy II (Fig. 22) and could be used as further arguments for the Anatolian origin of Danubian III metallurgy and for the lower date deduced from the Baden neck-rings. On the high chronology they must rank as the forerunners of the Trojan ornaments. In any case even on a short chronology corded ware, proper to period III in the Danube basin, but introduced into Greece in E.H.III, should give 2000 B.C. as a lower limit for the period's beginning.

PERIOD IV

THE EARLY BRONZE AGE

During period III the growth of population was calling for a new economy and making labour available for industry and commerce. War was stimulating a demand for metal, and chiefs were accumulating capital; the prejudices of immigrant warriors had to be satisfied with trade-goods from the Baltic and Galicia. The Bell-beaker folk (pp. 108, 213ff.) established regular communications with the West and North and opened up new connections with the Mediterranean across the Brenner Pass. At the same time metallurgists trained in Anatolian or Caucasian traditions had begun exploiting the copper and gold of the Balkans, Transylvania and Slovakia. A new economy was thus made possible; it was realized in period IV. The Early Bronze Age economy of Central Europe, while still
based on farming, hunting and fishing, could support specialized miners and smiths and traders to distribute their products.

No actual mines nor mining settlements can be dated by direct evidence to period IV, but there are indications that the copper lodes of the Tyrol-Salzburg field, demonstrably mined during period VI, may have been exploited by surface workings as early as period IV. Equally early exploitation of copper lodes near Saalfeld and of Vogtland tin has been deduced from recent analyses.\(^1\) Moulds from several settlements imply that some communities could employ a resident smith.

The distribution of the industry’s products was effected by a regular class of itinerant merchant-artificers. Their routes are defined by hoards of finished and half-finished articles—the merchants’ stock in trade—that had been buried when danger threatened and never recovered. They show that the merchants were following ancient Danubian traditions (p. 99) and that they dealt also in amber, gold and presumably substances such as salt that leave no trace in the archaeological record. The amber routes are particularly well defined: the fossil resin was brought from Jutland and East Prussia to the Saale valley and thence passed on through Bohemia and across the Brenner to Upper Italy and the \(\text{A}ge\)ean, while a little was diverted across Moravia to the Hungarian plain and the Maros.\(^2\) A counterpart to this export trade is certainly to be seen in segmented and cruciform beads of Egyptian or \(\text{A}ge\)ean fayence\(^3\) common in the cemeteries round Szeged and found sporadically also in Lower Austria\(^4\) and Moravia.\(^5\)

The activities of these merchants linked up the whole of Central Europe into a single economic system with ramifications across the North Sea, to the Baltic and to the \(\text{A}ge\)ean. The types of metal ware, especially of ornaments, which they diffused from the beginning of the Early Bronze Age produce a superficial appearance of uniformity throughout the Danubian province. At the same time the arbitrary ornaments reveal the source of the new chemical knowledge, the alloy of copper with tin, on which the new economy was based: ingot-torques

\(^1\) Nbl.\(f.d.V.,\) XIV. (1938), 71ff.
\(^2\) It is found only in graves 2 and 211 at Szöreg and 14 at Deszk.
\(^3\) Erroneously termed “shell” or “clay” beads by Banner. \(\text{Dolgozatok}\) VII (1931), 21, nos. 16-17.
\(^4\) \(\text{Germania},\) XXI (1937), 89.
\(^5\) At Nemčice and Jirikovice (near Brno).
(Fig. 57, 11), lock-rings with flattened ends, racquet pins have explicitly Sumerian prototypes\(^1\); knot-headed pins (Fig. 55, 0) appearing in predynastic Egypt\(^2\) recur later at Troy and in Cyprus: the basket-shaped earrings of gold wire (Fig. 55, 4) are detached members of the Trojan ornaments shown in Fig. 22, 1. The first bronze-smiths producing for a Central European market had been trained in Asiatic schools and

![Fig. 55. Pins and earrings from Aunjetitz graves. After Schráníl (§).](image)

had introduced, together with the secret of bronze, Oriental fashions in personal adornment.

The new metal tools and weapons introduced at the same time were neither distributed so uniformly in the Danubian province nor so immediately inspired by Asiatic models. The flat axe which at Thermi had been provided with flanges by hammering (p. 37) was translated in Bohemia into the flanged axe cast in a two-piece mould (Fig. 57, 1). But in Hungary a shaft-tube axe of Sumerian ancestry (Fig. 53, 5-6), probably

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\(^1\) Childe, *NLMAE.*, 193; *A.J.A.*, XLIII (1939), 17.

\(^2\) Brunton, *Badarian Civilization*, pl. LIV, 9.
transmitted via the Caucasus rather than from Anatolia or Greece where the type is missing, was preferred. The universal weapon was the round-heeled knife-dagger (Fig. 56). Its bone or wooden hilt was hollowed at the base like the bronze hilt of the rather later dagger shown in Fig. 58, an old Egyptian trick never popular in Asia nor Greece, but traceable in Central as in Western Europe on the flat-tanged daggers of the Bell-beaker folk during period III. Halberds were used in Germany and Lower Austria and occasionally even in Hungary, but not in Bohemia. The type is supposedly West European, and reached

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1 Dullo, *PZ.*, XXVII (1936), 150, derives these from Crete.
2 *PZ.*, XXV, 130-42; *Arch.*, LXXXVI (1937), 222-5.
the Danubian province from Ireland or from the Iberian Peninsula.

The unity created by the metallurgical industry and commerce had no political counterpart. It was imposed on a number of distinct communities with distinct cultures—those called after the sites of Perjámos¹ on the Maros, Tószeg² near Szolnok on the middle Tisza, Gáta in Western Hungary, Aunjetitz in Bohemia and Straubing in Lower Bavaria are the best known—asserting their independence not only by local peculiarities in pottery and metal ornaments, but even by divergences in economic status.

In the Middle Danube basin new settlements were founded in period IV on sites chosen primarily with a view to commerce where natural routes intersect at a ford or pass mouth.³ And these settlements were permanent townships occupied so long that their ruins form tells. Cemeteries of contracted skeletons no less clearly attest a sedentary life; that at Szöreg near Szeged comprised 220 graves, 180 attributed to period IV and the rest to period V. But even these communities were more nearly self-sufficing villages than industrial cities. Bone and stone were still used for implements and even battle-axes; metal toilet-articles such as girdle-clasps were imitated in bone. The pots were hand-made, but the slipped and polished vases, red, black or mottled, recall Anatolian and Iberic fabrics. Hour-glass mugs and jugs, recalling Early Macedonian but perhaps derivable from the local Bodrogkeresztur types, are the most characteristic Perjámos shapes, but an isolated sauce-boat⁴ seems to copy the Early Helladic form. Besides reproducing the general types already enumerated, the local bronze smiths copied Hittite lunate pendants and Ægean heart-shaped ones, but did not develop the flanged axe nor the variety of local ornaments that came into fashion farther north. Indeed in Hungary archaic forms of ornament tended to persist so that the typological division of the Hungarian Bronze Age is very precarious.

North of the Bakony and the Carpathians neither tells nor cemeteries comprising over a hundred graves attest a really

¹ Dolg., VII (1931), 1-53; BRGK., XXII, 84-8.
² BRGK., XXIV-XXV, 65 ff.
³ PZ., XXII (1931), 33, n. 39.
⁴ BRGK., XXII, 87, fig. 17.
sedentary life. Though manifestly larger than in period III, the Early Bronze Age communities retained the same rustic character. Yet in this region owing to the proximity of the Erzgebirge and trade across the Brenner with the Ægean the metal industry developed most luxuriantly. By the extended use of casting, the celt was equipped with high flanges for use as an axe-head and the knot-headed pin was translated into the distinctive Bohemian eyelet-pin (Fig. 55, 2). Amber, gold and
Mediterranean shells were freely imported, but fayence beads are rare and the segmented variety (like Fig. 151) is not found north of Brno.

The hand-made pots agree in fabric with those from Perjámos, but the most distinctive shapes were at first pouch-jugs and mugs sometimes decorated with cord-impressions or incised lines (Fig. 60). Then in the classical phase of Aunjetitz these are transformed by flattening out the belly into keeled mugs and jugs. Neumann has analysed the constituents of Aunjetitz pottery into elements derived from the Bell-beaker and Corded ware groups and a southern component. His analysis summarizes the constitution of the whole culture. Bell-beaker folk established the requisite commercial connection,

Fig. 60. Marschwitz and early Aunjetitz pottery, Silesia and Bohemia. After Stocký.

Battle-axe folk made the demand for metal effective, metalurgists from the south provided the technical foundations.

Exact copies of Oriental types appearing simultaneously in period IV offer an opportunity for dating the period in terms of solar years, and most chronologies of prehistoric Europe have taken them as the starting point. But of course the age in Asia of models copied in Europe gives only a terminus post quem for the copies. Recent discoveries have raised these limits unexpectedly. All the types mentioned on p. 115 were current in Egypt or Mesopotamia by 2800 B.C., when bronze was already known in the Orient. Period IV might then begin by 2800. So, too, vases of the Vattina type, which succeed the Perjámos ware in period V, are strikingly like cantharoi with quatrefoil

1 These used to be attributed to a distinct Marschwitz culture and to period III.
2 PZ., XX, 128.
3 BRGK., XXIV-XXV, pl. 28, 1, 2; cf. PZ., XXV (1934), 140.
lip and grooved handles from Middle Minoan Crete and the Shaft Graves of Mycenae, while the rapier distinctive of the period is a weapon current in the Aegean from M.M.II on. Finally the fluted pottery locally characteristic of period VI is related to the wares brought to Macedonia by the destroyers of the late Mycenaean settlements about 1100 B.C. Hence a long chronology placing the beginning of the Bronze Age about 2800 B.C. is defensible.

On the other hand all the Oriental types relied on for dating that period enjoyed a long life. Most ingot-torques and knot-headed pins in Syria or Cyprus can be dated between 2000 and 1700 B.C.¹; the remaining types persisted even later in the Caucasus. The rise of the Central European bronze industry might well be connected with the extension of the amber trade to the Aegean attested first in the Shaft Graves of Mycenae about 1600 B.C. The halberd and round-heeled dagger from the same tombs² strengthens this supposition; the imported fayence beads from Aunjetitz and Perjámos graves go some way to confirm it. The segmented beads from Moravia and Hungary are said to be identical with some from an Egyptian tomb dated about 1400 B.C.³ Violin-bow safety-pins, such as appear in Greece in the thirteenth century, have been reported from Aunjetitz tombs in Bohemia⁴ and Lower Austria. These safety-pins would at least show that the Aunjetitz culture outlasted period IV as usually defined.⁵ On the whole a short chronology would appear the more probable. Period IV should begin not earlier than 1700 B.C. and the lower of the alternative dates offered for previous periods should be chosen.

But whether Perjámos and Aunjetitz are to be compared with early Sumerian civilization or with early Mycenaean, they must rank several stages lower in the cultural scale. Economically they are far behind the Anatolian townships that preceded Troy II or the Middle Helladic settlements in Chalcedice. At the beginning of the Bronze Age Central Europe was not only behind Hither Asia, but separated therefrom by a regular series of descending grades of culture.

CHAPTER VIII

THE PEASANTS OF THE BLACK EARTH

Below the Iron Gates and east of the Carpathians, forested plains, cut by the Lower Danube and many other rivers, stretch from the Balkans to the Dniepr. The forests sheltered herds of deer, wild pigs and even elks, and the lakes and marshes that interrupt them were breeding grounds for wild fowl. But the rich soil, now the famous black earth, was well adapted for agriculture. And so there arose here a series of cultures richly equipped materially, ritually, and artistically, but all based on farming and hunting. All share many traditions with the Morava-Tisza-Danube complex farther west—the carpenters’ preference for the adzes instead of axes, the artists’ love of spirals and meanders, the popularity of female figurines. All perhaps were indebted to the mesolithic Forest folk, not only for hunters’ equipment, but also for antler axes and sleeves. But the only indication of cultural grading such as we observed in Chapter VII is that the settlements in the Lower Danube basin were stable enough to form tells while in Moldavia and the Ukraine such concrete evidence for the continued occupation of the same site does not exist.

THE THRACIAN COPPER AGE

In Wallachia, Dobrudja and north-eastern Bulgaria the lowlands are studded with tells, marking the sites of prehistoric hamlets. Similar tells spread southward into the valleys of the Tundja and the Upper Maritza, but cease abruptly there as if the responsible villagers had entered Bulgaria1 from the Danube valley; direct links to the Aegean coasts are lacking. The tells are all small, but sometimes quite high. Tangaru in Wallachia measures 90 by 50 m. and 10 m. in height; Kodja-Dermen near Shumen is 60 m. in diameter and

6 to 7 m. high. The stratigraphy of Tangaru and Vidra near Bucuresti establishes for Wallachia a sequence of cultural phases\(^1\) which does not, however, seem applicable south of the Danube.

The oldest culture, named after an island site on the Danube, Boian A, is already based on farming combined with hunting and fishing. Millet as well as wheat was cultivated. As dwellings, substantial rectangular houses walled with split tree-trunks and wattle and daub were erected and equipped with central fire-places and a very shallow porch, thus approximating to the megaron plan.\(^2\) These are said to have been preceded by less substantial huts at Tangaru. Weaving is attested by clay loom-weights and cruciform whorls, like those used on the Körös. The carpenter used adzes of shoe-last form or bevelled as in the Sesklo culture of Thessaly. But they might be mounted in perforated antler sleeves as at Maglemose.

The home-made pots are obviously influenced both in form and decoration by wooden models. Characteristic are cylindrical peg-footed boxes (Fig. 63), big biconical jars, two-storeyed urns, ladles with solid handles, and tiny vases with pointed bases that stood in pairs on cubical supports. Exceptional are pedestalled bowls of Danubian II form and others on human feet. For decorating these products the potter employed the wood-carver's technique of excision, but also incision, fluting, rustication, and, exceptionally, negative painting in

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\(^1\) Nestor, *BRK*, XXII (1933), 54ff; cf. *PZ*, XIX, 11ff.

\(^2\) *Bul. Muzeu. Jud. Vlasița T. Antonescu*, II, 1937, Fig. 3.
graphite, and crusting with colours after the firing; spirals and mæander motives underlie the decorative system.

The Boian farmers were acquainted with copper, but used it only for small ornaments and made no attempt to organize regular supplies for industrial use. The only other indication of rudimentary trade is provided by bracelets of Spondylus shell which were as popular on the Lower Danube as in Thessaly and Central Europe. And as there, triangular and quadrangular altars were made for domestic cult, but clay figurines, later so common, were not manufactured; perhaps their place was taken by wooden effigies that have perished.

Typical peg-footed boxes from Denev (Salmanovo) prove that the Boian culture extended into northern Bulgaria, excised ware from Deve Bargan may indicate that it had spread even to the Maritza. And a contracted burial near Sfântul Gheorghe is claimed as evidence for a spread northward along the Alt into Transylvania.

The Boian culture seems to have developed, though not without enrichment from Anatolia, the Ægean and the Middle Danube, into what Roumanian prehistorians term the Gumelnita culture. This is represented at a larger number of sites in Wallachia and Bulgaria than the Boian A culture owing to the foundation of new villages by an expanding population. And it endured a long time; at least three phases can be distinguished stratigraphically at Vidra and Tangaru, but the Wallachian divisions are inapplicable in Bulgaria.

The basis of life remained unchanged save that antler harpoons, like those of the Morava and Tisza sites, were now employed for spearing fish. But from the first a tendency to industrial specialization was manifested; in several settlements hoards of flint blades and bone tools, all fresh as if designed for barter, were uncovered. Later, in phase III, metal must have been worked by craftsmen in some sites.

Trade was also organized to some extent. In phase I at Vidra the material for stone implements was brought from Bulgaria and the Dobrudja, later from Transylvania and the Banat. Commerce brought actual manufactures, new ideas and eventually new technical processes. A binocular vase of the Tripolye A style from Moldavia or farther north and a vessel ornamented with punctured ribbons, as at Tordos and Vinča, were brought to Vidra in phase I. From the same
horizon and from several Bulgarian sites come clay stamps imitating Asiatic seals though decorated always with spirals. By phase II, ring-pendants, as at Troy, Dimini and Tordos, were being manufactured in bone and bone copies of double-

Fig. 62. Copper axe and adze from Gaborevo (§).

spiral headed pins. Actual pins, like Fig. 27, 9, save that the spirals are ribbons, not wiry, were found in level III at Vidra, as at Ruse, Sultan and Gaborevo in Bulgaria. Finally even the Macedonian-Helladic askoi were copied locally in Vidra III and other Wallachian and Rumelian sites.²

¹ One from Čunesti, Moldavia, Dacia, V-VI, 1938, 117.
² BRGK., XXII, Taf. 7.
By this time metallurgists, attracted perhaps by the copper lodes of Eastern Bulgaria,\(^1\) were actually working in Bulgaria and Wallachia. The double-spiral pins they made show the Anatolian models that inspired these artisans, but they seem to have relied on hammering, presumably through ignorance of casting,\(^2\) and not all their products were direct copies of Asiatic forms. A shaft-hole axe and a shaft-hole adze were found together at Gaborevo (Fig. 62). Combined in a single casting, they would yield an axe-adze, and an actual specimen

\(^1\) O. Davis, *Man*, XXXVI (1936), 119, describes prehistoric mines near Burgas.

\(^2\) *PZ.*, XIX (1928), 131.
was found at Vidra. It may mark the starting point of the Hungarian series of period III.

Nevertheless, the Gumelnita economy was never transformed so that metal could take the place of stone. Throughout the period tools were normally made of stone or bone. But in addition to adzes of Boian style, flint axes were now used; the later specimens have splayed blades or polished faces in imitation of the rare copper axes. Hammer-axes and even simple battle-axes, all hollow-bored as on the Middle Danube,

![Painted clay head, Vidra (§).](image)

came into fashion and antler-axes with square-cut shaft-holes. Arrows were tipped with double-ended bone points, more rarely with triangular flint heads. Even a Bowman's wrist-guard was found in Vidra III. Spheroid mace-heads occur sporadically, but the culture never assumes a bellicose aspect.

The pottery carries on the old traditions. The peg-footed box went out of fashion and was replaced by the foot-base type (Fig. 63, 6), in which the foot is open to the body but closed below, and a socketed ladle of Danubian II type was introduced by phase I at Vidra. Excised decoration became less popular, but rusticated designs remained current, and graphite painting, now positive, became the prevalent method of decoration. It was rarely supplemented by the use of white paint applied
before firing. The impression of a split reed producing the so-called bracket ornament (Fig. 63, 2) was popular south of the Danube.

The relative stagnation in industry is counterbalanced or explained by an extravagant elaboration of magico-religious equipment. From phase I on, female figurines of clay were as carefully modelled as those from the middle strata at Vinča (Fig. 64). One from Vidra has shell inlays for the eyes, like Early Sumerian statuettes. A vase from Vidra III is a grotesque female figure 42 cm. high; a smaller vase from Gaborevo represents a male personage. Both products belong to the same circle of ideas as the anthropomorphic vase from Vinča. Sitting figures, male or female (Fig. 65, 1) were also made. Flat bone figurines are distinctive in all phases (Fig. 65, 3) (especially II), in Wallachia, and also in Bulgaria, where the form was also reproduced in gold leaf. A much more conventional type is a simple bone prism (Fig. 65, 2); at Balbunar in Bulgaria prism figures were found in strata deeper than those containing flat figurines, but at Vidra the order of occurrence was reversed. Stone idols, rather like the Cycladic, were made of local Bulgarian marbles. In addition to female personages males were being modelled in clay from phase II (as in Thessaly C-D), and clay phalli, like the Anatolian and Minoan, were used as fertility symbols (Fig. 65, 4). Other ritual objects are horns of consecration (phase II), model altars

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and thrones, and by phase III models of houses (Fig. 66), as well as models of animals and doves, and stone sceptre-heads carved in animal forms.1

The dead were not objects of any elaborate cult or even tendence. At the base of the tell of Balbunar twenty-two contracted skeletons (accompanied in two or three cases only by flint adzes) and two trunkless skulls had been buried under the house floors; four contracted burials more richly furnished were found at Ruse. But unburied skulls and ribs hacked about have been reported from other stations as evidences of cannibalism. The skulls from Roumania were dolichocranial and allegedly Mediterranean, but two from Ruse2 are round.

In addition to the pins already mentioned and bracelets of Spondylus shell, ring-pendants of bone or gold (Vidra II) and conventional bulls’ heads of gold leaf adorned with punctuations (Vidra III) were worn as ornaments or charms.

Above the Gumelnita strata at Vidra, Glina and a few other tells, are ruins containing relics of a new culture (Glina III) of a very different aspect. Economically hunting now became as important as farming, while warfare is indicated by numerous stone battle-axes and flint arrow-heads. The warriors’ demand for metal weapons led smiths to settle in some settlements such as Glina, since crucibles and moulds for casting flat axes have been found. But their demands did not secure for Thrace regular supplies of tin; the region was incorporated neither in the Ægean nor in the Danubian commercial systems. Stone and bone remained the normal materials for tools; curved

1 BRGK., XXII, Taf. 2.
sandstone knives or sickles are a notable new type. The pots are coarse and decorated only with finger-tip impressions on applied cordons. And, as on the Danube in period III, the rise in importance of warriors coincides with a disappearance of female figurines and a decline of the associated cult.

But after Glina III there are no connected remains in Wallachia till the latest Bronze Age nor in Rumelia till Hallstatt burials take up the tale. Excluded from the principal economic systems which made bronze ages possible, the Thracians, if any, have left us none of the types on which chronological divisions of such periods are founded. Was the region evacuated? Macedonia, in nearly as bad a plight for bronze types, was nevertheless continuously inhabited. Or shall we transfer to "the Bronze Age" much of the Copper Age just described?

But for the alarming "Bronze Age hiatus" the Thracian Copper Age cultures could plausibly be correlated with the Danubian as follows:

Period I. Boian A = Körös culture (rusticated ware, cruciform whorls, triangular altars).
Period II. Gumelnita I = Tisza culture (socketed ladles, harpoons, clay stamps).
Period III. Gumelnita III = Bodrogkeresztur (axe-adze, gold) and Bell-beaker (wrist-guard).
Period IV. Glina III = Battle-axe cultures (lasting into period IV).

But these equations are in no case firmly based on actual interchanges of datable articles. Boian A could quite well be transferred to period II (pedestalled bowl from Tangaru) and the remaining phases each moved down a stage on our table.

Relations with the Aegean and Anatolia are too indirect to provide valuable controls. A terminus post quem vaguely about 2500 B.C. for Gumelnita II-III is provided by the Trojan, Early Cycladic and Early Helladic double spiral-headed pins. The askoi from III would indicate a quasi-synchronism with the Early Macedonian Bronze Age and the corresponding phase C in Thessaly; the horns of consecration and phalli might bring even phase II into this horizon. On the other hand ring-pendants would synchronize Gumelnita II and Dimini. Vague though they be, the limits thus given for the Thracian Copper Age would be quite incompatible with the high chronology suggested on p. 120 for Central Europe if Thracian and
DAWN OF EUROPEAN CIVILIZATION

Danubian cultures be synchronized as in our table; since 2500 B.C. would fall within the limits of period II! Even if Thrace be regarded as a backwater where cultural phases lag a period or so behind the Danubian, the short chronology on p. 120 becomes the more plausible. Indeed the shorter it be made, the less formidable the "Bronze Age hiatus" would appear.

The most important sites mentioned on the foregoing pages are described in the undermentioned publications:

Boian, Christescu, Dacia, II, 1925, 249-380.
Gumelnita, Dumetrescu, Dacia, II, 29-103.

Dobrudja. Cernavoda, Schuchhardt, PZ., XV (1924), 9ff; cf. PZ., XX. 200ff.

Kodja-Dermen (Shumen), ibid., VI, 71-182.


Balbunar, Izvestiya Bulg. Arch. Institut, IV (1926-7), 251-84.

OLTENIAN CULTURE

Just within the Carpathian girdle the löss lands of the Upper Alt basin became the centre of a rich culture which overflowed into the Upper Maros and into Moldavia. In the Alt basin itself no less than twenty-five stations are known, but only one, Ariuşd (Erösd), has been at all fully explored. The village, protected by a fosse and a double palisade and bank, occupied a little plateau with an area of 5400 sq. m. (1 1/4 acre), which accommodated at most twenty-one houses arranged in three rows. Only one row has been actually uncovered. The most conspicuous monuments are two layers of burnt clay showing impressions of branches; these presumably result from the destruction by fire of two consecutive groups of houses. Those corresponding to the lower clay layer were rectangular gabled structures divided into two rooms on the

1 Childe, Danube, 98-104; for pottery, Dacia, I, 1-27.
megaron plan, but with hearths or ovens in the porch as well as in the main room. The finials were adorned with elaborate spiraliform mouldings of clay. A still earlier layer of huts may perhaps be inferred, but is known only from hearths, ovens and pits in virgin löss.¹ The site would accordingly have been occupied during three architectural periods, each of considerable duration, but throughout traditions were preserved intact.

The villagers cultivated undetermined cereals, bred cattle, goats, sheep and pigs, hunted deer, chamoix, boar, bear and lynx and fished with hook and line or single-barbed harpoons.

Fig. 67. Potters' oven and model, Ariuşd (Erősd). After Laszló.

Nothing indicates industrial specialization. Copper was indeed known, but it was used only for small and simple articles—awlfs, fish-hooks, bracelets and rings. Still stone celts are rare; the adzes, though of shoe-last form, have a rectangular cross-section as if in imitation of copper models. They were never perforated, but might be mounted in antler sleeves as at Maglemose and Dimini, and perforated antler axes are common.

Magnificent vases were manufactured, but all are hand-made, and kilns are so numerous that they must belong to individual families rather than to a single professional. Fig. 67 shows the plan and base of an actual kiln uncovered at Ariuşd

¹ Cf. Schroller, Die Stein- und Kupferzeit Siebenburgens (a careless book, distorted by a priori theories).
Fig. 68. Oltenian pottery. After Laszló.
and a clay model of such a kiln. The pottery thus baked was generally reddish, sometimes blotched with black or particoloured as on the Morava. The forms include tubular supports like the Early Sumerian “stands” (Fig. 68, 2), pedestalled bowls (Fig. 68, 6), cups without handles and biconical or two-storeyed jars sometimes provided with lugs rather than handles (Fig. 68, 5) and ladles with very long handles. The designs, based on Danubian spirals and meanders, may be executed in white on red or in red on a pale slip and are often outlined in black as in trichrome Dimini ware. But painting may be supplemented or replaced by fluting.

Spatulæ were made in bone precisely as in the Morava and Körös cultures.

Trade secured the Oltenian villages supplies of copper and even gold sufficient for small trinkets and occasional obsidian flakes, but the materials can all be found in Transylvania. Clay stamps (seals) were only found in the lowest level at Ariuşd; in their spiral decoration they, like the Thracian, are farther removed from the Asiatic models than those of Thessaly and the Körös culture (Fig. 69). As ornaments bracelets, rings and beads of copper and gold, and necklaces of shell and limestone beads together with bored teeth of game were worn. Laminae from boars’ tusks, perforated at both ends, may have been worn as collars as in the Tel Halaf culture, or sewn on garments or even, as at Mycenæ, on helmets.

This rich material equipment was supplemented by a no less varied ritual paraphernalia—female figurines, generally steatopygous and modelled in two parts as in the Danubian II culture of Moravia (Fig. 70, 1), rarely decorated in the Cucuteni A style (like Fig. 70, 2), or seated, a few figures of men, many models of animals and a few zoomorphic vases. Conventional stone carvings of animals, designed to be mounted on sceptres, are assigned to the Ariuşd culture as to the Gmelniţa culture.
of Wallachia. They have been described as hippopotami and attributed to Egyptian influence. No graves of Oltenian vase-painters are known.

The position of Ariuşd in relation to other Danubian cultures has been much debated. A synchronism with the Kőrösi culture of period I might be deduced from the bone spatulæ and clay stamps but that the latter would fit just as well in the Danubian II culture of the next period. At Marosvásárhely painted ware of Ariuşd style was certainly associated with vases incised in the style current at Bodrogkeresztert so that the culture must have lasted into period III.

![Fig. 70. Figurines, Ariuşd and Cucuteni A.](image)

It is inferentially later than the Boian A in the same region and probably equated with some phase of Gumelniţa by the stone sceptre-heads.

Above the levels containing painted vases at Ariuşd and some other sites are slender traces of settlements of warlike intruders, akin to the authors of the Glina III culture. The result in Oltenia is termed the Schneckenberg culture. Its authors used crescentic stone knives, stone battle-axes (including the knobbed polygonal type), and hollow-based flint arrow-heads and relatively coarse pottery, incised, cordoned or cord-impressed. Though more pastoral than agricultural, they were rich enough or well-organized enough to

1 BRGK., XXII, 45; Istros (Bucuresti), II (1934), fasc. II.
2 Childe, Danube, 129; Schroller, op. cit.
afford copper flat axes, axe-adzes and battle-axes, but not to dispense with stone and bone implements and arms. And they perpetuated some of their forerunners’ traditions, making clay models of animals, but not of men, and using spiral motives in their ceramic art. The Schneckenberg culture, though formally chalcolithic, must in time coincide at least partially with period IV, the Early Bronze Age, which is otherwise unrepresented in the area. It was only during period V that a native bronze industry became established—and that so firmly that it persisted well into Hallstatt times when neighbouring areas were already using iron tools and weapons.

THE TRIPOLYE CULTURE

The Oltenian Ariuşd culture may be treated as one facies, adapted to a restricted mountain environment, of a larger complex occupying the wide wooded valleys east of the Carpathians and extending from the Sereth in Moldavia and Bukowina to the Lower Dniepr and, in Kiev Province, even to the Desna. Despite really significant local divergences, the general economy, architecture, equipment and art are sufficiently uniform over this vast territory to allow the term Tripolye culture to be applied generally to the earliest manifestations of a food-producing population.

The settlements take the form of regular villages of twenty-five to thirty-five dwellings generally occupying hills or promontories protected by streams or marshes. Cucuteni,1 a promontory settlement in Moldavia, was defended originally by a V-shaped ditch 2·2 to 4 m. wide and 2 m. deep, with a wall or bank of quarried stones behind it (at least across the neck), and these defences were later supplemented or replaced by a larger ditch and another wall farther out. Similar works have not yet been reported authoritatively from other sites. But at Pieniążkowa in Podolia2 the thirty-two habitations were arranged at considerable intervals in a single row along the edges of a promontory and in the Dniepr valley the dwellings were spread out along the circumferences of circles with diameters varying from 550 to 2,250 yards.3

2 Swiatowit, XIV, 49.
3 La culture tripolienne en Ukraine (TKU), 141.
Besides storage-pits and other non-residential constructions, two kinds of dwelling have been reported in Tripolye villages. The commonest type is represented by so-called *ploshchadki* or “squares”, consisting of several layers of hard-baked clay mixed with straw and bearing on one surface impressions of oak logs and branches, on the other traces of white paint. Such layers cover irregular areas of the order of 14 by 5·5 m. (Khalepye), 11 by 7 m. (Pieniążkowa), and 7 by 5 m. (Popudnia), and must represent the debris of burnt walls and perhaps also floors deliberately baked. These ploshchadki have generally been interpreted by Russian archaeologists¹ as “funerary houses” erected to enshrine cremated remains. The presence in them of ovens,² querns and other articles of domestic furniture, though seldom observed owing to faulty excavation, disposes of this old hypothesis for which positive evidence, such as burnt human bones, seems totally absent. Alternatively irregular oval dwellings were excavated in the earth. The latter are divided into a shallow porch and a longer inner room, furnished with benches along the walls and a large oven of clay over a timber skeleton similar to those recognized in some ploshchadki.³ Finally at Buczacz in Galicia Kozłowski found a square structure supported by upright posts but sunk 1 m. into the earth and measuring about 4 m. square. About a quarter of this space was occupied by a double oven built of stones.⁴

The interior of a Tripolye house as it would look without a roof is illustrated by some big clay models from Podolian sites.⁵ The one from Suchkovka, a rectangle with rounded corners, measures 26·5 by 20 cm. over all, the oven being 5·5 cm. square and 4 cm. high (Fig. 71). The models stand on four or six legs and have therefore been taken to depict pile-dwellings. More probably they represent the pit-dwellings or the structures on ground level whose ruins form ploshchadki.

The Tripolye folk were essentially farmers⁶ cultivating wheat (*Triticum vulgare, compactum* and *monococcum*), barley.

² *Swiatołow*, XIV, 55; *Sov. Arch.*, III (1937), 223.
³ *TKU*, 191.
⁵ *Swiatołow*, XIV, 151; XVI, 165; *TKU*, 53; Kozłowski, *Młodsza*, 141 and pl. XXX.
⁶ *TKU*, 100ff.; *Real.*, XIII, 37-8; Kozłowski, *Młodsza*, 147, n. 2; for Darabani, Bessarabia, see *Dacia*, III-IV, 35.
millet and some plant like fennel, and breeding above all cattle, then also pigs and sheep. Bones of horses have been found on several sites, but at Darabani in Bessarabia are explicitly attributed to wild animals. Chwojko reported camel bones from Khalepye in Kiev Province. The economic importance of cattle breeding is emphasized by models of bulls and bulls’ heads in relief or painted on vases. But in addition to farming the chase (after woodland game like deer, boar, beaver and
wilde duck), and fishing, were economically vital. Yet these activities are represented almost exclusively by the bones of game and fish included in the kitchen refuse. The equipment employed therein is represented only by a very few triangular arrow-heads of stone or bone, occasional double-ended bone points, some doubtful sling-stones or bolas-weights, a couple of bone fish-hooks and harpoons, and a number of perforated clay weights. Some of the latter may be net-sinkers, but some are certainly loom-weights; a textile industry is attested by whorls also.

Economically the farmers were generally content with an equipment of stone, bone and antler. Interchanges of commodities within the province and even beyond are, however, reflected even in the ceramic record and would certainly be defined more explicitly by petrographic studies of the stone implements. Moreover metal objects, including flat axes and pick-axes with shaft-holes, and even moulds for casting have been found at several sites even of the earliest period both in Moldavia and in Kiev Province. But the rural communities seem never to have been incorporated in a commercial system which should make possible the regular distribution of metal and a Bronze Age economy.

Indubitably the Tripolye culture and its sub-varieties persisted over a considerable period, but its chronological division depends almost entirely on typological and stylistic analyses of its products, especially of pottery. Only at Cucuteni and Izvoare in Moldavia and at Niezwiska on the Dniestr is occupation of the same site in two typological periods attested stratigraphically. Normally the several phases are represented at distinct, though sometimes adjacent, sites. Presumably, as in the Upper Danube basin and for the same technical reasons, hamlets were periodically shifted bodily to new sites adjacent to fresh fields.

On the basis of the sequence established at Cucuteni and Niezwiska two principal ceramic phases, A and B, can be distinguished throughout the whole province. But not only are there marked regional divergences, but the dual division is

1 Chwojko, Trudy XI arch. S'esda, 1899; Schmidt, Cucuteni, 88 and 96; Real., XIII, 36.
3 ESA., XI (1937), 135-146.
not exhaustive. In Moldavia a phase older than A, Aa, can be distinguished by the stratigraphy of Izvoare, while a phase C can be inferred on stylistic grounds in several regions.¹

Throughout the region and at all periods the Tripolye farmers manufactured technically excellent vases, often very large and comprising specialized purely ceramic shapes, and decorated them lavishly with incised or painted designs. The incisions take the form of relatively wide grooves, generally grouped to form ribbons and combined with punctuations made with the same blunt-pointed instrument. In phase A continuous and S spirals are the dominant motive. In the Ukraine and in the lowest levels at Izvoare in Moldavia incised ware was predominant. Conical and helmet shaped lids (Fig. 72, 4 right

Fig. 72. Tripolye pottery.

¹ The latest attempt at a comprehensive division is given by Passek, La Céramique tripolienne, Moscow-Leningrad, 1935; cf. AsA., XXIII, 297-9; Kozlowski, Młodsza, 186ff; AsA., XL (1936), 228-241.
and 5 left), single and double stands (binocular vases) and large piriform jars were the favourite Ukrainian forms. In Cucuteni A polychrome ware painted in red outlined with black on a white slip or in white and black on the red ground was commoner than the incised, while at Niezwiska incision and polychrome painting might be employed to decorate the same vase. The painted vases from Cucuteni resemble in form those from Ariușd—notably in the tall hollow stands, bowls on high pedestals, lugged jars and beakers. Such polychrome vases are found even on the Dniepr in sites of phase A, but so rarely that they are thought to be imports there.

In phase B painting in black, rarely supplemented with thin red lines, on a light orange ground became popular throughout the province, while the spirals tend to dissolve and the vase surface to be broken up into metopes. Lids and binocular vases persist, but the piriform jars acquire necks or grow into craters like the Northern funnel-necked beakers (Fig. 72, 1-3). Finally phase C witnesses the disappearance of the spiral and perhaps of the binocular vase and the emergence of handles.

In phases B and C and probably even in A the hard Tripolye wares are associated with coarse, badly fired vases decorated by striations or impressions made with a short-toothed comb—one of these was actually found with incised A ware in a village in the Bug valley.1 Technically and stylistically this fabric is allied to those of the Forest hunters and fishers described in Chapter XI, but bulls’ heads modelled on some of these vases seem to denote its acclimatization to the new milieu.

No reliable division is possible for the rest of the industrial equipment. Stone adzes and hollow-bored hammer-axes of distinctively Danubian character2 were common at all periods, but axes, including some of flint, seem confined to phase B. Perforated adzes and picks of antler were always popular. Battle-axes of stone, including an imitation of such in antler, occur sporadically in phase B, but the copper implement from Tripolye and a clay model from Cucuteni A might rank as precursors of the battle-axe.

2 Kandyba in Obzor Praehist., IX (1930-1), 32-56.
This practical equipment was accompanied by a no less elaborate paraphernalia for domestic cult. Figurines, generally female, were modelled at all periods though at first more rarely in the Ukraine than in Moldavia. In phase A these were steatopygous and covered all over with incised spirals (Fig. 70, 2). The idols of phase B are flatter, perforated for suspension and depicted as wearing only necklaces (Fig. 73, b and e).

Fig. 73. Tripolye figurines and model stool.

Models of stools, animals (particularly bulls) and tauromorphic vases and perhaps also the hut-models may have served similar ritual ends. But no well-defined burials attest a cult of the dead. At Ruginoasa (Baici) clay stamp seals as at Ariuşd were found with Cucuteni A pottery.1

Chronologically phase A certainly overlaps with the Oltenian culture of Ariuşd, while the fragmentary binocular vase from Vidra (p. 123) establishes a synchronism with the Thracian Gumelnita I period which would then seem to provide

1 Dacia, III-IV, 65.
a *terminus post quem* for dating the Tripolye sequence. A *terminus ante quem* is more clearly defined. In the Ukraine "Copper Age" ochre graves have been dug into the ruins of ploshchadki of phase B whereas on the lower Dniepr, pottery of phase C is actually included in the furniture of such graves. Similarly pottery of the same phase is said to have immediately preceded that of a developed Bronze Age settlement at Sarata Monteoro in Wallachia. A copper axe with shaft-tube from Cucuteni B also would seem most at home in period IV. A possible basis for an absolute dating is offered by the ringed-stem of a grey-ware goblet allegedly found in Cucuteni B. If it really be an Aegean-Anatolian import as Schmidt maintained, it would give a *terminus post quem* about 1900 B.C. for phase B. On a short chronology therefore the whole Tripolye development would lie within the limits of periods II to IV.

The general habit of their rural economy, their equipment, their art and their religious symbolism justify the treatment of the Tripolye farmers as one branch of the great Danubian family. Neither the bare fact that Tripolye vases are painted nor the really striking resemblance of such vases and their designs to those of the Yang-shao culture of Western China justifies a derivation of the culture from Upper Asia. The idea of painting pottery clearly reached our region from the southwest since the earliest styles of painting scarcely reached the Dniepr where incised wares were always preferred. The only animal bred by the Yang-shao peasants was the pig, whereas cattle-breeding was a staple industry in the Tripolye province. On the other hand the Tripolye farmers may have absorbed or fused with peoples of non-Danubian affinities. Intimate connection with the Eurasian hunters and fishers is explicitly attested by the coarse, comb-ornamented pottery, implicitly by antler axes and adzes. Contact with pastoralists from the steppes, discussed in the next chapter, may be indicated even in phase A by the prominence of cattle-breeding, the bones of horses and even camels and the copper axes. By phase C on

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1 TKU., 47, 95.
2 TKU., 190; Passek, *La Céramique tripolienne*, 162.
4 Schmidt, *Cucuteni*, 96; *BRGK.*, XXII, 50.
the lower Dniepr such herdsmen had amalgamated with or subdued the farmers, judging by their barrows’ furniture. Farther west as noted already, the same pastoralists supplanted the more sedentary farmers, digging graves into deserted ploshchadki. A real interruption of agricultural settlement is graphically illustrated by the section at Niezwiska¹; there a deep deposit of æolian löss, accumulated in the dry Sub-Boreal phase which coincides with the Bronze Age, separates the Tripolye village from an Early Iron Age settlement, founded sometime after 500 B.C. In the record based on permanent habitation sites there is in this area a real hiatus during the Bronze Age. It is partly filled by a funerary record comprising the barrows of the Pontic nomads and their Bronze Age descendants and the large stone cists containing Globular Amphorae (infra. p. 185).

CHAPTER IX

CULTURE TRANSMISSION OVER THE GREAT EUROPEAN PLAIN

Last century anthropologists treated the Eurasiatric plain as a corridor through which Asiatic hordes, precursors of the Scyths, Huns and Tartars, swept neolithic culture to Western Europe. Their guess is hardly confirmed by the evidence of the spade. At least in the forest zone the mesolithic population retained their food-gathering economy while neolithic peasants were colonizing the löss lands of Central Europe and the open coastlands of the West. On the other hand the Caucasian isthmus has in fact been revealed as a bridge over which stimuli from Oriental urban civilization were transmitted to a continuum eventually extending over the whole plain south of the forest zone to the North Sea coasts and even Britain.

This continuum is known almost exclusively from graves, often under barrows containing contracted skeletons frequently accompanied by battle-axes. Without prejudice to the question of their ethnic homogeneity, we may term the human vehicles of this continuum Battle-axe folk. These were sedentary in as much as their graves form little scattered cemeteries; in some regions indeed the same barrow covers several interments, presumably representing several generations of the same family. They were neolithic in the sense that they generally possessed sheep and cattle and often cultivated some sort of cereal. But, though certainly acquainted with metal, they organized for its importation and manufacture only in specially favoured regions and generally with the aid of alien communities.

Scattered from the Caspian to the North Sea they fall into self-sufficing groups not interrelated by any regular interchange of goods though occasional transfers of commodities from one group to another are attested. As a result they created a plurality of distinct cultures—the Cis-Caucasian Kuban culture,
Steppe cultures farther north, the Fatyanovo culture in Central Russia, Galician and East Prussian Corded Ware cultures, the Saxo-Thuringian culture, the Swedish and Finnish Boat-axe cultures, and the Separate Grave culture of Jutland. Particularly in Saxo-Thuringia, Denmark and Southern Sweden the Battle-axe graves are juxtaposed to, and contrasted with, those of other contemporary groups. Yet the Battle-axe folk borrowed items of equipment from such neighbours and even adopted some of their burial customs thus enhancing the divergence from kindred cultures.

The differences in equipment between the several groups are indeed very conspicuous. Stone or copper battle-axes occur almost everywhere, but only in the North—Central Russia, the Baltic lands, Jutland and North Germany—do they form a regular concomitant of every male interment. The form of the weapon itself varies enormously. A type with rounded body, expanding blade and cylindrical or knobbed butt is almost universal, though represented in the Kuban group only by copper specimens. The rounded body and knobbed butt must be inherited from mesolithic antler axes; the expanding blade and a longitudinal ridge or groove (imitating the seam of a casting) which is seen on the body of many early examples, can only have been inspired by metallic models. Apart from this common type each group developed distinctive regional types of battle-axes.

In most areas the earliest graves contain a drinking vessel—a beaker or bowl—often ornamented with cord impressions, but the form and patterns vary from group to group. Necklaces of bored teeth were worn universally by Battle-axe folk, but otherwise ornaments have a local character.

Burial practices themselves show no little divergence. Timber-lined shafts or trenches occur as far apart as South Russia, Finland, Central Germany and Denmark, but generally in competition with other grave types. Chamber tombs of the pit-cave type occur in the valleys of the Kuban, the Don-Donetz and in East Poland. The body was covered with
red ochre regularly in the earlier South Russian graves, occasionally also in Poland\(^1\) and Central and North Germany.\(^2\)

A ring of stones or circular trench round the grave has been noted in South Russia, Galicia\(^3\) and Holland.\(^4\)

Finally Battle-axe barrows are significantly concentrated in regions rich in natural resources—the ores of the Caucasus, the amber deposits of East Prussia and Jutland, the salt of the Saale valley. But there is no evidence that the barrow-builders themselves engaged in their exploitation. At first, at least, they must have taken advantage of the labours of other more settled folk. And from the first in South Russia the graves are explicitly “Copper Age”; in Galicia and Saxo-Thuringia they contain only stray copper trinkets; farther north in Finland or Jutland the grave-goods are exclusively “neolithic.” Such differences of grade need carry no chronological implications. They may be merely a function of distance from centres of urban civilization and illustrate precisely that zoning which we have observed in the Danube valley and in the Black Earth regions. On this assumption we shall begin our exposition with the North Caucasian-Pontic province even though it be the least adequately explored of all.

**Kuban and Pontic Cultures**

The mesolithic relics from Caucasian and Crimean caves and from various sand-dune sites demonstrate the survival of food-gatherers in South Russia into an indefinitely late epoch (p. 6). The same economy seems to be illustrated by 130 contracted burials under a large mound at Nalchik\(^5\) in the Central Caucasus and by a cemetery comprising over 110 extended burials near Mariupol, north of the Sea of Azov.\(^6\) In both cases the bodies had been reddened with ochre and were accompanied by the teeth of wild animals and shells, while bones of domestic animals and definite indications of agriculture were conspicuously absent. But in both cases some skeletons wore stone armlets. At Nalchik the grave goods also included

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\(^1\) Bl.f.d.V., 9-10, (1933), 35-48.
\(^2\) IST., XXIV (1936), 71.
\(^3\) Księga Pamiet., 141; Swiatowit, XVI (1934-5), 117ff.
\(^4\) van Giffen, Bauart, 40f; NNU., II (1928), 24.
\(^5\) Hančar, Urvorschichte Kaukasiens, Vienna, 1937, 222.
\(^6\) ESA., IX, 140.
a copper ring, a carnelian bead and a stone female figurine. Near Mariupol diadems made from laminae of boars’ tusks perforated at the corners and disc beads of shell were worn, and one “chief” was accompanied by a mace-head of porphyrite, embellished with projecting knobs in Oriental style. Hence these food-gatherers were already being affected by cultural impulses from the south-east. Their cemeteries need not be later than the royal tombs described below, even though that near Mariupol had been disturbed by intrusive contracted burials of the type characteristic of the Pontic “Copper Age.”

The conversion of an autochthonous food-gathering population to food-production may have been effected by agents of Oriental civilizations seeking in the Caucasus metal to supply the demands of Mesopotamian cities. It is in fact in this metalliferous region, in the Kuban valley, that such a conversion is first and most explicitly attested in the archaeological record by documents which at the same time disclose contact with the urban centres south of the range. The classical culture, thus inspired, is accordingly termed the Kuban culture. It is divided by Russian archaeologists into three phases, Early, Middle and Late (Hančar terms phase I the Kuban stage, and phase II the Kuban-Terek stage).

The Early Kuban culture is known almost exclusively from “royal tombs”. Their extravagantly rich furniture suggests that wealth, gained as tribute or plunder from the control of lodes and the approaches thereto, was intercepted by, and concentrated in the hands of, chiefs. These could obtain imported metal weapons and luxury objects. But there is no trace of a native metallurgical industry; the mass of the population may still have been formally neolithic.

Supposedly the earliest of these burials was found under a barrow near Maikop. The tomb was a tripartite wooden chamber in a shaft encircled by a ring of boulders. A prince had been buried contracted in the main chamber under a canopy adorned with gold and silver lions and bulls. A male and a female corpse, less richly furnished, occupied the remaining compartments, but all the bodies were covered with red


2 Hančar, 248.
ochre. The royal weapons (Fig. 74) include a transverse axe, certainly, and a straight axe probably, imported from Mesopotamia together with an axe-adze that looks like a combination of the two Mesopotamian forms,¹ but also lunate and rhomboid arrow-heads of flint. A gold flask with a silver ring round the neck, squat jars of reduced grey ware and a few beads of turquoise and lapis lazuli² suggest contact with Iran. Meerschaum³ had been imported from Anatolia. Two silver vases⁴ are engraved with local mountain scenes and a procession of animals, two kinds of ox, a mouflon, a tame boar, Przewalski’s horse, a panther.

¹ LAA., XXIII (1936), 114-15.
² Yessen, op. cit., 81.
³ Hančar, 296.
Perhaps rather later are two tombs under barrows at Novosvodobnaya (generally but incorrectly termed Tsarevskaya). Both were megalithic cists divided into two compartments by porthole slabs (Fig. 78, 1). Cist II measured internally 1.80 m. + 1.15 m. by 1.60 m. by 1.20 m., and was surrounded by a ring of orthostats over a metre high. The princely dead, one wearing a linen garment, dyed red and purple, a cloak of camel’s wool covered with a black hide and profusely sprinkled with red ochre, were provided with shaft-hole axes, bidents, spear-heads, cauldrons, ladles, wands and gouges of copper, together with flint arrow-heads and globular clay vases (Fig. 75). The spear-head is directly derived from an Early Sumerian type and the bident and gouge have an equally Early Sumerian pedigree, but exact parallels to them and to the ladies, perhaps also to the wand, can be cited from Hissar III in northern Iran. The pottery on the contrary undoubtedly resembles the Central Russian Fatyanovo ware and the Globular Amphorae of Central Europe (pp. 161, 183).

Other tombs, contemporary with Novosvodobnaya, could be used to illustrate further the Oriental influence on the Kuban region but one at Vozdvizhenskaya, which may be somewhat later, contained a copper battle-axe (Fig. 76).

Settlements or commoners’ graves of Early Kuban age have not yet been identified on the slopes of the Caucasus, but on the steppes farther north the poor pit-graves of Gorodtsov’s phase I may be contemporary with some of the royal tombs just described. Each contains a single contracted skeleton covered with red ochre. Only in one instance have sheep bones been reported to demonstrate pastoralism. On the other hand hunting implements—hollow-based arrow-heads of flint—and fishing tackle—bone harpoons and hooks—do attest gathering activities. Hence Kruglov and Podgaëtski infer that these oldest steppe-graves belong to hunters and fishers only. Yessen, however, has suggested a sociological explanation for the absence of domestic animals’ bones from the grave goods—

1 Hančar, 244.
2 LAAA., XXIII (1936), 114-15.
3 MusJ., XXIII (1933), pls. CXIX, CXX.
4 Hančar, 253.
5 “Rodovoe Obshchestvo stepei voctochnoi Evropy” (1935), 57-107; Izv. GAIMK., 119.
Fig. 75. Pottery (£), weapons and tools (§) and pins (£) from tomb at Novosvodobnaya.
that flocks and herds, representing capital, were collectively, not individually, owned.

In any case the communities responsible must have lived permanently in the same area, and their flint-work is more neolithic than mesolithic in character. They certainly made pots—ovoid beakers (Fig. 77, 3), like those of the Forest hunters, and sometimes, like theirs, decorated with comb impressions, but often with cord imprints.¹ Even small metal trinkets have been reported from such graves. These, and perhaps the remaining elements of neolithic civilization, must have been transmitted to the steppe-folk from the more advanced but kindred peoples of the Kuban basin.

Fig. 76. Copper battle-axe, Vozdvizhenskaya (£), copper beads ($), copper spear-head ($), copper and bone hammer-pins ($).

In Middle Kuban times South Russia shook off dependence on Oriental civilizations. Oriental imports became exceptional and a native metallurgical industry grew up. The local Caucasian lodes were exploited, and soon culture expanded northwards to open up the rich resources of the Urals. Native smiths developed along original lines the Mesopotamian and Anatolian models introduced in the preceding phase. The flat axe survived only in chisels, five times as long as they are wide.² The Sumerian shaft-hole axes develop a long curving body. The spear-heads and tanged daggers (Fig. 76, 3) tend to be

¹ Obzor prahist., IX (1930-1), 60-1.
² As against a ratio of 3 to 1 or 7 to 2 in Early Kuban times; ESA., IV, 16.
flatter than the stout form shown in Fig. 75. Oriental filigree work was skilfully imitated in cast copper or bronze by using the *cire perdue* process. The smiths were admitted to the ranks of those entitled to barrow-burial since moulds are found in tombs.¹ A few hoards in the North Caucasian region suggest an incipient organization for the distribution of metal work such as characterized the Bronze Age in Central Europe. The commercial system remained, however, rudimentary. Even in the Kuban copper battle-axes were translated into stone producing the heeled and Piatigorsk types (cf. Fig. 41).² Further north on the steppes metal remained scarce and the grave-furniture looks at best "chalcolithic".

Farming was now the basis of life not only on the Kuban and the Terek but in the valleys of the Don and Donetz and other streams. Millet and perhaps other cereals were cultivated; flint sickle-teeth and eventually metal sickles, saddle-querms, pestles and mortars occur in the catacomb graves. Even in the steppe graves bones of domestic animals are abundant—principally of sheep, but also of cattle, pigs and even horses.³ The deposition of cattle-bones in the grave need not indicate the beginnings of stock-breeding so much as a change from collective to individual ownership of herds.

Wealth was in fact more evenly distributed than before. Chiefs’ graves are distinguished rather by a larger number of grave goods than by the presence of imported luxuries. Nor was it confined to the Kuban basin. Similar but poorer grave goods are found in the Don-Donetz basin and northward to the Urals and, poorer still, westwards to the Dniepr. New items in equipment are pear-shaped stone mace-heads and stone arrow-straighteners⁴ like those from Middle Helladic graves in Greece. The pots are generally flat-bottomed and often richly decorated with cord impressions, sometimes forming spiral patterns, a device that may have been taken over from the Tripolye folk farther west (Fig. 77, 1).

An ornament, derived from Anatolia, the hammer-headed pin⁵ (Fig 76, 4-6) made in copper by the *cire perdue* process in

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¹ Two-piece mould with loose plug for casting a shaft-tube axe from Kievka, Voronezh, *ESA.*, II, 72.
² *ESA.*, VI, 132; VIII, 85.
³ Hančar, 269 and 386ff; *Izv. GAIMK.*, 119, 92ff.
⁴ *ESA.*, II, 18.
⁵ *ESA.*, VII, 116-20; Hančar, 273.
the Kuban valley and imitated in bone on the steppes from the Volga to the Dniepr, is characteristic of the period. But silver or copper lock-rings and earrings with flattened ends, as in the Central European Early Bronze Age, copper medallions and tassels, imported fayence beads, spirally grooved bone tubes and of course bored animals' teeth were also worn. Winged beads of copper (Fig. 76, 2) may be derived from Ægean types.

Burial rites are less regular than before. The skeletons are not always contracted, and reddening with ochre is not invariable. A new tomb-type appears in the Kuban and Don-Donetz valleys—the "catacomb grave" of Russian archaeologists (Fig. 78, 2) was used as a collective tomb and is in reality just a pit-cave like the Ægean tomb shown in Fig. 25, 2. Indeed the idea may have been introduced thence by traders settled on the coasts who could also have introduced the models for the winged beads and perhaps the figurines mentioned below. On the rocky slopes overlooking the Black Sea "dolmens" were erected—really trapezoid cists, 2·5 to 1·8 m. long and 2·3 to 1·6 m. wide, entered through a porthole slab, containing four to twenty corpses and often ornamented with cup-marks or more elaborate carvings. They might be treated as substitutes for catacombs where the hard rocky subsoil made excavation difficult, but in that case the attribution of the Novosvodobnaya cists, which differ from the "dolmens" only in size, to an earlier period would be difficult.

1 Konstantinovka, Hančar, fig. 23.
2 ESA., VII, 98-103; IX, 2-19, with map.
Finally wooden chambers in shaft-graves are assigned by Hančar to this phase though Gorodtsov had treated these as later than the catacombs.

Another innovation assigned by Hančar to Middle Kuban times is denoted by female figurines of stone and clay from a few Caucasian tombs (Fig. 8, 11b). These can as well be connected with Anatolian forms and those from Hissar III as with the Cycladic.

On the steppes the Catacomb phase is supposed to be succeeded by one characterized by large wooden burial chambers, but the furniture of these is not very easily distinguished from that of the catacombs. And this phase of the "Bronze Age" presumably lasted till the advent of the Scyths. In Cis-Caucasia too, a new phase of culture is marked first by the large cemeteries of flat graves at Koban, Faskau and elsewhere. Bow safety-pins from these burials can hardly be earlier than 1100 B.C., but the bronze axes from the same cemeteries are directly descended from Middle Kuban types.

These facts are relevant to the vexed question of the age of the Kuban and Pontic cultures and consequently of their rôle in European prehistory. On this point authorities differ to the extent of a thousand years as may be seen from the estimates advanced by Tallgren and A. V. Schmidt respectively.

Fig. 78. Megalithic cist at Novosvodobnaya and catacomb grave, Donetz.

<table>
<thead>
<tr>
<th>Period</th>
<th>Tallgren. B.C.</th>
<th>Schmidt. B.C.</th>
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<tr>
<td>Early Kuban</td>
<td>1700—1500</td>
<td>3000—2500</td>
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<td>Middle Kuban</td>
<td>1500—1100</td>
<td>2300—1600</td>
<td>2100—1500</td>
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<tr>
<td>Late Kuban</td>
<td>1100—</td>
<td>1600—1000</td>
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1 Hančar, 340.
2 PZ., XXVIII (1936), 162. 3 ESA., XI, 36, etc.
4 ESA., IV, 19.
In practice Tallgren’s figures, being based on comparisons between with the “treasures of Troy II” and with the Shaft Graves made before the re-excavation of Hissarlik, are irrelevant. The upper limits for Early Kuban are really given by the Early Sumerian types which go back to nearly 3000 B.C.\(^1\) and for Middle Kuban by the hammer pins from Ahlatlibel and Alaca Hüyü\(k\)\(^2\) which appear to be older than 2000 B.C. But Oriental types admittedly enjoyed such a long vogue that the limits thus given are in themselves of no great value. However, a lower limit for the beginning of the Middle Kuban phase seems to be given by the heeled battle-axe from the Early Macedonian settlement at Hagios Mamas (p. 82), which cannot be appreciably later than 2000 B.C. A scheme approximating to Schmidt’s as suggested in column III above, would therefore seem plausible. The Middle Kuban-Catacomb phase in particular should have begun during Danubian period III, Montelius’ period III of the Northern Stone Age, a conclusion confirmed by the discovery of an isolated copy of a Pontic hammer-pin in a Danish passage grave (p. 178).

Central European Battle-axe Cultures

In the park lands west of the steppes Battle-axe cultures emerge in regions already opened up to food-production by more peaceful peasant communities. On the Polish löss lands within the great elbow of the Vistula\(^3\) already occupied by Danubian peasants in periods I and II, they take the form of the Złota culture, in which features, common to most Battle-axe cultures, are curiously blended with others elsewhere associated with distinct groups. Extensive cemeteries of contracted skeletons, generally buried in simple flat graves, sometimes however, in pit-caves indicate a sedentary population. Ritual burials of cattle, pigs and horses demonstrate the importance of stock-breeding. Battle-axes, of rather generalized forms, are not very often included among the grave goods. The pottery (Fig. 79) includes besides beakers and amphorae of

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1 MAGW., LXIII (1933), 217-19.
2 Türk Tarih Arkeol. ve Etnogr., Dergisi, II (1934), 95 (graves 8 and 9 unrecognizable illustrations); Remzi Oguz Arik, Alaca Hüyü\(k\) (Istanbul, 1937), fig. 45 (tomb TM).
3 Childe, Danube, 152; Kozlowski, Młodża, 66; W.A., VIII, 98; IX, 34.
Saxo-Thuringian type (like Fig. 81), and Oder "flower-pots" funnel-necked beakers, cups with lunate handles, and globular amphorae, forms elsewhere associated with distinct branches of the Northern culture cycle (p. 174) and the Baden series. Similarly the vases are decorated not only with cord impressions in the manner general in Battle-axe cultures but also with techniques and motives proper farther west to Basketry ware and the Globular Amphorae.

In Galicia some barrows cover graves dug before the formation of black earth in Sub-Boreal times\(^1\), which contain contracted skeletons sometimes reddened, almond-shaped flint axes (like Fig. 89), and shallow cups and beakers decorated with cord-impressions, but no battle-axes, amphorae, nor metal. Other barrows, girt with a circular trench and heaped after the

\(^1\) Księga Pamiętkowa, 141-149; Światowit, XVI (1934-5), 117-44; Sulimirski, "Die schnurkeramischen Kulturen," 3-5.
black earth’s formation, contain pottery like the Saxo-Thuringian and small copper trinkets.

Saxo-Thuringian is the term applied to the largest group of battle-axe cultures in Central Europe inasmuch as its remains are most abundant in the Saale valley and on the adjacent uplands. But groups in Bohemia and south-west Germany are so closely allied that they are usually treated as branches of the Saxo-Thuringian. The region had been intensively colonized by Danubians and was still occupied by branches of the Northern culture-cycle while the Battle-axe culture was flourishing. The Saxo-Thuringians’ cemeteries are often found on heaths and uplands as if stock-breeding and hunting were the foundations of their economy. But they also cultivated cereals, the imprints of which are found on their vases. Though domestic sites are hardly known, the size of the cemeteries proves that the Saxo-Thuringians were not really nomadic. These cemeteries are strikingly numerous around the salt and ore deposits of the Saale valley, as if the Battle-axe folk aimed at controlling these resources. Yet, though small rings and spirals of poor bronze or copper, and occasional imports such as an amber carving from East Prussia, are found in their graves, they do not seem themselves to have engaged in industry or trade; they may have exploited the services of others. A facetted battle-axe was found in a hoard of Danubian celts as if a Danubian trader were working for Battle-axe masters.

Normally the Saxo-Thuringians were interred in simple pit-graves, rarely in wood-lined shafts, by no means always under barrows. North of the Unstrut modest megalithic cists, measuring up to 3.5 m. by 2.25 m., were frequently used as family tombs, a practice presumably borrowed from the adjacent Northern or Horgen megalith-builders (p. 181), but perhaps inspired from the Caucasus, since some are divided by a porthole slab as in Fig. 78, 1. Trephined skulls occur both in Central German and Bohemian graves. In some tombs,

1 Childe, Danube, 145-50.
2 JST., XXIV, 115; XIV, 30.
3 Allegedly of local ores, Nbl.f.d.V., X (1934), 146; XIV, 73.
4 PZ., VI (1914), 34.
5 Nbl.f.d.V., IX (1933), 93; Mannus, XXVIII (1936), 363; for connections with Novosvodobnaya—Forssander, Boodaxkultur, 164; Arberdtteile Lund, 1937-8, 38.
mostly perhaps late and more frequently in Western than in Central Germany, the bodies had been burned.

The distinctive battle-axes are of the faceted type (Fig. 80). But such are not very frequently found in graves, and mostly with later pottery.¹ Perforated antler axes, asymmetrical axes like Danubian "ploughshares",² almond-shaped celts of flint or greenstone mounted as adzes (one was found thus mounted on an antler haft) and occasional spheroid mace-heads were also used as weapons. The characteristic Saxo-Thuringian pots are amphorae and beakers, decorated at

Fig. 80. Thuringian faceted battle-axe (¶) and Marschwitz battle-axe (¶).

first with cord impressions often forming triangles and other figures, later with herring-bone incisions (Fig. 81). Besides bored teeth and small copper rings or spirals, shell discs decorated with a cross³ in drill-technique were worn as ornaments, but amber beads were exceptional.

The later phases of Saxo-Thuringian culture admittedly last into period IV, and grave finds establish synchronisms with Globular Amphoræ and Walternienburg pottery of stage II.⁴ Reliable contacts dating the first appearance of the culture are

¹ Stampfuss, *Die jungneolithische Kulturen in West Deutschland* (1929).
² *JST.*, XXIV, 72.
⁴ *Altschles.*, V (1934), 37; *Mannus*, XXVIII (1936), 376.
lacking. A beginning in period II might be deduced from corded wares herds on Danubian village sites and facetted battle-axes in Danubian hoards, but it is really unlikely that Saxo-Thuringian culture began before period III.

The Oder group of corded ware shares with the Saxo-Thuringian the typical beaker but is distinguished by the addition of cylindrical vases sometimes with ledge-handles. They occur in pit-graves, sometimes under barrows and at least once containing red ochre, and also in slab cists of Central German type. Other grave goods include rather small battle-

axes, adzes of flint with a pointed-oval cross-section and sometimes "ploughshares" of Danubian form as in Saxo-Thuringia. While occasionally associated with Globular Amphorae or Walternienburg III-V pottery (p. 182) rare bronze ornaments and Northern flint daggers show that the Oder culture lasts well into period IV.

In the Marschwitz culture of Silesia and Moravia, this persistence is more amply demonstrated. The graves contain cylinder beakers of Oder form. But these are accompanied by pouched jugs decorated with cord impressions, but of Early Aunjetitz shapes (Fig. 60, 1). With them go battle-axes, of

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1 Sprockhoff, *Mark-Brandenburg*, 60ff, 160; *Mannus*, XXVIII, 374.
semi-circular section rather like the Fatyanovo type (Fig. 82), but also wrist-guards derived from the Bell-beaker group and even bronze ornaments. The whole group probably belongs to period IV and occupies economically as geographically an intermediate position between the Bronze Age culture of Bohemia and the still neolithic cultures of the Lower Oder.

**The Northern Battle-axe Cultures**

The *Fatyanovo culture*\(^1\) of Central Russia discloses the rise of a warlike food-producing society in the forest zone where the food-gathering economy of peaceful hunters and fishers had hitherto ruled. It is known from extensive cemeteries of contracted skeletons, often under low barrows but seldom reddened with ochre, on the Upper Volga, the Kama and the Oka, which must evidently cover a long period of time. The distinctive weapon is a battle-axe with semi-circular cross-section and a hanging curved blade imitating the blades of Sumerian copper axes (Fig. 82, 1).\(^2\) Copper axes, apparently of the Seima type (Fig. 103, 4), have indeed been reported from some graves. A few early graves contain shallow beakers ornamented with cord impressions round the neck.\(^3\) The commoner and later graves are furnished with globular vessels recalling both in shape and in their decoration of hanging fillets.

\(^1\) Tallgren, "Fatjanovokulturen i Centralryssland", *FM.*, 1924; "L'age du cuivre en Russie centrale", *SMY A.*, XXXII, 2; *ESA.*, VIII, 10, 50, 10off.

\(^2\) *ESA.*, VIII, 21.

\(^3\) Exhibited at Historical Museum, Moscow, in 1935.
of herring-bone incisions or lozenges the Central European Globular Amphorae and the vases from Novosvodobnaya (Fig. 83).

Fig. 83. Fatyanovo pottery (§).

The Fatyanovo warriors obtained by trade a few amber beads and trinkets of copper and silver, but for long failed to secure the extension to the forest zone of the economic system that made a metal age possible farther south. Still the remarkable hoards of Galich and Seima (Figs. 84 and 103)\(^1\) may belong to descendants of those warriors. The metal objects are predominantly Pontic and Caucasian in origin. Late Kuban parallels to the idol from Galich and socketed celts in the Seima

hoard prove the very late date of these importations. But the elk's head handle of the copper knife shown in Fig. 103, 2-3, reflects the naturalistic art of the Eurasian food-gatherers and recurs in a neolithic context farther north.

In Finland too Battle-axe Graves are associated with the first manifestations of food-production in a region where food gathering has previously reigned. They reached the coast at a time when the sea had already contracted to merely 60 per cent. of its maximum extension¹ and when the native

¹ *Acta Arch.*, I (1930), 190; *Swiat.*, XVI (1934/5), 40.
Forest culture had passed through several phases of development, sketched in chapter XI. The boat-axes (Fig. 82, 2) and shallow beakers from these graves are in general parallel to though not derivable from the Swedish.

The Separate Graves of Jutland\(^1\) again denote the emergence of warlike food-producing societies in a region where food-gatherers had hitherto preserved their mesolithic Gudena culture (p. 12). But the coasts had already been occupied by farming communities whose collective megalithic tombs are sharply contrasted to the graves of the Battle-axe folk. The latter came to occupy the interior of the peninsula to the exclusion of the megalith-builders, but never engaged in that commerce the results of which allow the several phases of megalithic culture to be arranged in the general scheme of prehistoric chronology. Contact between the two groups was however sufficiently frequent to allow Montelius' chronology for the Northern Stone Age, set forth on p. 171 to be applied also to the Battle-axe cultures. A reliable chronology of these cultures' own development can in turn be based upon successive interments under the same barrow.

The oldest graves (Bottom Graves or Undergrave) timber-lined pits dug in virgin soil and designed to hold a single contracted corpse, contain the finest battle-axes (often very metallic looking) and beakers with an S profile decorated with cord imprints round the neck (Fig. 85). Next, in graves on the ground surface (Ground Graves or Bundgrave) the axes deteriorate and the beakers are decorated with incised herring-bones. Finally the Upper Graves (Overgrave) in the body of the mound contain flower-pot vases decorated with rouletted zig-zags, degenerate axes and even flint daggers such as are found in the latest megalithic tombs. They denote the fusion of the two cultures, with that of the Battle-axe folk triumphant.

The furniture of the Upper Graves shows that the latest phase of the Battle-axe culture in Denmark falls into Montelius' period IV. The prior development represented by only two or three interments in the same barrow cannot cover a vast number of years—indeed perhaps only three generations. But it begins already during the first half of the Passage Grave period Montelius' IIIb since pottery appropriate to that period

\(^1\) Brendsted, *Danmarks*, 215ff.
has been found in a Bottom Grave in northern Jutland. Nevertheless though not associated together in separate graves some elements of the Battle-axe culture were present in Denmark perhaps even in Montelius’ II: battle-axes of the polygonal type occur in two Danish “dolmens”, and beaker-like vases ornamented with cord impressions are found in middens that may be equally old. The antiquity of these rare vases however is rendered doubtful by the revision of the geological and botanical datings of the middens, and the attribution of polygonal battle-axes to Montelius’ II has been challenged.3

In Sweden too, separate graves containing contracted skeletons but not surmounted by barrows are contrasted to the collective tombs of the agricultural megalith-builders and to the extended burials of a native food-gathering population. They are furnished at first with battle-axes, gouges of flint or greenstone, faceted polishing stones and shallow beakers decorated round the neck with cord imprints. The battle-axes (Fig. 85) termed boat-axes, are always provided with a shaft-tube which gives them a very metallic look. Indeed a copper boat-axe was found in East Russia, but the tube might be suggested by the tine stump through which the shaft-hole of some antler-axes has been bored. Pottery of this type has been found associated with that in vogue about the middle of the Passage Grave phase (about Montelius’ IIIc) while later graves containing rouletted vases like the bottom row in Fig. 85 admittedly belong to Montelius’ IV. But in Sweden too pottery ornamented with cord imprints and apparently also battle-axes occur in rectangular houses of food-producers perhaps as early as Montelius’ II.5 Indeed at Siretorp in Blekinge the earliest corded-ware makers were succeeded by people with an Ertebølle equipment, but subsequently re-occupied the site to make way eventually for a fisher-folk making pit-ornamented pottery.

On the heath-lands of northern Germany and Holland many barrows covering separate graves, often surrounded by

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1 Acta Arch., V (1934), 156.
2 Stressed particularly by Åberg, “Kulturmotsättningar,” 72ff.
3 Rydbeck, Årsberättelse, Lund, 1937-8, 95.
4 Forssander, Die Schwedische Boattaxtkultur, Lund, 1933.
a ring of posts or horizontal timbers, reveal the extension of battle-axe cultures to the English Channel. The earlier graves are furnished with battle-axes, akin to Jutland types but less finely worked, and S beakers, bearing cord or herring-bone ornament, and exceptionally also with amphorae of Saxo-Thuringian form. But the Battle-axe folk here came into contact with local megalith-builders (p. 181) and Bell-beaker folk from the west and developed hybrid cultures. S beakers are not seldom found with the later burials in megalithic tombs. From the Bell-beaker group the Battle-axe folk took over their bow and the wrist-guards appropriate thereto and even adopted the roulette technique for ornamenting their beakers and spread the designs in zones over the whole vase-surface in the style regularly applied on Bell-beakers. Nevertheless the battle-axe element remained dominant in the resultant fusion.

Even as far west as Gelderland an S beaker has been found with the primary interment in a barrow containing a Bell-beaker with the secondary, so that the Battle-axe folk must have spread so far even in period III. But despite their contact with the metal-using westerners, they retained a neolithic economy throughout the greater part of period IV. While they managed at times to import Danish amber and even English jet they failed to organize for regular supplies of metal. But a flat axe of metal was found with an S beaker in a cremation grave near Hamburg and even a palstav (of period V) was allegedly associated with such a beaker.

Battle-axe cultures arrive late on the Danish islands where the megalith-builders were firmly established, and are represented principally by intrusive elements in late Passage-Graves and only rarely by true separate graves. The battle-axes approximate to the later Jutland or even Swedish types. The funerary pots are squat S beakers, recurving at

1 van Giffen, Die Bauart der Einzelgräber; Stampfuss, Jungneol. Kulturen; NNU., II (1928), 20; Albrecht, "Die Hügelgräber der jüngeren Steinzeit in Westfalen," Westfalen, XIX (1934), 122ff.
2 Bursch, Oudh. Med., 1933, 98, insists that the two vases were neither typical and that the associations of S and Bell-beakers are generally indistinguishable.
3 Kiel-Festschrift, 1936, 79.
4 Stampfuss, Jungneol. Kulturen, 64; cf. also Oudh. Med., 1933.
5 Aarbøger, 1936, 140ff, for parallels from Holstein, see Mannus, XXVII (1935), 66. cf. Brøndsted, Danmarks, 269-275.
the rim and ornamented all over with rouletted zig-zags or wavy ribbons executed with a comb, clearly inspired by the Bell-beaker style. Indeed the Battle-axe folk who reached the islands probably brought with them the Bell-beaker culture’s bows and wrist-guards and arrow-straighteners. Judging by a settlement on Zealand\(^1\) the insular Battle-axe folk lived in rectangular houses, 5 m. long by 4.3 m. wide and entered through the long side, breeding cattle, sheep, pigs and horses and fishing with hook and line.

**Origin and Significance of Battle-axe Cultures**

Though dispersed from the Volga to the Channel and from the Gulf of Finland to the Danube, the cultures described in the last sections are undeniably interrelated. In addition to the general agreements outlined on p. 144, we have found that they all share common traditions in ceramic forms and decoration. But even these are not unrepresented in the Pontic cultures. Russian prehistorians\(^2\) have argued that the agreements between the various battle-axe cultures result from convergent social evolution in the several regions as expanding numbers compelled their populations to seek fresh land at the expense of neighbouring communities. Admittedly constituent elements of such cultures can be derived from widespread elements of mesolithic equipment. The battle-axe itself might be a translation into stone or metal of the antler axes current in the forest zone from early Atlantic times. Even certain cored beakers are sufficiently like vases used at Ertebølle or by early Forest food-gatherers as to be referable at least to a common pre-ceramic prototype. Moreover some traits, used for defining the cultures, occur also in complexes wherein the rest are missing. We have thus encountered battle-axes, often strikingly like the European, in the stable townships of Anatolia.

Most authorities, however, hold that the common traits enumerated above are so many and distinctive that they can only have been diffused by the migrations of a people, however intimately the migrants may have mingled with other groups. According to Rydbeck\(^3\) the surprising rapidity of the expansion

\(^{1}\) *Acta Arch.*, VII, 325.
\(^{2}\) Krichevskii, “Indogermanskiii Vopros”, *Izv. GAIMK.*, 100.
\(^{3}\) *Arsberät.*, Lund, 1933-4, 77-93; Forssander, *Booaxthkultur*, 213.
CULTURE TRANSMISSION 167

would be due to domestication of the horse providing a new means of quick transportation. Bones of horses have in fact been found in Pontic "catacomb-graves", in Saxo-Thuringian and Dutch barrows, ritually buried in the Zlota cemetery and in Swedish and Danish settlements of the Passage Grave period; only in Denmark is there even inferential evidence that the animal was domesticated, but the existence of wild horses in Sweden is denied.

Kossinna's school holds that the battle-axe cultures originated in Denmark through the acculturation of an autochthonous population of Maglemosean ancestry by contact with Ertebølle and megalith-building immigrants. Thence they would have spread with their battle-axes to Saxo-Thuringia and eventually to the Caucasus and Troy. Åberg has recently sought to establish the autochthony of the Separate Grave culture in Jutland, citing the non-megalithic earth-graves, the cord-ornamented vases and the polygonal battle-axes of Dolmen times. The earth graves were, however, laid out on the surface of the ground and designed to accommodate one or more extended corpses in contrast to the true Separate Graves. Mathiassen's studies do not show the Gudenaa culture of food-gatherers in Jutland developing into a food-producing battle-axe culture, but rather dissolving on the latter's advent. The earlier existence of battle-axes and corded vases is doubtful now that two marine transgressions are admitted, and the botanical dating of middens has been revised.

To-day the majority of Swedish and German authorities accept the view long held in Denmark that the Separate Grave cultures are intrusive in Scandinavia. A cradle in Saxo-Thuringia is espoused especially by Germans, but also subject to important reservations by Forssander. According to Bicker the Saxo-Thuringian parent culture results from the acculturation, presumably through Danubians, of a local mesolithic stock. Agde thinks it arose from contact between the "Baalberg-Nosswitz" (Danedic) folk and Megalith-builders.

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2 Aarbog, 1937, 120f.
3 Forssander, Bootaxtkultur; Rydbeck, Årberätt. Lund, 1937-8.
4 Schwantes, Geschichte Schleswig-Holsteins; Tode, Mannus, XXVII, 45f; Sprockhoff, Hirt-Festschrift.
5 Mannus, XXV (1933), 249; XXVIII, 415.
6 Mannus, XXVIII, 369; cf. Altschles., V, 41.
The local evolution is not, however, very convincingly documented while the absence of distinctive Saxo-Thuringian forms such as amphorae from the Danish, Swedish, Finnish and Central Russian cultures remains to be explained. Both the foregoing schools would in practice derive the southern Battle-axe cultures of the Pontic steppes and the Kuban valley from more northerly centres. There is, however, a school which, following a hint by J. L. Myres, would reverse the process. The Battle-axe folk should be compared to the Scyths and Sarmatians who appear first in South Russia and subsequently expand westward rather than to the Goths who, coming from the North through Central Europe, eventually set up kingdoms in the Crimea and the Caucasus. Rosenberg has traced cord decoration back to a focus on the Black Sea coasts. Borkovskij has pointed out that ovoid beakers like those of Fig. 77 might be treated typologically as prototypes of the North and Central European vessels and has thus deduced an east to west migration. Sulimirski accepts this thesis, but postulates a subsequent reversal of the flow to explain the Saxo-Thuringian analogies to the pottery from the later Galician barrows (p. 157) and farther east. Forssander seems inclined to explain Pontic elements in Central Europe by a migration from the Caucasus of the makers of Globular Amphorae who would also have brought the idea of the porthole cist and the pit-cave tombs, but regards the Central and North European Battle-axe cultures themselves as essentially rooted in the Saxo-Thuringian.

In deciding this issue a priori typological schemes must be neglected. A reliable basis for comparing the northern and Pontic groups should, however, be provided by the hammer-pin from a deposit of Montelius’ period IIIc in Denmark since it must rank as an isolated copy of an imported Pontic product. The Bottom Graves in Jutland are therefore apparently contemporary with the catacomb graves of South Russia. The older pit-graves on the Steppes and the Early Kuban tombs would therefore be earlier than the developed Separate Graves,

1 *Kulturströmungen in Europa zur Steinzeit.*
2 Snurova keramika na Ukrainie, Obzor, IX (1930); *Pam. Arch* (1933).
3 "Die schnurkeramischen Kulturen," *La Pologne au VIIe Congrès international des Sciences historiques,* Warsaw, 1933.
4 *Bootalxkultur,* 174, 213.
5 *Aarbøger,* 1929, 204.
perhaps even earlier than any corded-ware and polygonal battle-axes of Dolmen age. The same conclusion might be derived from the Ægean connections of the Pontic culture. Unless a short chronology outlined on p. 120 be rejected, neither the Middle nor, still less the Early, Kuban axes, nor yet the Anatolian, can be derived from the Danish or Saxo-Thuringian. On the other hand all the northern and even the Hungarian and Macedonian weapons can chronologically be derived from South Russia.

Whatever way the migration, if any, travelled, it left in its wake a straggling series of communities retaining intermittent contact both with those ahead and those left behind. It thus formed a continuum over which cultural elements could percolate. The pit-caves of Zlota and the hammer-pin from Denmark are concrete instances of such percolation from the south. But it failed to provide the stimulus for the transformation of the neolithic economy in the north into a Bronze Age one, save in special cases examined below (p. 189).
CHAPTER X

THE NORTHERN CULTURES

The Danubian peasants who had certainly advanced to the coasts of the Baltic and the more hypothetical Battle-axe folk who should have penetrated even to Denmark and Sweden had invaded a domain already populated by fishers and hunters of the Forest culture-cycle (p. 8). Megalith-builders, Beaker-folk and other Westerners, to be described in succeeding chapters, reached the same territories both by sea and land. The acculturation of mesolithic survivors through contact with immigrant groups explains the emergence in Germany, Denmark and Southern Sweden of a bewildering variety of individualized neolithic cultures, all generally lumped together under the misleading racial term Nordic, for which the less colourful but more accurate designation Northern will be here substituted. Divergently specialized communities of Forest denizens, acquiring domestic stock and cereals from different intruders or neighbours, multiplied and elaborated the equipment they had borrowed into the variety of neolithic cultures now to be described.

The development is most spectacular and also best studied in Denmark, Schleswig-Holstein and Southern Sweden. Here the recent moraines offered the farmer more fertile soils than the older moraines in the rest of North Germany and Holland.¹ Here, too, sea-borne influences from the West were most direct and fruitful. Moreover, the Danish and Swedish monuments and relics have been studied by an exceptionally brilliant school of antiquaries who had established a skeleton culture-sequence last century. Montelius had divided the Northern Stone Age into four periods based principally on the typology of axes and tombs. His system, which has become a standard, was as follows:

Montelius' Neolithic. Flint Axes, etc. Tomb.
I. pointed-butted. Dolmens (Dysser).
II. thin-butted. Passage Graves.
III. thick-butted. Long Stone Cists or Gallery Graves.
IV. daggers.

¹ Sprockhoff, in Hirt-Festschrift, 265.
This system survives with substantial modifications. Axes with pointed butts (Fig. 86, 1) are not numerous enough to constitute a distinct period, though a phase of neolithic culture prior to the earliest dolmens is still likely. Period III can be subdivided, thanks to the sequence established by successive interments in the same tomb, into four phases, distinguished by the letters a to d. But thin-butted celts were still normally used in phases IIIa and IIIb, and the earliest daggers probably go back to IIId. Moreover, many tombs, formally dolmens, must on account of their furniture be assigned to periods III or even IV. In Sweden no dolmen contained relics typical of Montelius' II! The thesis that Dolmen, Passage Grave and Long Cist mark stages in a self-contained typological evolution is no longer accepted.

But Montelius' disciples and imitators have clumsily extended his system beyond the regions for which it was devised and have used it as a frame of reference into which cultural phenomena in Central Europe, South Russia and even Turkestan must be fitted. From a fog of misconceptions and distortions they have evoked a "Nordic myth". The "Nordic" cultures,

2 Cf. Eckholm, "Nordischer Kreise", in *Real.*, IX, 42.
crystallized in Montelius' II, would have expanded in periods III and IV till they reached the Balkans, Anatolia and the Caucasus.¹ These fantasies were never accepted in Denmark and have recently been emphatically rejected in Sweden and even Germany. An explicit refutation here is accordingly superfluous.

**Montelius’ I and II**

The bones of sheep and other domestic animals from certain shell mounds, the antiquity of which is rendered dubious by the recognition of a second Littorina transgression (p. 3) and associated with cord-ornamented sherds and “mesolithic” core- and flake-axes on the floor of a rectangular house in South Zealand² are the first heralds of the new economy in Denmark. In Swedish dwelling-places corded ware is again found bearing the imprints of wheat-grains and grape-seeds in rectangular houses.³ At Siretorp (Blekinge) such corded ware preceded that appropriate to the mesolithic Ertebølle culture. It is significant that these first indications of the neolithic revolution are found in the south-east of Denmark and Sweden. If not due to colonies of Battle-axe folk, the innovations must be ascribed to the example of the Danubians on the immediately opposite shore of the Baltic. The essential elements of neolithic economy were derived from the south-east, not with the dolmens from the West. Even in the Dolmen period itself Denmark is just a brilliant centre in a cultural province that extends to Silesia and Galicia. But the first clear picture of a Northern culture is obtainable from the furniture of these megalithic tombs, even if they denote a foreign element, locally superimposed on a wider and perhaps older culture.

The furniture of the Danish dolmens reveals a population of farmers, cultivating Einkorn, emmer and barley, and breeding sheep, cattle and pigs, though still probably relying also on hunting, fishing and the collection of nuts and berries. Much of the old mesolithic equipment—core- and flake-axes, transverse arrow-heads, and antler implements—was retained. But it was supplemented by additions and refinements. The thin-

¹ e.g. Åberg, *Das nordische Kulturgebiet*; and Reinerth, *Chronologie der jüngeren Steinzeit*; for a good critique see Petsch, *PZ.*, XX (1929), 150ff.
² Nordmann, “Megalithic Culture”, 77.
³ *Acta Arch.*, VII (1936), 313; *Fv.*, 1937, 365; Brondsted, *Danmarks*, 140.
butted flint axes were polished on the faces, and the small sides were squared giving the implement a rectangular cross-section like that of a metal flat axe (Fig. 86, 2). Axe-heads were also made of fine-grained stone by polishing, and some of these stone axes have splayed blades evidently in imitation of metal originals. As weapons polygonal battle-axes were employed. Åberg wishes to derive these from curious stone club-heads also of dolmen age with a knobbled end and a tongue that fitted into the shaft (Fig. 89). But the expanding blades of the battle-axes point explicitly to metal prototypes, and a copper battle-axe of Dolmen form was actually found in Sweden. “An autoch-

Fig. 87. Pottery from Danish dysser (§).

thonous development of the polygonal battle-axe without the controlling influence of metal models would mean nothing more nor less than the original creation of a metal form out of stone, a material not naturally adapted thereto. “And that,” continues Sprockhoff, “would be an unprecedented event.”

We must therefore admit that by Montelius’ II “neolithic” communities in Denmark were acquainted with metal implements. But they had no specialized metallurgical industry of their own and had not succeeded in organizing trade so as to secure any regular supplies of metal implements. Yet the distribution of the Dolmens along the Danish coasts and islands

2 Megalithkultur, 68.
reveals a maritime population who must have been accomplished navigators.

Three conspicuous pot forms define the Dolmen culture—collared flasks, funnel-necked beakers and amphorae (Fig. 87). The vases are often plain, sometimes decorated by pits and by ribs, incisions or impressions of whipped cords, always so as to produce vertical patterns. As charms and ornaments amber beads, sometimes decorated in the drill-technique inherited from Maglemose times, and strung together in necklaces of several strands kept apart by spacers, were worn.

The classical method of disposal of the dead, which gives its name to the whole period in Denmark, was collective burial in a megalithic dolmen or dyss. In its classic form a dyss is a small chamber formed by four uprights supporting a single large capstone, and only about 6 ft. long by 2 ft. wide. Such small chambers sound as if they were designed to contain a single corpse only, but as many as six skeletons have been found in them so that they must rank as collective tombs. In fact one end-stone is generally lower than the remaining uprights leaving an aperture through which subsequent burials might be introduced after the completion of the tomb. A rare and archaic-looking variant of the dolmen is an enclosure of inward tilted slabs not supporting a capstone, but converging or even meeting at the top. Small polygonal chambers with a rudimentary passage and rectangular chambers with more than

2 Aarvøger, 1936, 1-8.
two side-stones have also yielded relics of the kind described above and are accordingly classed as dysser by Danish authorities. Dolmens of all types were normally partially buried by mounds, sometimes round but often long and rectangular and demarcated by a peristalith of large boulders.

But even in Denmark and Schleswig-Holstein people might be buried in non-megalithic earth-graves accompanied by a typical “dolmen” equipment of thin-butted axes, collared flasks, etc. In such burials one or rarely two corpses were laid extended on the ground surrounded by a setting of boulders,

as in Fig. 88, and sometimes covered with an elongated mound (in contrast to “Battle-axe” burials, contracted in a pit under a round barrow).

Now similar non-megalithic graves, containing collared flasks, funnel-necked beakers, amphorae, polygonal battle-axes (Fig. 89) and amber beads extend right across Eastern Germany and Poland to the upper Vistula. And so the First Northern culture revealed in the Danish dolmens can be seen as one specialized facies of a wider cultural continuum. In its

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1 Forssander, 1935/6, 2ff.; NNU., X (1936), 22f.; Aarbøger, 1936, 15; Brandsted, Danmarks, 162, 344.

2 Jazdrzewski, Kultura Pukarów Lejkowatych w Polsce (Bibliotheka Przedh., 2).
eastern extension megalithic collective tombs are lacking—in only one instance in Poland were relics of this sort recovered from a Kujavish grave like Fig. 95, but even so not from a megalithic chamber within the trapezoidal setting of boulders. Moreover axes tend to be made of fine-grained stone or, if of flint, to be left in the rough form of Fig. 89, 3, while the pots (e.g. Fig. 90) diverge substantially from Danish shapes. Probably too the First Northern culture lasted longer here, unaffected by the stimuli associated with the Passage Graves in Denmark. But nothing shows that it began later in the east than in the west. On the other hand in north-west Germany and Holland1 collared flasks and funnel-necked beakers and

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{fig90}
\caption{Furniture of a grave at Zastow (1), and collared flask from grave at Nalenczow (4).}
\end{figure}

\begin{itemize}
\item even thin-butted axes\textsuperscript{2} are found in megalithic tombs, but the vases are decorated in the basketry style appropriate to the Danish passage grave period and generally associated with relics proper to Montelius' III. The manifestation of Northern culture in this area seems therefore later than east of the Oder or in Denmark.
\end{itemize}

If the foregoing account be correct, Montelius' period II cannot be earlier than the end of Danubian II. For in the cemetery of Jordansmühl derivative Danubian II pottery (p. 112) is associated with collared flasks and funnel-necked beakers characteristic of the First Northern culture (Fig. 88). At

\textsuperscript{1} Sprockhoff, \textit{Megalithkultur}; van Giffen, \textit{De Hunnebedden in den Nederlanden}.
\textsuperscript{2} \textit{NNU.}, IV (1930), 36; these diverge from the Danish form and do not fit in Montelius' typological scheme.
several Polish sites these "Dolmen" forms are associated with late stroke-ornamented Danubian ware, the late survival of which was noted on p. 106. In Moravia and Bohemia collared flasks and funnel-necked beakers belong explicitly to Danubian III.

The First Northern culture must have had a multiple origin. Presumably the neolithic equipment had been taken over from Danubians by the Forest folk who were spread around both sides of the Baltic. The polygonal battle-axes or the copper models for these must rank as a south-eastern element even if the battle-axe idea be derived from earlier antler weapons. The idea of burial in a collective megalithic tomb, superimposed on the original culture in Denmark, is generally believed to have been suggested from the West, though convincing prototypes for the dyss are lacking there. But otherwise western forms are lacking. The collared flasks and amphorae have no prototypes outside the Northern province. They must be accepted as translations of pre-ceramic wood or leather vessels, inherited, like pit ornament and so much else, from mesolithic times.

**The Danish Passage Graves**

In Montelius' III new influences affected Denmark and Sweden and finds from settlements as well as graves now complete the archaeological record. Rural economy must have been sufficiently advanced to allow small communities to live for generations in the vicinity of the communal burial vault, for passage graves may contain as many as a hundred corpses.1 A settlement of the period at Troldebjerg on Langeland2 consisted of two or three horse-shoe shaped huts and a continuous row of rectangular buildings with a total length of 71 m. Two of these were certainly houses each about 28 m. long and apparently subdivided so that one end was occupied by humans, the other by cattle. The gabled roof, about 11 ft. high, sloped down to the ground on one side and on the other rested on a wall only 6 ft. high. (Obviously these houses have nothing to do with the Aegean and Balkan megaron type.)

Hunting was now relatively unimportant. Common wheat in addition to Einkorn, emmer and flax may already have been cultivated.

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1 Nordmann, "Megalithic Culture", 28.
2 Winther, _Troldebjerg (Rudkøbing)_ , 1935.
Specialization in industry is attested by the existence of communities of flint-miners and by specialized tools such as gouges for the carpenters. Trade was sufficiently developed to secure for the Passage Grave-builders a certain number of metal tools and ornaments. A hoard found in Bygholm in Jutland\(^1\) and dating from the very beginning of the period, comprised four flat axes, a dagger with midrib on one face, like Fig. 128, 1, and two arm-cylinders. The dagger seems to be an import from the Iberian Peninsula and should establish a synchronism with the Copper Age of Alcalá and Los Millares (p. 260). A distribution map of copper axes in Denmark and Schleswig-Holstein suggests that they were imported by sea though some of them may have come from Hungary.\(^2\) Halberds have a similar distribution to axes and certainly were brought by sea from Ireland.\(^3\) Amber was presumably the principal export bartered for metal and was very likely worked locally to form necklaces. Beads reached Brittany, Central France and the Iberian Peninsula and, as we saw, were common throughout Central Europe in Aunjetitz times. In exchange the Danes obtained hammer-headed pins of Pontic type\(^4\) by phase IIIc and gold lock-rings and bronze pins of Aunjetitz forms\(^5\) by phase IIId. But the supplies obtained by such barter were quite insufficient to allow metal even to compete with stone and bone. Even the ornaments imported are mostly inferred from bone imitations made locally.

The intrusion of Battle-axe folk during the period (p. 163), combined with the increased competition for land as the population grew, intensified militarism. The outstanding weapons are stone double-axes, imitating Ægean metal models (Fig. 91, 4), flint daggers, disc-shaped mace-heads of Danubian origin and flint arrow-heads, either transverse or derivatives of the mesolithic tanged Gartnes points, in the later version triangular in section as if in imitation of bone models (Fig. 91, 5).

The earlier pots, including funnel-necked beakers, are decorated with patterns executed with whipped or braided cords

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1 Nordmann, "Megalithic Culture", 131, fig. 60.
2 Forssander, Ostskandinavische, 10, 51, etc., Kersten, Zur älteren nordischen Bronzzeit, 72, 98.
3 Arch., LXXXVI (1936), 277.
4 Aarbøger, 1929, 204.
5 Nordmann, "Megalithic Culture", 118; Hansen, Gotlands Bronsålder, 14; Forssander, Ostskandinavische, 101-6.
and arranged vertically or in panels. With phase b the local evolution is interrupted. Angular vases appear imitating baskets both in form and in the decoration executed with deep stabs first in the "Grand Style" alone and later combined with finer notchings made with the edge of a *Cardium* shell in the so-called "Refined Style". These basketry vases may be derived from Central and North-west Germany; for with them appear pedestalled bowls and socketed ladles admittedly of Danubian II origin. In phase IIIc the vase profiles are rounded off, rouletted decoration inspired by the Bell-beaker technique replaces stab-and-drag and *Cardium* edge, and oculi motives as in the Almerian Copper Age (Fig. 91, 3) are combined with the basketry patterns. But throughout the period domestic vases were often ornamented with pits in the native Forest traditions.  

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As a communal ossuary the Passage Grave replaces the simple dyss. It cannot be regarded as derived from the latter, as Montelius’ disciples have contended, but reflects fresh influence from the West, explicitly imitating the corbelled tholos of the Atlantic coasts (p. 204). The earliest passage graves, standing closest to the models, are polygonal chambers sometimes with a cell attached, entered through a long passage and covered with a circular mound. In later versions the chamber is elongated at right angles to the passage. Passage graves served of course as family vaults. Some contain as many as a hundred skeletons. But in others the earlier interments with their gear had been removed and reburied outside the vault to make room for subsequent burials.

Imports and copies thereof, sometimes found in stratified horizons in the tombs, establish the chronological relations of Montelius’ III with cultural sequences elsewhere. Objects of Aunjetitz type, assignable to Montelius’ IIId, show that the Passage Grave period lasted into Danubian IV. Bell-beakers imported probably from Bohemia establish a synchronism between Montelius’ IIIc and the final phase of Danubian III. The Danubian II forms surviving in the Passage Grave pottery, fix that period as an upper limit for Montelius’ III, but the whole really should fall within the limits of Danubian III and last into IV. At the same time the hammer-pin, assigned to Montelius’ IIIc, establishes a partial synchronism between that phase and the Middle Kuban stage in South Russia. Finally the copper dagger from Bygholm, taken in conjunction with the sepulchral architecture, suggests that Montelius’ Neolithic III in the north is no earlier than the Los Millares phase of the Copper Age in the Iberian Peninsula (p. 255).

North-west and Central Germany during Montelius’ III

In Passage Grave times no mass immigration, apart from the invasion of Battle-axe folk (p. 157) affected Denmark, but the changes in funerary architecture and pottery indicate

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1 Nordmann, “Megalithic”, 28ff.
2 Ibid., 122.
substantial infiltrations from the west and south-west respectively. The basketry vases of phase IIIb in Denmark and Sweden, like the Rössen pottery of Southern Germany, may have been made by mesolithic folk who had used baskets before they learned to make pots. In North-west Germany and Holland, basketry vases (including pedestalled bowls and socketed ladles of Danubian II ancestry) are found principally, but not exclusively, in megalithic tombs termed Huns’ Beds, and represent what is sometimes termed the Elbe-Weser culture. The burial chambers, sometimes small megalithic cists, but growing into very long galleries entered by a short passage in the middle of the long side, are normally covered by a long mound supported by a setting of huge boulders and might be derived from the Danish long dolmens. The preference for polished flint axes and the use of collared flasks and funnel-necked beakers (sometimes decorated with whipped cords) suggest that the First Northern culture had combined with the Danubian in the acculturation of this region. Moreover, in Westfalia and Thuringia SOM settlers from the Paris basin (p. 296) introduced the gallery-grave with porthole entry.¹ Though in the long stone cist of Fritzlar near Züschen the wall-slabs are decorated with mysterious patterns of Western affinities, the grave goods comprise purely Northern types such as collared flasks.

The Elbe-Weser culture cannot be so accurately subdivided as its Danish counterpart, but apparently lasted into the beginning of Danubian IV. A gold armlet from an earth grave at Himmelspforten near Stade² may be attributed to this period. But with the later burials in the Huns’ Beds, Bell-beakers and Corded beakers illustrate the increasing dominance of Beaker and Battle-axe folk over the megalith-builders and basket-makers.

The Walternienburg-Bernburg³ culture on the Lower Saale and in Havelland may again be due to a mesolithic population converted to food-production. The angular vases, classed as Walternienburg I, are obviously copies of basketry vessels (Fig. 93), but in the later styles the basketry origin is forgotten. Pottery of this sort is found in simple pit-graves, grouped in

² *NNU.* VII (1933), 50; X (1936), 22.
small cemeteries, in megalithic cists or galleries, in Huns’ Beds with lateral passage and in cists of thin slabs. Axe-heads were made by preference of Wida shale from the South Hartz; the rest of the Walternienburg equipment seems to be derived indiscriminately from various Northern and foreign cultures. It includes double-axes of Passage Grave type, amber beads, crutch-headed pins, perhaps derived from the Pontic hammer-pins, and metal ornaments of Aunjetitz type or bone copies of such. The culture, while beginning in Northern period III lasts therefore well into Danubian IV.

Related to the Walternienburg-Bernburg group is the culture typified by and named after the Globular Amphora. The type-vase like the other vessels habitually associated with it, is clearly a copy of leather models and is always decorated in a very distinctive manner round the neck, with fillets hanging over the shoulder (Fig. 94). The characteristic vases are accompanied by small trapeze-shaped axes and chisels of flint, frequently of the banded variety mined in Galicia, transverse and tanged arrow-heads, bored teeth and boars’ tusks, amber beads and, east of the Oder, ornate bone girdle-clasps. Antler axes, double-axes of stone, flint knives and other articles were

1 Sprockhoff, Megalithkultur, 120-30; Mark-Brandenburg, 105.
occasionally borrowed from contemporary groups. Ring-pendants of bone and other ornaments characteristic of the Scandinavian long cists, and bronze rings and spirals demonstrate the survival of the culture during period IV.

The makers of these vases might be interred, extended, in simple trench-graves forming cemeteries of not more than twelve graves, cremated, or buried, generally squatting, in collective tombs, containing as a rule not more than seven corpses and generally less. The collective tombs are sometimes megalithic cists which in Poland may be covered by long barrows surrounded with a trapeze-shaped peristalith of large boulders—so-called Kujavish graves (Fig. 95)—or large cists made of thin slabs. The latter are often divided into two compartments, sometimes by a porthole slab.

The principal concentration of Globular Amphorae is in the Saale-Elbe region and Havelland, but they extend northward to Rügen, southward into Bohemia and eastward through

![Fig. 94. Bone girdle-clasp, Podolia (กาย) and globular amphorae, Saxo-Thuringia and Podolia (กาย).](image)
Fig. 95. Kujavish Grave, Swierczyn. After Kozłowski.
Galicia into Volhynia and Podolia. In Bohemia1 Globular Amphorae are sometimes found on hill-tops in fortified settlements, but even in Volhynia and Podolia they are normally found alone in characteristic slab-cists, subdivided and containing up to six skeletons.2 Even the pottery from the cists, divided by porthole slabs, at Novosvodobnaya in the Kuban valley (p. 149) is reminiscent of the Globular Amphorae.

Evidently these vases were made by people who roamed about in small groups far and wide, presumably mainly as hunters and pastoralists, but doubtless engaging in casual robbery and trade. They were thus agents in the distribution of amber, Galician flint and even metal trinkets, but developed no specialized industries of their own that we can recognize. The nomads doubtless arose when some mesolithic group in the European plain came into contact with neolithic peoples, but the precise localization of their origin is uncertain; Central Germany, Galicia and even the Pontic steppe have been suggested.

A grave at Kl. Rietz in Mark-Brandenburg3 contained a Globular Amphora and a vase of Danubian stroke-ornamented ware of a type, however, which is not earlier than the Jordansmühle phase of Danubian III. The latter period is accordingly an upper limit for Globular Amphorae. In fact the culture they denote succeeds the First Northern in East Germany and Poland.4 On the other hand the Aunjetitz metal work and Stone Cist types associated with our amphorae in other graves show that the culture lasted into period IV.

We must accordingly imagine numbers of small groups, each distinguished by peculiarities in pottery and sometimes also in burial rites or equipment, wandering about the North European plain simultaneously. Especially in Central Germany groups adhering respectively to Walternienburg, Globular Amphorae and Battle-axe traditions must have been not only contemporary but also in close spatial contact. And they must have encountered also Danubian peasants making stroke-ornamented ware and others making Jordansmühl pots to say nothing of

2 Zapiski Vse Ukraniskogo arch. Komitetu (Kiev), I (1931); Antropology (Kiev), II (1928); Świat., XVII (1930/7), 388.
3 Buttler, Der donauländische . . . Kulturkreis, 30, 64.
4 Światowit, XVII, 378, 420.
makers of collared flasks and miscellaneous megalith builders. It is not surprising that such groups frequently interchanged ideas—perhaps they inter-married; the wonder is that they retained the individuality of their ceramic traditions so long. The number of distinct types of pottery tends to give a quite exaggerated idea of the density of population and the duration of Montelius' III. Actually the several kinds of vases must have been made by relatively small and nomadic groups, several of which must have been living side by side. It is only by trying to arrange all groups in a sequence, which may really be valid at one particular site, that Montelius' period III becomes inordinately inflated. But that it overlaps with Danubian IV may be once more demonstrated by the metal trinkets associated with Globular Amphorae and Walternienburg vases.¹

**Montelius' IV: The Northern Stone Cist Period**

During the fourth period of the Northern Stone Age the sharp contrast between Megalith-builders and Battle-axe folk began to break down in Denmark and Southern Sweden. Though each party still retained its traditional burial practices, there is little difference between the furniture of the Long Stone Cists, collective tombs that carry on the megalithic tradition, and that of the Upper (Separate) Graves of the Battle-axe population. But it is the culture of the latter that is dominant.

The area of settlement remains unaltered but the population has perhaps increased; in Västergötland there are 4,266 relics belonging to Montelius' period IV, as against 3,106 from the preceding period.² These figures further indicate that the Stone Cist period can hardly have been shorter than that of the Passage Graves. But the general economy remained unaltered. The importance of agriculture may be inferred from the number of flint sickles, curved in imitation of metal models. But weapons are still the most prominent relics. The flint axes now regularly imitate metal axes with a splayed blade; but the faces are seldom polished; indeed polished flint axes made in Montelius' III were sometimes flaked all over for use in his

¹ Böhm, *Die ältere Bronzzeit in der Mark-Brandenburg*, 32.
² Forssander, *Ostskandinavische*, 162.
period IV. Battle-axes were still used, but are less shapely and less metallic. The classical weapon was the dagger, at first lanceolate in form but culminating before the end of the period in the famous fish-tailed form (Fig. 96). The arrow-heads are hollow-based rather as in the Copper Age of Iberia.

![Fig. 96. Flint daggers (Denmark, ½) and porthole cists (Sweden)—types of Montelius' IV.](image)

The fish-tailed flint daggers certainly copy the bronze-hilted "Italian" daggers of Central Europe. The models for these and other weapons were indeed imported from time to time. A certain number of bronzes from Italy, Central Europe and Britain have survived from this period stray or in hoards. And before the period ended smiths may have been producing for a local market in Schleswig-Holstein and even

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1 Ibid., 118, fig. 23; Brøndsted, Danmarks, fig. 251.
Southern Sweden. To obtain metal for rearmament the northerners had to rely chiefly on the export of amber. Every scrap of the precious gum was reserved for foreign trade, so it could no longer be used locally for charms. In the tombs the place of amber beads is taken by long pendants of slate, ring-pendants of stone or bone and a few metal trinkets of Aunjetitz type. But for all their sacrifices the Northerners’ equipment and economy remained essentially neolithic throughout period IV.

The practice of collective burial persisted, alongside burial in separate graves in the mass of the barrow. But the passage grave gave place to the long stone cist or gallery grave generally sunk in the ground. These are not, as Montelius thought, the result of a degeneration of the passage grave. One group might be treated as an evolution of the dolmen, but even so that evolution must have been inspired by new ideas from outside the Northern province. A group of Swedish cists, built of thin slabs and often subdivided by a porthole slab, must be derived from the Paris basin, presumably through the Westfalian group mentioned on p. 181. Even the splay-footed pot, characteristic of the French Horgen culture (p. 295), was reproduced in a decadent squat variant in Sweden. These new ideas must have been introduced by immigrant families joining the established communities. But the normal pottery of the period is represented by flower-pot forms imitating wooden models and decorated with rouletted zig-zag ribbons (Fig. 85, bottom left) perhaps derived from the Oder Battle-axe culture.

Imitations of Aunjetitz pins and Aunjetitz gold ornaments associated with even the early flint daggers show that the fourth period of the Northern Stone Age did not even begin till the Early Bronze Age was well established in Central Europe and in Britain. Though metal-workers and traders were spreading northwards, the Northern Stone Age outlasted Danubian IV. In Denmark and Scandinavia the Bronze Age proper begins first in the Middle Bronze Age of Hungary and Britain. Till that date metal was too scarce for bronze weapons to be buried with even the richest chief. And one

1 Forssander, 95f, 166ff; Kersten, Nordischen Bronzezeit, 98.
2 Nordmann, “Megalithic Culture”, 44.
3 Forssander, Ostskandinavische, 114, 149, 156; Brendsted, Danmarks, 290.
4 Forssander, Ostskandinavische, 179, 196; Kersten, Nordischen Bronzezeit, 100.
of the earlier graves furnished with products of the local Northern bronze industry (at Liesbüttel in Schleswig-Holstein) contained an imported spear-head of a type characteristic of the Late Bronze Age in Britain. If the Egyptian origin of the fayence beads imported into Wiltshire during the early Middle Bronze Age (p. 321) and the short chronology for Aunjetitz be accepted, the Northern Stone Age must have lasted till after 1400 B.C.

**The Central German Bronze Age**

Round the salt deposits and ore-lodes of the Saale and Elbe, on the other hand, an independent bronze industry had arisen when period IV of the Northern Stone Age was just beginning. Metal weapons had already been brought thither by Beaker-folk in Montelius’ III. These were followed by Aunjetitz farmers who spread down the Elbe and Saale to the Hartz. Their poor graves contain a few Aunjetitz ornaments (but not the oldest forms like knot-headed pins) though their pots preserved with provincial conservatism the pouched form that had gone out of fashion in Czechoslovakia after the first phase of Danubian IV. The Aunjetitz tradition formed the basis of Central German metal-work. But it was fertilized by the importation of Britannico-Hibernian models from the West and perhaps by the immigration of Irish craftsmen. Trade connections with the north and east had already been established by makers of Globular Amphorae. Conditions were thus created for the development of an industry blending western with southern traditions and adapted for supplying also a northern market.

Capital for the industry’s development was perhaps supplied by rich chieftains of the Saxo-Thuringian Battle-axe folk (p. 157), and these certainly became the principal purchasers of its products. Their rich burials under barrows present a striking contrast to the poor flat graves of the local Aunjetitz farmers, and recall the royal graves of the Kuban. At Leubingen for instance an old man and a young girl had been

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2 *PZ.*, XX (1929), 128f.
3 e.g. axes from Leubingen and Dieskau, *Arch.*, LXXXVI, 303.
4 *JST.*, V, 1-59; *Arch.*, LXXXVI (1936), 205; cf. also *JST.*, VI (Helmsdorf), I (Baalberg), and perhaps Kuttlau, Silesia (Götz-Fest., 84-9), and Anderlingen, Hanover, *Jb. Prov. Mus. Hannover*, 1907-8, 242-4, and *Arch.*, LXXXVI, 225.
interred in a lean-to chamber of oak beams enclosed by a circular fosse 20 m. in diameter, and furnished with bronze rounded-heeled daggers, gold pins and lock-rings of Aunjetitz types, a halberd derived from the Irish series, a massive gold bracelet and a perforated stone axe (or ploughshare). Such burials illustrate the concentrated wealth of war-lords established among an Aunjetitz and Northern peasantry and taking toll on the trade in amber, salt and ores that passed through their domains. A number of merchants’ hoards of bronzes and amber beads show, however, that the chiefs failed to guarantee security to travellers and artisans.

These hoards and the grave goods illustrate how by blending varied foreign traditions in producing for their warlike patrons the local smiths had created a variety of original types—halberds, modelled on late Irish types, but decorated with grooves and triangles and ultimately mounted on bronze shafts (Fig. 98, 1), curious narrow “double-axes”.

Fig. 97. Section of Leubingen barrow.

1 Childe, Danube, 242-4.
daggers with bronze hilt, cast in one piece with the blades either oval in imitation of Italian daggers like Fig. 58, or flat like the gold-studded Anglo-Armorician weapons. Their products were exported to North Germany and across Poland to East Prussia. Thence and from Denmark came in exchange amber beads to be used in turn for barter with Bohemia, Hungary and Italy.

Though formally "Early Bronze Age" the graves and hoards containing these products are relatively late. The English axes from the Leubingen barrow and from a hoard at Dieskau near Halle would belong to the transition from Early to Middle Bronze Age at least. The Irish models for the halberds are far from the beginning of the Hibernian series. One Central German halberd was found with a socketed axe. In the

1 Götze-Fest., 93 and PZ., XVI, 205; cf. p. 302, below.
2 See for halberds ORiordain’s map, Arch., LXXXVI, 277, and for narrow double-axes, Sturm’s Die Bronzezeit im Ostbaltikum, Berlin, 1936, 32.
3 Mannus, XIII (1923), 42-55.
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Saale-Elbe region graves and hoards belonging typologically to the Middle Bronze Age are practically non-existent.¹ Hence the Central German Bronze Age belongs to the latter half of Danubian IV and lasts into V. This fact seems an adequate refutation of the recent claim that bronze-working originated in Central Germany and was spread thence to Anatolia and Mesopotamia! Central Germany about 1400 B.C. had just attained the status reached a century earlier on the Upper Elbe.

¹ Childe, Danube, 313.
CHAPTER XI

THE END OF THE FOREST CULTURE

Long after neolithic farmers had established themselves even in Denmark and Southern Sweden, a pure food-gathering economy persisted in the rest of Scandinavia and in the great forest belt east of the Baltic. It was not till near the end of Danubian period III that stock-breeding and the rudiments of agriculture were timidly adopted by Forest hunters and fishers. Among the eternal pine woods environment had not changed catastrophically since Boreal times. As then, hunting, fishing and fowling offered an adequate livelihood. So men still camped on the coasts, beside the innumerable lakes and meres and along the rivers that thread their ways across the wooded plains. Much of the old Maglemosean equipment too was carried over virtually unchanged. It is by observing the relation of the camp-sites to the changing coastline, rather than by typological studies of hunting gear and fishing tackle, that the later forest settlements are proved contemporary with Danish dysser and passage graves and the several phases of Danubian III.

For the Forest folk, relying so largely on fishing, clung to the coasts. Now the sea on the whole continued to contract from the maximal extension attained in early Atlantic times. Hence the nearer to the present coast a camp site is, the later must its occupation have been. In Finland the relation of a camp site to the highest strand reached by the mesolithic sea, and so its relative age, is expressed as a percentage of the "Clypeus limit" corresponding roughly to the first Littorina maximum farther south. And here too several stylistic phases can be equated with corresponding stages in the marine regression. Imports of Danish and South Swedish

1 Äyräpää, "Die geographischen Datierungen in der Vorgeschichte Finnlands," Swiat., XVI (1934-5), 36-44.
2 The term "Littorina maximum" hitherto employed must be discarded as ambiguous in view of the duality of the transgression.
types permit of correlations with Montelius’ divisions of the Northern Stone Age; in Finland phase I seems to fall within Montelius’ period IIIa while phase IV begins during Montelius’ IV.

The cultures, developed during the slow process of marine transgression, were at first—in Finland till the end of phase III—continuations of the Maglemosean, enriched by some new elements and adjusted to minor environmental changes.

These enrichments and adjustments were not everywhere the same. Indeed, as pointed out on p. 9, local differentiation had already begun in Boreal times. Thereafter, in Scandinavia proximity to the Northern megalithic culture’s centres hastened change while the physiographical diversity of the peninsula encouraged local specialization. On the sea coasts, for instance, sealing1 and deep-sea fishing assumed especial importance. East of the Baltic the environment was more uniform; from the fringe of the Arctic tundras to the edge of the park-lands in the Ukraine, from the Baltic to the Urals an extraordinarily

homogeneous culture is disclosed by countless camping sites beside the rivers, lakes and shallow Baltic gulfs.

To secure their prey the Forest folk everywhere retained with but small modification the types that had served their Maglemosean ancestors. "Harpoons" of bone, directly descended from mesolithic forms, were still used from the Norwegian coasts to the Urals. Fish-hooks, like Fig. 99, 5, which may be of Boreal age at Pernau in Esthonia, remained in use at L. Latcha (Olonez), and on the Middle Desna and were translated into slate in Finland. The conical arrow-head used for slaying fur-bearing animals by the East Baltic Maglemoseans (Fig. 99, 1) survived into the later Stone Age on L. Latcha and L. Shigir in the Urals, and into historic times in Siberia. Slotted bone points and other Maglemosean types illustrated in Fig. 99, 2-4 persisted equally long. But in Scandinavia and the East Baltic these were often translated into slate during the latter part of Montelius’ III. Similarly the Maglemosean knives made from boars’ tusks which survived in Norway and Central Sweden, on Gotland and even in Central Russia, were translated into slate producing the type of Fig. 100, 1. For the despatch of elks and other heavy game the rhomboid club-head of Fig. 100, 4, perforated by percussion and derived from four-spiked weapons traceable to Boreal times in Sweden, was current from Norway to the Urals.

So the wood-working equipment of the Maglemoseans was retained and improved. Antler axes and even socketed chisels

1 JRAI., LXI (1931), 343.
2 e.g. Norway, Gjessing, Rogalands Stenalder, Fig. 1-4; Sweden, Fv., 1913, 170; Nihlen, 1927, 66, 91, 122; East Prussia, Real., IX, pl. 206; Latvia, Ailio, Steinzeitliche Wohnplatzfunde in Finnland (Helsinki, 1909); Oka valley; ESA., IV (1929), 98; L. Latcha, n. 3, L. Sigir, n. 6, etc.
3 L. Latcha at head of River Onega, ESA., X, 158.
4 Pohorilova on Desna, Czernigov, Antropologiya, IV (Kiev, 1930) 175, fig. 16.
5 Ailio, Wohnplatzfunde, 50; PZ., V, 517.
6 L. Sigir, Urals, FM., XXIII (1916), 12.
7 Dmitriev, in Bader, etc., “Iz Istorii rodovogo obschestva na territorii SSSR” (Izvestiya GAIMK., 196, Leningrad, 1934), 192.
8 Even harpoons, e.g. Real., IX, pl. 47.
9 Fv., 1924, 298.
10 Lyalova near Moscow, RAZ., XIV (1925), 37-82.
11 Real., IX, pl. 46; Ailio, Wohnplatzfunde, 29, 33.
were still used in many areas. In Norway, Sweden, Esthonia and Finland the rough Nøstvet, Limnhamn, Voisek and Suomusjärvi "celts" were transformed by polishing all over into adzes like Fig. 101, 3, while the Maglemosean antler chisel led directly to the gouge of polished stone. In Central Russia, however, unpolished flint "celts" of an archaic aspect were used as substitutes for bone tools in preference to polished adzes of fine-grained stone.

Fig. 100. Slate knives and dart-head, Sweden (†), stone mace-heads, Finland (‡), and slate pendant (‡).

Perhaps even in early Atlantic times the Forest folk had possessed sledges and had harnessed dogs to pull them. Sledge-runners occur in late Atlantic or Sub-Boreal peats in Finland and in the Ural mosses while bones of dogs related to modern sledge-dogs are common on camping sites. In Finland skis

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1 e.g. Vistefundet, Stavanger Museums Avsheft, 1907; E. Prussia, Real., XIV, 510; and notes 6, 7, and 9 here.
2 Sirelius in Festschrift, P. W. Schmidt, Vienna, 1928, 949; SM., XXXV, 80; XXXVIII-IX, 60; XLI, 1-12.
3 Izvest. GAIMK., 106, 125.
4 SM., XXXVIII, 50-60; XLI, 28.
have been found too. Thanks to such means of transit, occasional intercourse could be maintained between the tiny bands scattered through the forest. The whole region formed a continuum over which objects and ideas could be transmitted.

And so new devices were spread. The potters' craft may have been the first.

Pots had been made in Denmark and Southern Sweden even in early Atlantic times. In Central Swedish camps and on the East Baltic Voisek and Suomusjärvi sites that seem to correspond to Ertebølle no pot-sherds have been found. In Finland\(^1\)

\(^{1}\) *Acta Arch.*, 1 (1930), 165-90, 205-20.
the oldest sherds are found on coastal sites, inhabited when the sea had retreated to 87 per cent. of the Clypeus limit. When they appear, pots are everywhere coarse, built up in rings, provided with round and almost pointed bases but no handles nor even lugs. And nearly all are decorated with one or more horizontal rows of pits. This device, foreshadowed in Ertebølle ware, was regularly employed also by the megalith-builders of Southern Sweden¹ for decorating domestic vases, proving that these shared ceramic traditions with the forest hunters. Pit-ornament was, however, early applied to ovoid beakers also in the Caucasus.² But generally the pits were combined with whipped cord impressions, forming in Sweden and East Prussia maggot-patterns, in Finland rather panels. Rosenberg³ has sought the origin of this system in South Russia and traced it thence across the Ukraine and Poland to the Baltic. But it does not seem to have reached the Upper Volga basin as it should have on his thesis; there comb-ornament related to the later Finnish style II seems the earliest yet found, as if the potters' art reached Central Russia from the West and not from the South. So, too, the panels of Finnish style I are very like those on Danish Passage Grave vases of Montelius' IIIa with which they are roughly contemporary.⁴

From the first Scandinavian pots diverge from those current east of the Baltic, and these divergencies are subsequently accentuated. The Swedish vases and those from the Åland Islands generally have concave necks and in late styles are decorated with herring-bone patterns like Fig. 102, 2. East of the Baltic the simple ovoid form of Fig. 102, 1 is found everywhere right to the Urals and the Caucasus and was retained tenaciously. In Finland⁴ a regular sequence of decorative styles has been correlated with the contracting levels of the Baltic. In style II (found from 75 to 68 per cent. below the Clypeus limit), the older cord impressions were imitated by imprints of a short-toothed comb. Comb-hatched bands alternating with zones of pits recall Beaker decoration, but perhaps just imitate local basketry models. In phase III this style breaks up, but revives again after an interruption due to the incursion of Battle-axe folk mentioned on p. 162.

¹ Arsbetidelse, Lund, 1930-31, 30.
² Hancar, Kaukasiens, pl. XXXIX, an ill-dated grave-group.
³ Rosenberg, Kulturströmmungen in Europa zur Steinzeit, Copenhagen, 1931.
All through the inland forests from Silesia to the Urals ovoid pots decorated with pits and comb-impressions have been found, but the Finnish sequence cannot safely be applied to them.

The Forest folk buried their dead (dolichocranial) on the camp sites, extended and often sprinkled with red ochre, but the number of graves discovered is extremely small in comparison with the countless dwelling-places. For magical purposes female figurines were modelled in clay (on the Åland Islands) or carved in bone (on L. Latcha) as by the Gravettian mammoth hunters in South Russia. In Norway elks and reindeer were engraved on rocks in a style as naturalistic as that of the French Magdalenians. In Sweden and Carelia similar figures of beasts were pecked out on the rocks in a more conventional manner.

The cultural uniformity persistently maintained over so vast an area must reflect that intercourse between the several groups the means for which have already been mentioned. It is conclusively proved by the distribution of materials and manufactured products. A sledge-runner from Finland was made from Pinus cembra, which does not grow west of the

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1 e.g. Nihlen, "Gotlands," 177; Esthonia, Real., XIII, 2. L. Latcha, n. 3. p. 195; in Central Russia, Izvest. GALM., 1936, 101.
2 L. Latcha at head of River Onega, ESA., X, 158.
3 IPEK., 1931, 11-24; Boe, Felsenzeichnungen in westlichen Norwegen, Bergen, 1932.
Urals. Russian flint was imported into Finland during the currency of style II to be replaced by Scandinavian flint during Montelius’ IV. Chisels like Fig. 101, 3a are proper to Finland and Olonetz, but were imported into Sweden. The Forest folk had discovered the amber of East Prussia; they carved it in their own naturalistic style and exported it to western Norway, Central Russia and Finland, where it arrived during phase II.

Such rudimentary commerce brought the Forest folk into contact with settled farmers. A transverse arrow-head possibly of Danish origin was found with pottery of style I in Finland. Polished flint axes of Montelius’ III were widespread in Sweden and types proper to Montelius’ IV reached Finland too. Conversely the flint arrow-heads like Fig. 91, 5 represent translations of bone and slate types borrowed by megalith-builders from the Forest folk.

But more than flints and amber beads were diffused. In Sweden the hunters obtained domestic stock and cereals from the Northern coastal farmers and started farming on their own. In a pile-dwelling on Lake Alvastra (Östergötland) for instance, bones of cows and pigs and grains of barley are mixed with remains of game and wild nuts. A few thick-butted flint axes, double-axes, and hammer-beads of amber juxtaposed to the usual Forest pottery and greenstone adzes disclose the source of these innovations in the Passage Grave culture. East of the Baltic the first signs of food-production coincide with the appearance of Battle-axe graves. So, too, in Central Russia stock-breeding was unknown before the emergence of the Fatyanovo culture (p. 160).

Thus about the close of Montelius III or the beginning of the Central European Bronze Age the Forest folk in the far north achieved a truly neolithic status. In this concrete instance the farthest zone in our series economically lagged

1 Sirelius, n. 2, p. 196.
3 Real., VI, 222.
5 Acta Arch., I, 217.
6 Nihlen, “Gotlands,” 121; *Fv.*, 1913, 170, etc.
7 *Årberättelse*, Lund, 1930-1, 34.
8 *Mannus*, II, 120ff.
9 *Izvest. GAIMK.*, 106, 126.
considerably behind the next zone to the south. And till cheap iron axes made systematic clearing easy, farming remained a subsidiary occupation compared with hunting and fishing. Despite their relatively numerous graves the Battle-axe folk were absorbed in most areas. Their distinctive weapon was provided with an elk's head for butt, carved in the naturalistic style of the native hunters. The old ceramic styles reasserted themselves.

Metal tools were occasionally imported from Southern Sweden or from the Pontic centre of metallurgy. At Federovskoe in Kostroma small copper objects and the bones of domestic cattle were found with ovoid pots decorated with pit-comb ornament. It was first in Eastern Russia in the area occupied by the Fatyanovo culture that anything like a native Bronze Age culture arose. A hoard found at Seima illustrates both the retardation of this development and the survival of autochthonous Forest traditions. It contained Late Bronze Age socketed axes and spear-heads and a shaft-tub axe of South Russian types together with a copper knife (Fig. 103, 2-3). The latter's handle represents an elk's head in precisely the same naturalistic style as the late stone battle-axes from Olonetz, Finland and Sweden.

Thus the Stone Age in the Northern Forests outlasts the limits of this book. During the period we have surveyed, the farther North and East we go from the southern Baltic the

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1 Clark, 1936, 186 and fig. 58; SM., XXXV, 36-43.
2 Trudy sekssii archeol. RANION., ii, 1928, 26-32.
3 ESA., II, 137.
later in time does food-production seem to appear, the longer do archaic-looking types survive. The spread of culture was certainly northward. It looks as if it were eastward too. But the latter impression may be a false deduction from the lack of independently dated finds in Russia. Admittedly "Magne-mosean" types survived in the Urals into the Bronze Age and later. But on the Middle and Upper Volga the knowledge of metallurgy came from the south, as a result of the contacts with the Pontic-Caucasian centres, established by the Fatyanovo culture. Other advances may have come from the same quarter earlier.

Recent research¹ has shown that even in Denmark Forest food-gatherers survived, side by side with "Megalithic" farmers, into period III of Montelius’ system. The settlement on Brabrandso, long regarded as a typical Ertebølle site, despite Ertebølle pottery and implements, has been assigned by pollen-analists to this phase of the Sub-Boreal. Other Ertebølle sites in Sweden may be equally late. Even on the Lower Rhine² pottery, preserving the same traditions as that of Ertebølle and of the more easterly Forest folk here described, was being made till Beaker times (Danubian III). The persistence of small communities of Forest hunters and fishers among the neolithic farmers of Northern Europe was more general than had hitherto been supposed. And here that persistence does not mean that the introduction of food-production was late though it is definitely unfavourable to the hypothesis of culture-borrowing here adopted to explain that introduction.

¹ Summarized by Rydbeck, Årberättelse, Lund, 1937-8, 46f and 77f.
² Brandsted, Danmarks, 171, 374.
CHAPTER XII

MEGALITH BUILDERS AND BEAKER FOLK

MEGALITHIC TOMBS

The diffusion of Oriental culture in Western Europe must have been affected in part by maritime intercourse. And evidence of such intercourse is supposedly afforded by the architecture of groups of tombs spread significantly along the coasts of the Mediterranean and the Atlantic and along terrestrial routes joining these coasts. Judged by their contents, the tombs in question do not belong to a single culture and were not therefore erected and used by a single people. But architectural details recur with such regularity at so many distinct places that a general survey of the main types at this stage will save repetition.

The most intriguing tombs of the series, which consequently received the first attention from archaeologists, are built of extravagantly large stones. They are therefore termed "megalithic". But as the same plans are followed in tombs built in dry masonry with small stones and in others excavated in the ground (rock-cut tombs) the application of the term to the whole series is misleading. In Portugal,¹ for instance, beehive chambers entered through a low, narrow passage were excavated in hillsides where the soft limestone facilitated digging. Where the subsoil was shallow and the rock hard, the same plan was reproduced above ground in dry-stone masonry roofed by corbelling if the local sandstone or schists broke naturally into convenient slabs. Where the rock is more refractory, like granite, large blocks set on end, orthostats, supporting large capstones or lintels form the framework for chamber and passage. And tombs constructed by all three methods often contain the same furniture.

Many authorities, therefor contend that in such regions the method of construction is conditioned by local geology alone. That thesis will be adopted in the sequel with the reservation that it is not universally applicable. "Rock-cut" tombs could easily have been excavated in the chalk of the English Downs, but in fact the burial chambers here were always built above ground. At Antequera and other cemeteries in Southern Spain (p. 259), orthostatic and corbelled tombs—of different plans—stand side by side. In such instances the method of construction must have been dictated exclusively by the traditional prejudices of the tombs' builders. In a preliminary survey, however, it is community of plan that is most significant.

Among a bewildering diversity of local variations two types stand out which recur in a classical form in a number of countries, but significantly concentrated at focal points on natural sea or land routes; aberrant variations are dispersed in the hinterland around such foci.

The Passage Grave is the most widely distributed type being common throughout the East Mediterranean area, in Sicily, Sardinia, Southern Spain, Portugal, Brittany, Central Ireland, Northern Scotland, Denmark, South Sweden and Holland. The recurrent features are a chamber entered by a distinct passage lower and narrower than the chamber. Cellular annexes open off the main chamber in the rock-hewn tombs of the East Mediterranean, Sardinia and the Balearic Islands and in some corbelled tombs in Southern Spain, Portugal, Ireland and Scotland, in a few orthostatic tombs in Brittany and Denmark. Roughly circular chambers characterize the corbelled tombs of Crete and the Cyclades, the earlier rock-hewn tombs of Sicily, and many South Spanish, Portuguese, Breton, Irish and Scottish sepultures and the oldest Danish ones. A corbelled passage grave of circular plan is often called a tholos (Figs. 39 and 104).

In rock-cut tombs the passage is often a descending ramp. Where the ground surface is nearly level it may be reduced to a stepped shaft, producing the pit-cave (Fig. 25, 2) already encountered in Greece and South Russia and to meet us again...

1 Elliot Smith, "The Evolution of the Rock-cut Tomb and Dolmen", in Essays and Studies presented to Sir William Ridgeway, Cambridge, 1913, was a pioneer in this interpretation.
in Sicily. If the chamber is cut in the face of a cliff, the passage may be abbreviated to a mere doorway as often in Sicily (Fig. 104). A well-marked variety of passage grave, built with large orthostats, has been termed an undifferentiated passage grave because the passage gradually expands towards the chamber which is generally bottle-shaped. Notably in the Balearic Isles the rock-hewn chambers are themselves long and narrow and not preceded by any length of passage though cellular annexes sometimes open off the chamber (Fig. 105).

In Menorca the same type is reproduced above ground in dry stone masonry in so-called navetas.

The long stone cist or gallery grave reproduces this Balearic plan in orthostatic masonry. In Sardinia the orthostats support dry stone walling corbelled in to a barrel vault. But in the classic form represented in the Paris basin, Brittany and Jersey, Belgium, Western and Central Germany and Sweden the uprights support the lintels, and the long narrow rectangular chamber is preceded by a short porch as wide as the chamber. Most cists of the Paris type are subterranean, being built in an excavated trench. Variants on the form occur in South Italy, Sardinia, Northern Spain, France, Britain, Denmark and Holland. On the slopes of the Pyrenees, in Northern Ireland and South-west Scotland, gallery graves are divided into a
series of intercommunicating compartments by low, transverse slabs, termed *septal stones*, sometimes combined with upright portals; such tombs are known as *segmented cists* (Fig. 106, 1).

*Dolmen* is a term applied sometimes to any megalithic tomb, but generally only to small rectangular or polygonal chambers without entrance passage, formed of three to six megalithic uprights. Even when thus restricted the name obscures the genetic and functional variety of the monuments to which it is applied. Some "*dolmens*" for instance in Sardinia\(^1\) and in the Cotswolds\(^2\) appear to be just the most stubborn remains of more complex monuments destroyed by cultivators or road-builders. Some are closed chambers, not collective tombs. Others are obviously just abbreviated gallery-graves.\(^3\) To avoid confusion we have used the Danish name *dyss* (plural *dysser*) for dolmens which are marked by furniture as well as structure as a distinct type. But even the classical *dyss*, as defined on p. 174, might be regarded as a segmented cist abbreviated to one compartment only.

The portal of the tomb was treated with special care and one form—termed the porthole slab—must be mentioned here. A round or sub-rectangular aperture, 45 to 80 cm. (1 ft. 3 ins. to 1 ft. 7 ins.) across is cut out in a slab—or in the proximal edges of two juxtaposed slabs—which closes the entrance to chamber or passage (Figs. 78 and 96). Porthole slabs were a regular feature in Caucasian "*dolmens*" and occur even in the Indian ones. They form the portals to Siculan I megalithic cists, to the gallery graves of Sardinia, to corbelled and other passage graves in Southern Spain,\(^4\) to long cists of the Paris type not only in the Seine valley, but also in Brittany, and Jersey, Central Germany and Sweden; they were even incorporated in the megalithic temples of Malta.\(^5\) A porthole stone often enhances the resemblance of a built tomb’s doorway to the entry into a natural or artificial cave. The desire to emphasize the similarity has in fact been suggested as an explanation for the porthole stone’s origin.\(^6\) But a porthole slab was

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1. This was my conclusion after examining *Sa Perdas e s’Altare* (Birori).
3. For instance Adam’s Grave near Dunoon is just a segmented cist reduced to a single segment.
5. *Arch.*, LXVIII, 266.
employed to form the portal of a Siculan I tomb, cut in friable rock at Monte Salia,¹ and the device does not always simulate a cave mouth at all realistically.

Built chamber tombs, when not erected in an artificial excavation, were probably always put underground artificially

¹ *BP.*, XLIII, 17, fig. 6.
by burial in a mound or cairn. The latter was always carefully constructed and was often, if not always, supported by a built masonry revetment wall, or by a peristalith of large uprights. Masonry revetments are well illustrated in the Balearic navetas, in some Almerian round cairns and in the long cairns of the Cotswolds and Northern Scotland. But it is doubtful whether these finely built walls were intended to be seen in Britain since the faces were masked deliberately by an "extra revetment" of slabs piled obliquely.

The passage or portal of a chamber tomb often gives on to a forecourt so carefully planned that it must have played an essential part in funerary ritual. Semicircular forecourts cut in the rock preceded some Siculan tombs, are delimited by built walls in front of Sardinian gallery graves and North Scottish passage graves and by orthostats in front of tholoi at Los Millares in Almeria and Barro in Portugal and of North Irish and South-west Scottish segmented cists. In England the forecourts are more often cuspidal in plan as are those connected with one or two Mycenaean, Danish, Swedish and Armorican passage graves. More careful examination of the environs of chamber tombs or of the barrows covering them will certainly reveal the presence of forecourts in other regions. Despite their careful construction, the forecourts in Great Britain are generally found filled up with earth and rubble. This filling may be deliberate. In any case the entrances to tombs have usually been intentionally blocked up and hidden. That need not mean, as Hemp has inferred, that the numerous skeletons found in such tombs had all been laid to rest simultaneously after which the vault was finally sealed up. The initiated could always rediscover the entrance and remove the blocking as happened at Mycenae (p. 76). Irrefutable evidence of the use of tombs for successive interments is forthcoming from one or two graves in Scotland, Brittany and Denmark, as at Mycenae.

1 Arch., LXXXVI, 132; PPS., IV (1938), 201.
2 BP., XVIII, 75; Ausonia, I, 7; Not Sc., 1920, 304; Correia, "Pavia", 72; Childe, Prehistory of Scotland, 26, 33. Vestiges of such a forecourt can be seen in Balearic navetas (CIPMO., 26) and with timber revetment in English unchambered long-barrows (pp. 310ff., below).
3 Nordmann, Megalithic, figs. 36-9.
4 Arch Camb., 1927, 13, 17.
5 Childe, Scotland, 43; Nordmann, Megalithic, 28.
The distribution of chamber tombs is presumably due to the spread of some religious idea expressed in funerary ritual. Save in Egypt they seem everywhere to have served as collective sepulchres or family vaults. A family likeness between the skeletons buried in the same tomb has been reported in England and Denmark¹ as at Mycenae, and the features noted in Crete (p. 22: fires kindled in the chamber, confusion of bones) are repeated almost universally. Collective burial alone can hardly represent the unifying idea since collective burial in natural caves was practised particularly in Sicily and Southwestern Europe, perhaps even in pre-megalithic times. It has indeed been suggested that the tombs were just copies of cave ossuaries,² and Wheeler³ describes the erection of megalithic tombs as "the mass production of artificial caves" by populations accustomed to collective burial in natural ones. But in Scotland and elsewhere perfectly good natural caves were neglected. Collective burial comes in simultaneously with megalithic sepulchral architecture. Moreover burial practices

¹ PPS., IV, 147; Aarbøger, 1915, 319; Nordmann, Megalithic, 30.
² Hemp, in PPS., I (1935), 110.
³ In Eyre, European Civilization, II, 182.
were far from uniform. While inhumation, generally in the contracted attitude, was everywhere the normal practice, cases of cremation have been reported from many South Spanish, South French, Armorican and British tombs and are conclusively attested in Northern Ireland.¹

It is in fact only detailed agreements in seemingly arbitrary peculiarities of plan and in accessories such as porthole slabs and forecourts that justify the interpretation of megalithic tombs as evidences of the diffusion of ideas. The grave goods afford little support for this interpretation. They are characterized at first by purely local idiosyncrasies and would suggest to the typologist differences in date. In Egypt, Cyprus and the Ægean even the earliest tombs contain a relative abundance of metal objects, and such are not uncommon even in the first Siculan and Sardinian vaults. Moreover in all these regions chamber tombs continued to be built and used even in the Iron Age. In the Iberian Peninsula (save in remote corners) and South France too, despite numerous stone tools, the grave goods are explicitly Copper Age, but during the Bronze Age collective burial in chamber tombs went out of fashion. In Brittany metal is exceptional in chamber tombs. In Great Britain and the rest of North-western Europe such tombs contain an exclusively neolithic furniture and in general went out of use as bronze became available.

This disparity has been used to support the thesis that megalithic tombs, invented in the extreme north or in a remote corner of Portugal in a fabulously ancient Stone Age, were carried thence to reach South Spain in the Copper Age and the Ægean in a still later Bronze Age. In reality the quantity of metal from the tombs is an inverse function of their distance from the natural centres of metal-working and from the channels along which metal was distributed. In North Europe we have proved conclusively that at least the later "Stone Age" passage graves and long cists were in use during the full Bronze Age or Danubian period IV in Central Europe and that none of the dysser even need be appreciably older than period III. On the short chronology outlined on p. 120 megalith building in Denmark should begin about 2500 B.C., or several centuries later than the Early Minoan and Cycladic tombs, to say nothing of the Egyptian.

¹ pp. 299, 308, below.
The extreme rarity of metal and indeed of other imported objects in the megalithic tombs of Northern and North-western Europe, seems an almost fatal objection to the theory that the idea of building such tombs was diffused by "prospectors" or "Children of the Sun," setting out from Egypt or some other East Mediterranean centre to settle in regions where ores or precious stones, valued for magical qualities as givers of life, were to be found. There is a general but far from exact correlation between the distribution of such substances (for instance, copper in the Iberian Peninsula, the Pyrenees, Sardinia, Ireland, Galloway and the Crinan district, tin in Galicia and Cornwall, gold in Brittany, Ireland and the Strath of Kildonan, pearls in Orkney, amber in Jutland, etc.) and foci of megalithic architecture. The tomb furnishings afford surprisingly little evidence for the exploitation of these resources (no Scottish copper, gold or pearls have been found in a local megalith) and none whatever of Egyptian or Aegean imports obtained in exchange for their exportation. Yet such products would be expected in the graves of merchant princes enjoying such prestige that they could persuade local savages laboriously, if rather barbarously, to copy for them the sepultures appropriate to their rank at home, and inspired also with the desire for securing their own immortality by necklaces of pearls and gold beads.

The rarity or complete absence of imports from megalithic tombs is furthermore a serious obstacle to their correlation with any independent sequence of cultures by which their relative or absolute age might be determined. Once in Sicily, very frequently in Sardinia, the Iberian Peninsula, South France and Brittany, occasionally in Scotland and even Denmark Bell-beakers or their derivatives are found in megalithic tombs of almost every form. From individual tombs in Brittany, Scotland and Denmark, however, it has been proved conclusively that the Beakers were associated only with the later interments in the tombs concerned. The Beaker folk cannot therefore have been the vehicles in the original diffusion of the "megalithic idea", nor can their expansion, which reached the Danube basin late in period III, fix the relative age of the earlier chamber tombs.

1 Perry, *The Growth of Civilization*.
Gallery graves in Central France, Brittany and Jersey and even in the Balearic Islands and Southern Sweden regularly contain relics of the Horgen culture (p. 295). Indeed it may be said that Horgen folk diffused the Paris type of long cist to Brittany and across Germany to Sweden. In Central Europe the Horgen culture too seems to belong to a late phase of period III, and lasts into IV. But megalithic tombs are not attached to the best-dated Horgen settlements, and the long cist may be a secondary accretion in their culture.

In default of better founded chronologies, a resort to typology is tempting. In Scandinavia the sequence, dyss (dolmen), passage grave, long stone cist really seems to hold good, though it is no longer regarded, as it was by Montelius, as a self-contained process of evolution and degeneration. Similar sequences have been applied by Leeds, Obermaier and Bosch-Gimpera to the Iberian Peninsula, and by Mackenzie to Sardinia. Bosch-Gimpera, by labelling some small and ruinous tombs in Northern Portugal “dolmens”, traces their development into orthostatic passage graves, rock-cut tombs and lastly tholoi. We here prefer Forde’s well-documented thesis that the “small passage dolmens have a poorer, but not earlier furniture and represent a provincial degradation typical of peripheral areas”. Nowhere outside Denmark is the priority in time of the typologically simpler tombs proved either by distribution or by grave goods. And even in Denmark out of hundreds of dysser only 57 are dated by their contents to Montelius’ II; a very large proportion must have been built, like the passage graves, during Montelius’ III.

No new typology need be attempted here. The architectural agreements cited reveal the megalithic province as a cultural continuum. Within that continuum culture grows in every aspect poorer as we pass westward and northward from the East Mediterranean to Scotland and Denmark. We see the same sort of cultural zoning that has been disclosed in the Danubian corridor and on the Eurasian plain.

1 Arch., LXX, 215ff; “El Dolmen de Matarubilla” (CIPP, 20); Rev. Anthr., X, 358; Rev. Anthr., XL (1930), 244ff; Préhistoire, II (1933), 198ff.
2 BSR., V (1910), 87-137; VI, 127-70.
3 Am. Anthr., XXXII, 16.
4 Brandsted, Danmarks, 198, 345.
The Beaker folk was a principal agency in opening up communications, establishing commercial relations and diffusing the practice of metallurgy. We have already mentioned their activities in Central Europe, and they will meet us so frequently in the West that a brief characterization becomes convenient at this point.

Beaker folk can be recognized not only by their economic activities, but also by the distinctive armament, ornaments and above all pottery, associated together everywhere in their graves. Indeed the inevitable drinking cup which gives a name to its users, may be more than a readily recognized diagnostic symptom; it symbolizes beer as one source of their influence, as a vodka flask or a gin bottle would disclose an instrument of European domination in Siberia and Africa respectively. Millet grains\(^1\) were in fact found in a beaker in Portugal.

The Beaker folk are known principally from graves which never form large cemeteries. When their pottery and other relics are found in settlements, they are normally mixed, save perhaps in Central Spain, with remains distinctive of other groups. Thus Beaker folk appear as bands of armed merchants who engaged in trading copper, gold, amber, callais and similar scarce substances which are frequently found in their graves. The bands included smiths—the mould for casting a West European dagger was found in a Moravian Beaker-grave\(^2\)—and women who everywhere fashioned the distinctive vases with scrupulous attention to traditional details of form and ornament. They roved from Southern Spain and Sicily to the North Sea coasts and from Portugal and Brittany to the Tisza and the Vistula.\(^3\) Sometimes they settled down, by preference in regions of natural wealth or at the junctions of important routes. At times they obtained economic and political authority over established communities of different cultures,

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1. *CIAA.*, 1930 (Portugal), 356.
formed hybrid groups with these, and even led them on farther wanderings; the Beaker-groups that invaded Britain give indications of composite origin.

A detailed study of Beaker pottery does not disclose a single and irreversible expansion. It suggests an early uniformity so remarkable as to be hardly explicable merely by the rapidity of a migration and the conservatism of the migrants, followed by the emergence of distinct local groups, but the maintenance of intercourse between some of these at least.

The "classical" beaker (Fig. 107, 3-4), made of relatively fine grit-tempered ware coated with a burnished slip that is liable to peel off and brick red to black in colour, is decorated with zones of "rouletted" hatchings, alternating with plain zones. The "rouletted" decoration is executed with a comb with very short teeth, separated by extremely narrow interstices,
and probably with a curved edge. It yields a practically continuous line of round or, more often, rectangular dots, separated by low septa. The horizontal zones may be combined with a radial decoration on the base.

This simple classic style is represented in nearly every region reached by the Beaker folk though it grows less common and characteristic as one goes eastward from the Rhine-Brenner line. But wherever Beaker folk settled down at all, local styles grew up. These are presumably in general later and specialized variants on the originally common theme. On the other hand an Iberic style using sharply incised or stamped lines (well represented at Ciemopozuelos and Palmella) (Fig. 107, 1-2) is probably older than the classic style.² Be that as it may, some local or derivative styles have such a wide distribution that they must denote secondary intercourse if the dispersion of the rouletted style be ascribed to a primary expansion. For instance, beakers decorated by a cord, wrapped spirally round the vase, occur in Northern Holland, Scotland, Brittany and South France.³

¹ e.g. Castillo, pls. VII, 4 (Andalusia); L, 2 (Portugal); LXI (Castellon), LXXVI, i (Catalonia); LXXXIV (Galicia); XCIV (Hautes Pyrenees); CIII (Brittany); CXIX, 2 (Sicily); CXXIII (Po valley); CL, 7 (Bohemia); CLXXXII, 2 (Middle Rhine).
² Nordmann, Megalithic, 100; Actas y Mem. Soc. Españ. de Antrop., XIV (Madrid, 1935), Noticiario, 5.
³ Childe, Scotland, 83.
In the Iberian Peninsula, South France and Central Europe beakers are often associated in graves with shallow hemispherical bowls decorated in the same technique but more often with patterns radiating from the base (Fig. 107, 2).

The distinctive weapon associated everywhere with the Beaker complex is the flat, tanged West European dagger (Fig. 109, 2). The tang may be flanged; the hilt, never riveted to the blade, was hollowed at the base in the Egyptian manner explained on p. 116. Flint copies were frequently made as substitutes at least for funerary use. Arrows were normally tipped with tanged-and-barbed flint heads in Western Europe, with hollow-based heads in Holland, Central Europe and Upper Italy. In Central Europe (including Poland), Holland and Great Britain, rarely also in Brittany, the Beaker archer wore a concave plaque of stone perforated at the four corners as a wrist-guard for protection against the recoil of the bow-string (Fig. 108). In South France, Brittany and Bohemia\(^1\) thin

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\(^1\) Mat., 1881, 552; Cazalis de Fondoue, Les Allées couvertes de Provence; L'Anthr., XLIV, 507; Childe, Danube, 191, 193.
strips of gold leaf (Fig. 109, 4), similarly perforated, may have been mounted on leather wristlets for the same purpose. Thick clay plaques of the same plan, but flat and also perforated at the corners, are found on Beaker sites in Portugal and Spain and may also have been used as wrist-guards. Stone arrow-straighteners, used by Beaker folk in Bohemia and Poland and also in Sardinia, do not seem to be an original part of their equipment since in Central Europe they appear in pre-Beaker times, in Britain only in the early Middle Bronze Age, well after the Beaker invasions were over.

A distinctive element of the Beaker folk’s costume was a button of stone, bone, amber or jet with V perforations.

In Northern Sicily, Sardinia, the Iberian Peninsula, South France and Brittany and the Channel Islands, Beakers and their normal associated armaments are found, generally accompanied by relics distinctive of other cultures, in collective sepulchres—natural caves, rock-cut tombs, tholoi, orthostatic passage graves, gallery graves and segmented cists. In no case, however, do they demonstrably accompany the primary interments while in isolated instances they were proved to be secondary (p. 211). Beaker-folk had obtained admission to the families or clans entitled to burial in such sepulchres, but sometimes arrived only after the tombs were erected. In North Italy and throughout Central Europe, Beaker folk were interred individually and strictly contracted, in simple trench graves.

These form cemeteries comprising in Moravia as many as thirty graves, but normally considerably less, as if the communities settled in one place were small. But the Beaker folk must have settled down and multiplied in Central Europe since the total numbers of Beaker burials recorded from Bohemia is about 300, from Saxo-Thuringia 103, and from the small province of Veluwe in Holland 150. Settled in Central Europe,
the Beaker-folk formed hybrid cultures through contact with other groups. In Moravia some adopted cremation and burial under barrows perhaps from Battle-axe folk. From these in the Rhineland, Holland and North Germany Beaker folk adopted barrow-burial, battle-axes, and some elements even in ceramic decoration including presumably the use of cord impressions. In fact the contact produced a hybrid population with a composite culture and art. At least the A-C group of Beaker invaders in Britain is an offshoot of such a hybrid.

The people buried with Bell-beakers at Ciempozuelos, near Madrid¹ and almost invariably in Central Europe and Britain, are round-headed, and brachycranial skulls are found in nearly every collective tomb that yields Bell-beakers, even in regions so dominantly Mediterranean as Sardinia and Sicily. In this instance therefore it looks as if culture and race² coincided and one might legitimately speak of a Beaker race. Even in Central Europe Beaker-skulls had been trephined.

Both in form and decoration Bell-beakers of the classic style and the associated bowls look like copies of esparto-grass vessels such as are made in the Sudan to-day.³ Beaker-like vases decorated with zones of incision which might be clay translations of such basketry vessels occur in Egypt in the early "Tasian" phase of culture.⁴ Pot-sherds found in a still undatable settlement on the western edge of the Nile valley at Armant and in a "neolithic" context in the Sahara and Africa Minor⁵ show roulette decoration, though rather coarser than that on classical beakers. A hollow-based hilt like that regularly attached to West European daggers was attached to flint and copper blades on the Nile in Predynastic times.⁶ Hollow-based arrow-heads were characteristic of the "neolithic" Fayum and of Early Predynastic Egypt. There is accordingly some evidence for an African element in the Beaker

² MAGW., LIII, 263, reporting on Central European Beaker-skulls, attributes all to the Alpine race and denies racial connections with Spain or Sicily; but cf., Coon, Races of Europe.
³ Schuchhardt, PZ., I (1909), 43.
⁴ Childe, NLMAE., 53, fig. 13.
⁵ Mond and Myres, Cemeteries of Armant, 268ff; Vaufrey, CISPP., Oslo, 1936; BSPF., XXXIII (1936), 625f.
⁶ Childe, NLMAE., 98, fig. 39.
culture. Still most authorities hold that the culture as we know it took form in Central Spain and spread thence.¹

The Beaker folk's expansion, from whatever cradle it started, was presumably rapid. It thus constitutes a convenient chronological horizon in several otherwise separated areas. But the number of beakers and the variety of their decorations in each area imply that such vases must have been in fashion for several generations. It is therefore a grave error to treat all beakers as contemporary.² Such vases mark rather a substantial period of time, not everywhere of equal duration. In Central Europe beakers go back to period III; in Holland they were even associated with pottery of very late Danubian I style. On the other hand in Moravia, Bohemia, and even on the Rhine, beakers³ are associated in graves with round-heeled riveted daggers typical of period IV and in Austria⁴ with mature Aunjetitz forms. And the bronzes of period IV are often decorated with patterns typical of motives that recur on beakers. In other words beakers remained in fashion into period IV in Central Europe and the Beaker and Aunjetitz cultures overlap. Beakers do not denote a point in time. But the Beaker cultures are everywhere on the same economic plane. Judged by form and decoration most British and Central European Beakers seem to be later than the "classic type", those from the edge of the Beaker territory—Scotland and Poland—looking particularly late.

¹ Castillo, op. cit., Bosch-Gimpera, Real., X, 356.
³ Childe, Danube, 190; Forssander, Ostskand. Norden, 72.
⁴ PZ., XXV, 137.
In a westerly direction the rays of the Oriental culture should strike upon the Apennine Peninsula first after Greece. But the geography of the Peninsula itself should warn us not to treat it as an unit, but to expect the same zoning as has been in fact detected in Greece and in the wider tracts hitherto surveyed. The state of prehistoric archaeology, however, forbids too high expectations. The bare outlines of Italian prehistory were ably and boldly drawn last century by Orsi and by Pigorini and his school and were admirably summarized by Peet\(^1\) in 1909. They have not been filled in by subsequent scientific excavations and systematic publications so as to yield a really clear picture even in 1938. The survey here attempted is more than usually provisional and inconclusive. Only in South-eastern Sicily is a reasonably complete sequence of prehistoric cultures available, taking the story down to the historical period, early ushered in by the Greek colonization. In South Italy, especially Apulia, a similar sequence is partially applicable. In the north the archaeological record begins to clear only when contacts were established with the Danubian province in the early metal age.

**The New Stone Age in Sicily and Southern Italy**

Neolithic culture is first and most explicitly disclosed in South-east Sicily\(^2\) and perhaps rather later in Southern Italy. Its authors lived by breeding cattle (of *Primigenius* and *Brachyceros* stocks), goats, sheep and pigs, and presumably cultivating cereals, though definite evidence of agriculture has not been recognized by excavators. They dwelt in round or rectangular huts of wattle-and-daub in organized village

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\(^1\) [For points not specially documented see Peet, *The Stone and Bronze Ages in Italy and Sicily*, Oxford, 1909].

\(^2\) Latest summary by Cafici, *Real.*, XII, 188-207.
communities. The Sicilian villages (Stentinello, Megara, Matrensa) were girt with flat-bottomed trenches strengthened by masonry walls, and Matera and other Apulian villages were also fortified. Cobbled streets and squares give further proof of social co-operation for public works. But natural caves were widely used for habitation.

The distribution of the settlements proves command of the sea and suggests that fishing must have been important. Trade brought the Sicilians obsidian from the Æolian Islands. Axes were made of fine grained rocks; polished specimens are rare and conform to the pebble type, but rough flaked choppers and picks of basalt and quartzite are very common.

Pots were made by hand with great technical skill. They were often decorated with geometrical patterns executed with the finger-nails, a sharp pointed implement or the edge of a shell. These devices, common to Sicily and the Mainland, were supplemented in the Stentinello style of the island by various stamps producing effects reminiscent of the "Grand Style" of the Danish Passage Grave period or of Central European excised wares. This incised decoration has a general resemblance to that of neolithic Crete and Thessaly. Plain wares, slipped and burnished, grey or red in colour have again a general likeness to Cretan, Anatolian and Balkan fabrics. Finally some vases were painted, but the styles of painting vary locally. In Sicily, painted vases are so rare as to be regarded as imports; both red and black were used to form rectilinear patterns on a buff ground (Fig. 110, 3).

On the mainland several distinct local styles of painting grew up extending northwards as far as Capri and the Vibrata Valley. The best-known is the Apulian classically represented at Molfetta and Matera. Only black paint was employed. The motives include spiraliform and mæandroid figures (Fig. 110, 1), which suggest connections with the Balkans or
Thessaly; sherds decorated in this style were in fact found on Levkas.

Characteristic of Sicily and Apulia are cylinder-lug-handles—horizontal tubes of clay expanding trumpet-like towards the ends. They recall the “horned lugs” of Thermi III, but are even more like the handles of Gerzean stone vases from predynastic Egypt. In Apulia the tubular lugs are often surmounted by heads of bulls or rams. Spiral scrolls on a few handles from Sicily may be conventionalized versions of the horns of the Apulian rams.

No certainly neolithic burials are known from Sicily. At Molfetta and Canne² in Apulia the dead were interred flexed in oval trenches, bordered with stones and provided with a niche for the feet. At Matera the dead were buried in their huts, but one interment from a pit-cave is said to have been neolithic.³ The only cult objects which have survived are a crude human figurine and two rough models of animals from Stentinello and an axe-amulet from the fosse at Megara Hyblæa.

The neolithic civilization just described can hardly have arisen spontaneously among ill-defined groups surviving from the Old Stone Age. But did the new impulses come from the Balkans, from the Ægean or from North Africa? A contribution from the Balkans seems indicated by the painted pottery

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¹ BP., XLV, 113; Rellini, Ceramica, figs. 29, 54-58.
² Rellini, La più antica Ceramica dipinta in Italia, Rome, 1935.
³ Rellini, Ceramica, 90-1.
of Apulia. But it may be secondary.¹ Shell-edge decoration and cylinder handles are very probably North African.

An indication of the relative and absolute age of the Sicilian Stentinello phase is afforded by the filling of the fosse at Megara Hyblaea.² The neolithic refuse was covered by a sterile layer 30 to 55 cm. deep; then came a thin stratum containing fifth century Greek pottery; finally 50 to 60 cm. of sterile earth represent the accumulation of the last 2450 years. Hence Orsi deduced a date about 2500 B.C. for the desertion of the neolithic village, but mathematically his figure could be reduced by five centuries.

**Siculan Civilization**

In Eastern Sicily the neolithic villages were deserted, to be replaced by little townships of a more East Mediterranean type. Agriculture now took an equal place with stock-breeding, and the bones of horses occur for the first time. The townships were planted on naturally defensible hill-tops but were still fortified like the neolithic villages. The walled areas were small—in two cases the estimate given is 1 hectare, or 2½ acres—but the large cemeteries of collective tombs imply a substantial settled population; thirty-one tombs have been examined at Castelluccio, twenty at Syracuse, eleven at Monte Salia, each containing from 50 to 200 corpses.³ Its surplus could find an outlet in industry and trade.

Flint was systematically mined at Monte Tabuto by expert miners who were presumably specialists. Metal was imported and apparently worked locally into simple flat axes (known only by a couple of miniatures made for funerary purposes), triangular riveted daggers and ornaments such as...

¹ Mayer on the contrary derives all the "neolithic" cultures from the Balkans via Southern Italy.
² *M.A.*, XXVII, 138.
³ von Duhn, *Italische Gräberkunde.*
spectacle-spirals and tubes of coiled wire. However, metal was so rare that polished stone axes and roughly flaked picks were still made and used even for carving the tombs. Stone beads were manufactured for the first time.

Foreign trade is explicitly disclosed by bossed bone plaques (Fig. 111) found in several Siculan I tombs, in the ruins of Troy II-IV and in the "neolithic" temple of Hal Tarxien in Malta. Its effects may also be recognized in a bone pommel of the same type as the Trojan pommel shown in Fig. 21, 3, and by numerous axe-amulets, but some alleged "amber" beads are made of a local resin.

Pottery remained a domestic industry, but the forms of the hand-made vases—hour-glass tankards, high-handled mugs (Fig. 112, 4-5) and pedestal bowls with handles joining bowl and stem—are quite alien to the Stentinello tradition. They may be plain or painted in black on a reddish ground with

1 BP., XLVI (1926), 13.  
2 BP., XLIII, pl. II, 6.
geometric designs. On some late vases from Vallelunga the black is outlined in white, giving somewhat the effect of Dimini ware.

The dead were now buried in rock-cut tombs of East Mediterranean style (Fig. 104). The chambers are generally more or less circular in plan and may be preceded by a smaller ante-chamber. When cut in a vertical cliff face the entrance is normally a small window-like aperture, rebated to receive the blocking stone. The rock-cut window was replaced by a porthole slab in one tomb at Monte Salia.1 The blocking stone in one tomb at Castelluccio was carved with spirals in low relief; the entrance to the inner chamber of another tomb in the same cemetery was closed by two carved slabs, which, combined (Fig. 113), produce the effect of the funerary goddess carved on many megalithic tombs in France and on the stele from Troy I mentioned on p. 38. The tombs often open on to a semi-circular porch or forecourt cut in the rock, the walls of which were in at least one case carved with pilasters.2 In some late tombs at Monteracello the vault had been reproduced above ground in a rectangular cist (2.05 m. by 1.2 m. square)

1 BP., XLIII, 17.
2 von Duhn, pls. 4, 18; 6, 22 and 7, 23; BP., XVIII, 75; Not. Sc., 1920, 304; Ausonia, I, 7.
framed with four large slabs on edge in one of which a square window had been cut to represent the door. The disused galleries of flint mines were also used as burial places. All these tombs were used as family vaults in which numerous skeletons were deposited, sometimes seated as if at a feast. In the townships single clay horns have been found and interpreted as ritual objects.\(^1\)

In a general way the Siculan I culture, economy and funerary ritual seem to result from a further extension of the same causes as inspired the Early Helladic culture of Greece, and the pottery, in particular the hour-glass tankard, establishes a definite link with the latter. The bossed bone plaques from Troy should give a reliable date in the history of Siculan I culture, but that their stratigraphical position is dubious.\(^2\) They are compatible with a date for its rise about 2000 B.C. On the other hand they could be made to harmonize with Orsi's deductions at Megara Hyblaea but for the reliable dates available for the succeeding Siculan II period. For a number of transitional tombs and cemeteries illustrate the passage from Siculan I to Siculan II which was completed by the fourteenth century B.C.

Before 1300 B.C. Sicilian economy had been transformed into one of Bronze Age type by the incorporation of the province into the Mycenaean commercial system. Late Helladic III vases, gold rings, bronze mirrors and rapiers and paste beads were imported from the ΑΕgean. Bronze-smiths, established in the Siculan II townships produced local variations of L.M.I rapiers,\(^3\) of Troadic flame-shaped knives (Fig. 114, 1) and of ΑΕgean shaft-hole axes. The local chief who concentrated wealth at Pantalica built himself a little palace in which Mosso claimed to detect barbaric imitations of Knossian architecture, and shrines were furnished with "horns of consecration" in clay. Indeed the Minoan influence was so strong that Evans suspected a Cretan colonization of the island under a Minoan prince.\(^4\)

But essentially Siculan II culture is rooted in the older traditions. Pottery was not industrialized. The hand-made

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\(^1\) *BP.*, XXXVI, pl. 12, 4; *MA.*, XVIII, 619.
\(^3\) *Arch.*, LIX (1906), 108ff.
\(^4\) *P of M.*, I, 3.
vases, though unpainted and decorated in a new style, preserve many Siculan I forms. The smith was not wholly dependent on Ægean models. The double-edged razors with a nick at the base of the blade (Fig. 114, 2) are more like Continental types of periods V and VI than Mycenaean forms. Safety-pins were often worn, but the developments from the simplest violin-bow type diverge from the lines followed in Greece, and Reinecke attributes the invention itself to the Siculans. Despite modifications of funerary architecture and ritual, the collective chamber tombs of Siculan II are the direct descendants of those of Siculan I. The large number of tombs, 1,000 to 3,000 in a single cemetery, illustrate the growth of population under the new economic regime, but also the substantial duration of the period. The L.M.I models underlying the local rapiers suggest an initial date near 1500 B.C., the ceramic imports from Greece may cover the fourteenth century, but fibulae more advanced than any Mycenaean should denote an extension beyond 1200. A century later the transition to Siculan III should have been accomplished, and the latter culture persisted till the Greek colonization in the eighth century B.C.

**Fig. 114.** Siculan II knife and razor, Pantellaria (¶).

**North-western Sicily**

The sea-born impulses that stimulated progress in South-eastern Sicily and Apulia, seem to have been arrested by the Straits of Messina and the mountains of Central Sicily. West of Cefalu neither the neolithic culture of Stentinello nor yet the Siculan I-II civilization is represented. From a cave at Villafrati, near Palermo, von Adrian collected human remains (brachycranial), polished stone axes, a classic beaker (Fig. 107, 4), vases decorated with finely incised and hatched ribbons

1 A stray vase painted in Molfetta style was found at Monte Pelegrino Palermo), *BP.*, XLV, 113.

2 *Real.*, XII, pls. 30-2.
and plain vases. Schmidt,\(^1\) classing Villafrati as "neolithic", equated the deposit with Stentinello and hence built up a fantastically inflated chronology for the whole of Europe.

But from Cefalu to Erici-Trapani many little cemeteries of pit-caves have been discovered—a group at Boccadifalco near Palermo\(^2\) being typical. Such tombs normally contain oval-mouthed amphorae, mugs or carinated cups and double-vases in black or red-wash ware. The vessels are generally plain, occasionally decorated with warts, with curvilinear incisions and rows of dots or with stripes of thin white paint. These cemeteries must take the place of the missing Siculan culture in North-west Sicily.\(^3\) In fact the tomb shape is Siculan, and scraps of copper as well as stone beads and obsidian blades were found in one tomb at Boccadifalco. Now the plain pottery from Villafrati is identical with that just described. Moreover one pit-cave at Carini actually contained a Beaker,\(^4\) and in another incised ware of Villafrati style is said to have been found with ingot-torques at Villagrazia near Palermo,\(^5\) though in the latter case the association is very doubtful. Hence, though sherds of Beaker were found at Geraci (Termini Imerese)\(^6\) and Tre Fontane (Catania)\(^7\) where "neolithic" ware also occurred, there are no good grounds for regarding Beakers in Sicily as older than Siculan I.

The idea of the chamber tomb and some rudiments of metallurgical knowledge may have percolated to North-west Sicily across the mountains or through the Straits from the secondary focus of diffusion on the island's south-eastern coasts. The impulse from that quarter was not strong enough to produce a tertiary centre of urban culture.

**Developments in South Italy**

On the Italian mainland too, despite participation in the neolithic culture of South-eastern Sicily, no counterpart to the semi-urban Siculan culture developed. South Italy was

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\(^1\) *PZ.*, I, 133ff.


\(^3\) Rellini in *Rivista*, XXVIII (1928-9), 446.

\(^4\) *Annales de géologie et de paléontologie* (Palermo), 28 (1920), pl. I.

\(^5\) *Annales de géol.*, Palermo, 46 (1927), pls. I and IV.

\(^6\) *B.P.*, XLII, supplement.

\(^7\) *M.A.*, XXIII, 488ff, pl. IV, 10.
eventually attached to the Central European rather than the Ἐγεαν economic system. But the first knowledge of metal may have been introduced from the same source as inspired South-eastern Sicily, since some of the earliest metal objects are found in collective tombs of pit-cave type. These contain also a few vases with string-hole lids of Early Ἐγεαν-Anatolian form. And clay stamps were made at the same time, perhaps in imitation of Early Minoan button seals. But the contemporary settlements are caves or villages of wattle-and-daub huts. Metal was for long very rare though moulds for pins and similar small objects show that it was worked locally.

In addition to rock-cut tombs natural caves were used as collective sepulchres as were artificial caves—the so-called dolmens buried under a cairn supported by a built revetment. The “dolmens” are really either passage graves with a chamber no wider than the passage or long cists, one segmented. One dolmenic cist was equipped with a porthole stone, placed, however, at the side, not at the end.

The pottery of the period was unslipped and decorated only with cordon ornament. The forms include carinated bowls, and cups and mugs characterized by large and curiously elaborated handles. The thumb-grip type may be a development of tendencies already noted in the Macedonian Bronze Age and foreshadowed locally in the bull’s head handles of the Molfetta style, and more clearly in painted ware from the Vibrata valley. Still handles exactly like those of Fig. 112, 2-3, will meet us in the caves and late megalithic tombs of South France and Catalonia. Moreover one tomb contained a miniature pot like a French “vase-support” while the “dolmen” of Bisceglie yielded beads of amber, a substance which arrives in South France too when such handles were in fashion. Some sort of connection between Apulia and the coasts of the Gulf of Lions must be admitted at this period.

Rock-hewn tombs of South Italian type in Latium and collective burials in natural caves even in Etruria seem to denote a northward extension of the same influence which affected Sicily and South Italy. Ἐγεαν trade in tin from

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1 L.A.A.A., II, 80; Gervasio, I Dolmeni, 88ff; M.A., XXVI, 494.
2 Mayer, Matera und Molfetta, pl. IX, 19.
3 Gervasio, I Dolmeni, 63, fig. 24.
4 Gervasio, I Dolmeni, 68.
5 Gervasio, I Dolmeni, fig. 25.
Etruria may afford an explanation. There the sepulchral cave of Monte Bradoni contained two conical V-bored buttons of metallic tin together with a midrib dagger like Fig. 116 a, of distinctly Early Minoan type, as well as brachycranial skeletons. Other tombs contain similar "Aegean" daggers and flat axes of copper accompanied by finely worked tanged arrow-heads and lance-heads of flint and battle-axes and mace-heads of stone. Such flints are strange to South Italy and Sicily, but recur, beyond the Apennines, in cemeteries of the Remedello culture, and the battle-axes, one knobbed, while possibly imitations of Aegean shaft-hole axes, are most plausibly connected through Remedello with the Central European series. If commercial penetration were responsible for the introduction of metal, it was accepted by some local troglodyte population, perhaps augmented by infiltrations from the north, and the result was not urbanization nor regular incorporation in the Aegean commercial system.

Despite Tuscan tin peninsular Italy was only slowly linked up to a regular system for the distribution of metal, and then not with the Aegean but with the Danubian. Particularly in Southern Italy metal types characteristic of Danubian period IV are nearly as rare as datable Aegean imports. (A cist grave at Parco di Monaco containing a flanged axe and a bronzehilted dagger might be assigned thereto.) In the subsequent

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1 Viterbo (Peet), Pitigliano, BP., XL, 53; XLIII, 97.
period Continental metal types appear even in settlements. But the economic re-orientation they denote seems to coincide with an ethnic movement. Near Taranto a *terramara* settlement like those of the Po valley is said to have been erected on the site of a "neolithic" village. Like the North Italian settlements, it yielded vases with horned and lunate handles (Fig. 115, 1-2), winged axes, flanged sickles, double-edged razors, a flange-tanged dagger of very late Mycenaean affinities and a violin-bow safety-pin, but also vases decorated with punctured ribbons forming spirals and maeanders quite in the Vardar-Morava manner. The whole peninsula is now incorporated in the Central European sphere of commercial influence.

In Central Europe none of the types represented at Taranto could be regarded as earlier than an advanced phase of period V —the Middle Bronze Age. Yet it is said that imported sherd and a figurine of L.M.III style were found in a deposit above the *terramara*. If this be true—the excavation was not unimpeachable—period V must begin by 1400 B.C. and South Italy was linked up in a single economic system with Central Europe but little later.

**Upper Italy**

In the third cultural zone of the Peninsula, with its natural centre in the wide Po valley, a "pure neolithic" phase of culture, unmixed with Metal Age intrusions, is scarcely detectable in the archaeological record. Caves used for habitation and burial, cist graves of the Chamblandes type (p. 280) in the Alpine valleys and some hut villages in the open have indeed yielded relics that look "neolithic". But much of the material thus classified by Peet may plausibly be attributed to backward communities living at a time when more favourably situated groups in the Peninsula itself were well on the way to a Bronze Age economy. From the Trentino and from Ligurian caves come cranian amulets, such as were popular in the South of France; but in the Po valley such amulets were still worn in a settlement attributed to the "Bronze Age". Clay stamps like the clay imitations of stone seals from the Copper Age of

1 Jatta, *La Puglia preistorica* (Bari), 1914, 198 ff.
2 BP., XXVI, 14 and 286; MA., XIX, 305 ff.
4 BP., XLI, 30.
South Italy are found in the same "neolithic" contexts. The cave pottery of Liguria is related to that of the South French and Catalonian grottoes and the Horgen culture of the Rhône-Seine valleys. On the slopes of the Apennines down to the Abruzzi sherds with finger-nail rustication vaguely recall Körös and Morava wares.¹ And Spondylus shells from Liguria, Istria and Dalmatia as well as from the heel of Italy may mark a second route by which Danubians secured this prized mussel.² But neither the economy, the cultural ancestry nor the antiquity of the groups concerned can be further defined with the available material.

With the so-called Copper Age (periodo eneolitico) the curtain is raised to disclose the Remedello culture flourishing in the Po valley. Extensive cemeteries of contracted or flexed skeletons—117 at Remedello (Brescia), 41 at Cumarola, 36 at Fontanella—sometimes arranged in regular rows, reveal substantial communities occupying the same site for several generations. Metallurgical industry and rudimentary trade were now combined with farming, hunting and fishing. The copper-smiths produced flat axes, some with notched butts or low hammered flanges (as at Thermi), daggers of two types (Fig. 116) and occasional halberds. The one type of dagger with a tang to which the hilt was attached by rivets with a

¹ Menghin, Weltgeschichte, 71.
² BP., XXVI, 36; MPK., I (1887), 13ff; MAGW., XXXIII (1903), 70ff; Childe, Danube, 71.
conical head is clearly a derivative of the Early Minoan group. The other form, kite-shaped, was hafted in the Egyptian manner with a hollow-based hilt held in place by several small rivets (cf. p. 116).

Despite the contemporary exploitation of Tuscan tin suggested by the tanged dagger from Monte Bradoni (p. 230) trade was not regular enough to supply the Remedello smiths with material for bronze, and even copper was relatively scarce. So polished stone axes were still used, and tanged, riveted kite-shaped and unriveted West European daggers were each copied locally in flint (Fig. 116). Axes were hafted with the aid of antler sleeves perforated with square-cut holes for the shaft. Still even silver was obtained, perhaps from Sardinia. But the forms produced by the silver-smith suggest more far-flung intercourse. A hammer pin from Remedello itself resembles, but rather remotely, Middle Kuban types. A gorget from a tomb at Villafranca near Verona recalls the Irish lunulae, but also may be compared to a copper gorget from a tomb dated to period III-IV at Velvar in Bohemia. Finally, stone battle-axes, sometimes with knobbed butts, could be treated as a reflex of intercourse with the copper miners of Upper Austria. And there, in the lake-dwellings of the Mondsee and Attersee, have been found kite-shaped daggers of Remedello type and stone axes with notched butt, mistaken by Pittioni for prototypes of the copper specimens, but really just copies thereof.

Nevertheless the bulk of the Copper Age relics are native products. Transverse arrow-heads are presumably mesolithic survivals, but the commoner tanged arrow-heads splendidly worked on both faces have nothing in common with earlier industries nor yet with those of South Italy nor the Danube valley. The pottery included vessels with rudimentary thumb-grip or nose-bridge handles in a tradition common to all the mountain lands north of the Mediterranean from Macedonia to Spain (Fig. 117). The skeletons from Remedello comprise Mediterranean long-heads and a minority of round-heads.

Whatever its background, the Remedello culture owes its character primarily to a northward extension of intercourse.

1 BP., LII, 94; Forssander, Ostskandinavische, fig. 10.
2 BP., XLI (1915), pl. I.
3 MAGW., LXI (1931), 74-80.
with the Ægean, motivated by the tin lodes of Tuscany and attested there, as in the Po valley, by daggers of Early Minoan type. At the same time contributions by the Bell-beaker folk must be admitted. Bell-beakers were found in three graves in the Province of Brescia, once with a characteristic West European dagger, and stray sherds of the same ware are reported from Remedello itself. The Bell-beaker folk may have introduced from the west the halberd and perhaps the gorget and assisted in opening up intercourse with the Danube valley. The battle-axes certainly are contributions from Central Europe, perhaps even from farther east, but hardly suffice to prove an intrusion of Battle-axe folk. The daggers of Early Minoan type provide a vague upper limit, somewhere about 2500 B.C., for the beginning of the Remedello culture. Since amber and fayence beads are missing from the graves, the cemeteries had presumably gone out of use before the regular trade between Mycenae and Bohemia was established about 1600 B.C. The Beaker graves establish a connection with period III in the Danubian sequence, but no one knows whether they belong to the beginning or the end of the long phase represented by the Remedello cemetery.

The Bronze Age begins with the incorporation of Upper Italy in the Danubian commercial system. Types of period IV flanged axes like Fig. 57, 3, round-heeled and bronze-hilted daggers and ingot-torques are not uncommon. Many must have been manufactured locally; the bronze-hilted dagger is often regarded as an Italian product. But these types are not found in graves. Most come from hoards, the deposition of which implies still unruly tribal societies, and from pile-dwellings on the Alpine Lakes.

Architecturally the latter resemble the better-known structures of Switzerland. But their pottery has nothing Swiss about it, but betrays in rudimentary thumb-grip handles, the same tradition as has been encountered in the Remedello cemetery. Battle-axes, flint daggers and conical buttons with V perforation show at least the persistence of Copper Age types in these Bronze Age settlements. A few wrist-guards and many arrow-straighteners must be regarded as innovations inspired from Central Europe. But riveted bronze daggers and amber beads show that the lake-dwellers enjoyed incidental benefits

1 Relation to cemetery uncertain, Castillo, Campaniforme, 133.
from Mycenaean-Danubian trade. Still the lake-dwellers and contemporary villagers remained farmers who, though they could support smiths and import luxuries, did not aspire to urban sophistication like the Siculans. It may be just an accident that the earliest direct evidence of the agrarian revolution that replaced the cultivation of plots with a hoe by the cultivation of fields with an ox-drawn plough in continental Europe comes from Upper Italy at this period. On rock surfaces in the high valleys of the Italian Alps\(^1\) are carved representations of fields and ploughing scenes, together with halberds and other weapons characteristic of period IV.

In Eastern Emilia lake-dwellings continued to be occupied during period V, but the North Italian civilization of the Middle Bronze Age is better represented in the so-called terremare, south of the Po which may themselves go back to the preceding phase. These structures, generally described as “pile-dwellings on dry land”, and said to resemble a Roman camp in arrangement, were organized villages, defended by a moat and a cleverly constructed rampart of earth and timber, covering generally a couple of acres in area and occupied so long as to become rudimentary tells. The excavations conducted last century leave room for grave doubts as to the internal plans of the settlements and the horizons of the various relics recovered.\(^2\) Early Bronze Age types are in fact found in terremare and the distinctive cornute and lunate handles (cf. Fig. 115, I-2) are just extravagant developments of tendencies traceable at Remedello. But the terremare were admittedly metallurgical centres where the Early Bronze Age "Danubian" forms were developed into

\(^1\) Antiquity, III (1929), 157.
\(^2\) Messerschmidt, Bronzezeit und frühe Eisenzeit in Italien (Berlin, 1935), 8. A convenient illustrated summary of the old finds is given in Montelius, Civilisation primitive en Italie.
the Italian Middle Bronze Age types which we have already encountered at Taranto and which were spread also in Central Europe during period V. As no traders' hoards were deposited in Upper Italy during this period, it may be inferred that some form of political pacification fostered industry and commerce.

Upper Italy still lacked the external trappings of city life and State organization. Having established connections southward to Taranto she was already beginning to exercise that formative influence on Cis-Alpine progress (illustrated at first in the metallurgical industry) as the immediate agent in transmitting the Orient's cultural heritage, that culminated in the Roman Empire. Violin-bow safety-pins such as were worn at Mycenae, in Sicily and at Taranto, though not fashionable in the *terremare* of the Po valley, occur in the contemporary lake-dwellings and presumably thence found their way along the amber trade-route to Aunjetitz cemeteries and Tyrolese urnfields. The *terramaricoli* themselves were buried after cremation in urnfields like the citizens of Troy VI, a practice which became general in Central Europe in the Late Bronze Age.

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2. One from Peschiera is plated with gold-leaf, supposedly a Mycenaean trait.
CHAPTER XIV

ISLAND CIVILIZATIONS IN THE WESTERN MEDITERRANEAN

It is possible to sail coastwise from the Aëgean to Italy and Sicily without ever losing sight of land. Progress thence westward meant embarking on the pathless ocean without any guiding point in the heavens like the Pole Star, by which a mariner might set his course. Sicily must have set a bound to regular intercourse between the Aëgean and the western world in so far as such intercourse depended on following the northern shores of the Mediterranean. Land routes across North Africa and even coastal routes along the inhospitable southern shores of the Mediterranean were of course available, however difficult they may have been. But they traversed territories so little explored archaeologically that the effect of communications along them can hardly be even inferred. We can therefore scarcely expect to find the West Mediterranean islands clearly revealed in the archaeological record as stepping stones in the transmission of culture wholes from East to West, nor to be able adequately to assess the part they may have played in transmission from Africa northward.

THE MEGALITHIC CIVILIZATION OF MALTA

The barren little islands of Malta and Gozo are last remnants of a land-bridge from Africa to Europe and offer natural havens to mariners blown by mischance or groping their way deliberately westward from the East Mediterranean. They were unsuited to Old Stone Age hunters, and, save for a questionable Neandertaler, were uninhabited thereby. In the Holocene they supported a surprisingly dense population of farmers who developed in relative isolation a vigorous insular culture.²

¹ L. Hogben, Science for the Citizen, 106.
² The best collection of illustrations and plans of Maltese monuments and relics is L. M. Ugolini, Malta: Origini della Civiltà Mediterranea, Rome, 1934, but the views expressed there are scarcely plausible. Latest summary, de Manneville, CIPMO, 36-41.
Its most enduring and distinctive monuments are megalithic "temples", built of really gigantic stones, and labyrinthine burial vaults ingeniously carved out of the limestone with stone tools. And so to-day the most truly native monument of Maltese culture in the twentieth century A.D. is the village church of Musta, near Valetta, roofed with a dome larger than that of St. Paul’s Cathedral. Like it, the neolithic temples and tombs are eloquent of a devotion to immaterial ends which inspired the island farmers to produce a surplus above immediate needs. And they suggest how "circulation" of this surplus wealth was effected through unproductive works, that, just because they were unproductive, could be repeated again and again.

The temples, though reconstructed several times, preserve throughout a continuity of plan in which an apsidal shrine is the principal recurrent feature. Community of tradition between this temple architecture and the sepulchral architecture of West European collective tombs is revealed in many details of plan and construction—semicircular forecourts in front of the shrines; the deliberate use of enormous blocks; porthole slabs used for doorways; roofing of the apses by

\[\text{Fig. 119. Plan of "Temples" at Mnaidra, Malta.}\]


2 Leeds in *LAAA*, IX (1922), 35.
corbelling;*1 walls in which uprights set with their broad faces in line with the wall alternate with slabs projecting at right angles thereto;*2 cup-marks on many stones. The stones, at least in the later shrines, are generally beautifully dressed with stone hammers, or even ornamentally pitted. Some are carved in low relief with spirals or even processions of men and animals. Cult objects include limestone statuettes*3 a foot or more in height of an obese female personage, standing, seated or lying on a couch and sometimes wearing a skirt recalling Minoan and even Sumerian fashions, as well as aniconic symbols—betyls, bells, altars.

Bones of the dead were conserved in simple rock-cut tombs or megalithic chambers. But at Hal Saflieni near Valetta, a vast and complicated hypogæum has been quarried in the living rock reproducing several features of the temple architecture and decorated with spirals painted on the ceiling.

The minor crafts of the islands were no less highly specialized than architecture. Twenty-six varieties of pottery were distinguishable at Hal Saflieni.4 Technically the commonest fabric—a fine polished grey ware—is strongly reminiscent of the neolithic pottery of Syria-Palestine and of Crete (p. 16). Forms such as carinated bowls and cups and bottles point in the same direction, and some of the finely incised patterns would not be out of place in the neolithic layers at Knossos. But decoration by means of small applied clay discs (studded ware) has no obvious East Mediterranean affinities; the spirals incised on some vases might be Danubian or Middle Minoan, but have nothing to do with the early East Mediterranean fabrics. And there are rare, and perhaps relatively late, vases of buff clay painted5 with geometric designs in matt red that are only in the vaguest way East Mediterranean.

Two types of handle are distinctive of all the "neolithic" wares. The tunnel handle is a tube of clay applied horizontally to the inner wall of the vase, the contours of which are

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*2 Ibid., 13; the resultant effect is that of the "recessed brick" architecture of Sumer and Egypt.
*3 JRAI., LIV, 67ff; IPEK., 1927, 131. An idol from Tarxien must have stood 1.30 m. high.
*4 LAAA., III (1910), 1-22.
*5 LAAA., IV (1911), 121-6; Bulletin of Museum, Valetta, I (1929), 25.
interrupted externally only by the two apertures corresponding to the tube’s ends. Such handles recur also in Sardinia, perhaps in a pre-Beaker context; the subcutaneous handles of the Italian Copper Age and the Danubian III Baden complex offer more distant analogies since the tubes are narrower and normally vertical. The triangular or nose-bridge handle is formed of two bands of clay projecting from the vase wall and set, one horizontal the other oblique, so that they meet at a sharp angle. Though the thumb-grip is exceptional, such handles embody the same tradition as has already met us north of the Mediterranean in Macedonia and Upper Italy (p. 233).

Vessels were also made of stone with great dexterity and may be fitted with both types of handles used by the potter. A giant cup from Hajar Kim, is 6 ft. in diameter and equipped with a carved nose-bridge handle.

This remarkable culture was formally neolithic. Perforated stone implements are indeed absent, polished stone axes are rare, but rough stone celts, mauls, picks, and flint or chert flakes and scrapers are very abundant, and grooved stone hammers such as occur in many ancient mines and were employed by Moravian bronze-smiths during period IV, also occur. Not a scrap of metal has been found, and the quarrying, dressing and carving of stone have demonstrably been carried out with stone tools. The islanders, possessing no ores nor natural products that could be easily bartered therefor, made shift successfully with local materials for industrial purposes. But they did import obsidian, Sicilian lava for querns and for superstitious ends fine-grained rock pebbles. From these they made axe-amulets, and occasional dove- and other pendants all of which had been included in the prophylactic equipment of Western Asia from the fourth millennium. The only manufactured commodity recognized as an import in Malta is a bossed bone plaque of Troadic-Siculan I type, like Fig. III, from Hal Tarxien.

Such isolation from trade makes the dating of Maltese neolithic culture almost impossible. The bossed bone plaque proves indeed that it was flourishing during the Siculan I Copper Age and during the life of city II, III or IV at Troy. Evans’ detailed comparisons of the spirals on “neolithic” pots,

tomb-roofs and temple walls with Middle Minoan II patterns lead to a similar conclusion. A button with V perforation from Hal Saflieni again is a type appearing first in period III of the Danubian series. At least on the short chronology the insular neolithic period coincides in part with the second millennium B.C. That gives no direct clue whatever to its beginnings. The oriental prototypes for many Maltese devices can be traced back to the fourth millennium.

Nor is the end of the neolithic age better defined. It may be taken as coinciding with an invasion or religious revolution. As a result of this the temple-complex of Hal Tarxien was diverted from its primary use, and part was made a cemetery for cremation burials. With these were deposited archaic little triangular daggers and flat or even hammer-flanged axes of bronze or copper, curious figurines, and pottery in an absolutely new tradition.

Within the ambit of the Ægean commercial system such bronzes could not be expected much after 2000 B.C., in the Danubian province hardly later than 1500. But they can be paralleled in Sardinian hoards of the first millennium. The pottery includes vases with oculi-ornament, handled mugs and askoi that in the East Mediterranean would go back to the third millennium. But in Sardinia and even Italy equally archaic "Ægeanizing" forms reappear in the Dark Age after 1200 B.C. And there are plenty of two-storeyed urns recalling in structure Italian Iron Age types and contemporary Sardinian vases, though anticipated even in the neolithic wares. The "Bronze Age" invasion of Malta can accordingly be placed anywhere between 1800 and 800 B.C. No convincing grounds can be advanced for preferring one or other limit. It is more honest to admit that the age of the several Maltese cultures, and consequently Malta's rôle in prehistoric Europe, cannot be correctly estimated on the available evidence.

1 M. A. Murray, Corpus of Bronze Age Pottery of Malta, London, 1934, pl. VI.
2 Murray, Corpus, pl. XI; the nearest analogies come from Middle Bronze Age sites in the Danube valley, Hoernes-Menghin, Urgeschichte der bildenden Kunst, 411.
3 Murray, Corpus, pls. XII, 1; XXVIII, 7.
4 e.g. MA., XXV, pl. VIII, 74; Not. Sc., 1888, pl. XV, 2; Studi Etruschi, III (1929), 21ff.
5 Murray, Corpus, XXVIII, 3; XXXI, 12; XXXIII, 3.
6 BP., XXIV (1898), 253ff.
Sardinia

Sardinia, though apparently uninhabited in the Old Stone Age, is large enough despite its mountainous character to support numerous, if mutually isolated, farming communities in its valleys and plains. Moreover it possesses natural resources—obsidian, copper and silver—to attract industrial colonists. When the archaeological record opens clearly, all these opportunities were already being exploited. The evidence is derived in the main from natural caves and rock-cut tombs used as collective sepulchres for many generations. Relics of different periods accordingly occur generally mixed together.

Only in the cave of San Bartolomeo near Cagliari in the south of the island is a stratigraphical separation possible. In an upper layer here the grave goods comprised beakers, tripod bowls decorated in Beaker style (Fig. 121, 1), West European daggers and a flat axe of copper, and a prismatic V-perforated bone plaque—in fact a typical “Copper Age” assemblage. Below and separated by a layer of stones from the “Copper Age” burials was an earlier funerary deposit comprising as well as skeletons, simple obsidian implements and hemispherical and carinated bowls, one adorned with a stellate pattern of finely incised hatched ribbons. Technically the last-named vase recalls some vessels from Villafrati in Sicily, from Hal Saflieni in Malta, and from pre-Beaker horizons in South France. The pottery from the sepulchral cave of San Michele (Ozieri) includes vessels of the same type, but others with tunnel-handles quite like the Maltese but decorated with semi-circles executed in cardial and stab-and-drag technique that is represented at San Bartolomeo only in the upper level.

Sardinian culture of Beaker and post-Beaker age is better represented by the rock-cut tombs, locally termed domus di gigianas. Some of these family vaults may have been dug even in pre-Beaker times, since sherds of the incised fabrics represented in the lower level at San Bartolomeo occur in them, but others were excavated, or in any case still used, in the first millennium B.C. Generally the tombs are isolated or grouped in twos or threes, but at Anghelu Ruju, a cemetery of no less than

1 _BP._, XXIV (1898), 253ff.
2 _BP._, XLI, 102ff.
3 _Not. Sc._, 1904, 305ff; _MA._, XIX, 409ff.
thirty-one chamber-tombs has been systematically explored. The burial chambers here tend to a rectangular plan, are often preceded by an antechamber and entered either by a stepped pit or a passage. Subsidiary chambers may open off the principal compartment. The inner portals may be carved to suggest a lintelled wooden doorway. In two cases rock pillars were left standing in the chamber. On such pillars and on the walls bulls’ heads or high-prowed ships have been carved in low relief (Fig. 120). Traces of red ochre were found on the floors of two tombs. Normally the bodies were buried in the contracted attitude, but in two tombs (XV and XXbis) cremated remains were found in small niches and in tomb XX a baby’s skeleton in a jar.

A series of intermediate forms leads from the subterranean domus di gianas (Witches’ Houses) to the megalithic tombs built above ground and termed locally tombe di giganti (Giants’ Tombs)—rock-cut tombs roofed by corbelling in megalithic style,¹ megalithic extensions built on in front of rock-cut tombs,² a domus di gianas with the rock-face above and around the entrance carved to reproduce the portal and forecourt of

¹ BSR., V (1910), 103, fig. 5.
² Taramelli, Il Convegno archeologico sardo, fig. 65.
a Giants' Tomb,1 Similarly Mackenzie2 has constructed a
typological series leading from simple "dolmens" to the
classical Giants' Tomb—a long narrow gallery walled with
megalithic slabs, roofed by corbelling, covered by a cairn
enclosed by masonry walls and entered through a low arch
cut in a tall upright slab or stele from a semicircular space
flanked by masonry walls (Fig. 106). Of course such a series
can be reversed as it is a pure a priori construction and
unsupported by a reliable series of closed grave finds. The
so-called "dolmens" have yielded no datable furniture.
Some are just remnants of Giants' Tombs. The distribution
of the latter does not agree so exactly with that of the nuraghe
as to prove contemporaneity.3 Nuragic and even Roman4

![Fig. 121. Tripod bowl, San Bartolomeo (1), and vase-handle of nose-bridge type, Anghelu Ruju (2).](image)

relics have been found in Giants' Tombs. But of course such
finds do not establish erection in the Iron or Late Bronze Age.

The grave-goods recovered at Anghelu Ruju give the best
available picture of Sardinian culture before the nuragic age,
though tomb-robbing in antiquity has robbed that picture of
any pretence at being complete. Metal was used, but apparently
only sparingly; only two or three West European daggers, one
flat axe, one arrow-head, several quadrangular awls, some
beads, bracelets and atypical pins of copper and olive-shaped
beads and a ring of silver have escaped the ancient plunderers.
Martial activities are indicated by numerous weapons—
the copper daggers, spheroid mace-heads of stone, arrow­
heads (triangular, tanged, tanged-and-barbed and even
serrated) of flint together with wrist-guards (these, however,

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1 Taramelli, Il Convegno archeologico sardo, fig. 66; BSR., V, pl. IX, 1.
2 BSR., VI (1913), 67; BP., XLI, 15.
3 Rivista, XX, 6ff; BSR., V, 135.
having for the most part only two perforations may have been used as whet-stones as in Crete) and an arrow-straightener of pumice. In the pottery we might distinguish: (i) carinated vessels, and cylindrical pyxides vaguely Ægean in form; (ii) vessels decorated with semicircles and other patterns formed either of (a) finely incised hatched ribbons or of (b) stab-and-drag lines; (iii) Bell-beakers and tripod bowls like Fig. 121, 1; (iv) carinated cups and other vessels with nose-bridge handles (Fig. 121, 2), which persist into the nuragic age.

As ornaments and charms, stone bracelets and rings, axe-amulets, disc-beads of shell, and half-spool shaped beads (Fig. 122, a, c, f) and conical buttons with V perforations were worn. Finally three tombs contained marble idols, which, although made of local stone, look like deliberate imitations of Early Cycladic models.

Plainly many streams have converged in the Copper Age culture of Anghelu Ruju. Its debt to Crete was admirably summarized by Patoni: "Not only the form of the tombs but also the shape and decoration of some of the vases in them recur in Crete. The symbols sculptured on the walls and the statuettes of marble show relations of a nature superior to any external relations of commerce; for they denote a profound affinity of thought and culture." Giuffridi-Ruggieri adds anthropological arguments. Noting that fifty-three skulls from Anghelu Ruju were long headed and ten round, and that a similar mixture is detectable in Crete, he concludes that

\[\text{Fig. 122. Necklace from Anghelu Ruju (§).}\]

1 Quoted by Giuffridi-Ruggieri in _Archivio per Antrop. ed Etnogr_. XLVI, 18.
Sardinia was invaded at the end of the third millennium by a mixed race of Cretans. The invaders, combined with some small pre-existing population also of Mediterranean stock, created the Copper and Bronze Age civilizations of Sardinia.

If Giuffridi-Ruggieri be right, the finely incised wares of our group (ii) might be taken as representative of the "pre-existing population". These fabrics are certainly related to those of Malta, North Africa, Sicily on the one hand, of South France on the other. Their origin is not thereby determined. The Beaker folk's effective contribution is demonstrated by their pottery, armament and ornaments. Some beakers from Anghelu Ruju resemble especially those from Almeria, but one is almost identical with specimens from Bohemia and Denmark. The arrow-straightener, too, though locally made, is a Central European trait in the West Mediterranean. But a beaker from a rock-cut tomb at Cuguttu has a rudimentary thumb-grip handle.

This and related nose-bridge handles and many other traits, especially the V-perforated half-spool beads and prism-shaped buttons, betoken particularly intimate relations with Catalonia and South France. In South France such handles belong to a horizon explicitly later than wares like our group (ii) and on the whole post-Beaker (p. 292). In Sardinia they persist into the nuragic age.

Despite the industrial development and wide cultural relations attested at Anghelu Ruju no urban civilization arose, and Sardinia held aloof from any comprehensive system of foreign commerce that might bring datable foreign manufactures into the archaeological record. Judging by sepulchral architecture, island culture developed insensibly into the extremely insular nuragic phase. This development did not take place without renewed contact with the East Mediterranean. A Cypro-Mycenaean copper ingot stamped with Mycenaean letters was found on the island. About 1100 B.C. maritime raiders, termed Sh'rd'n' appear in the Egyptian records. They are depicted protected by horned helmets and round shields and armed with swords precisely like those of bronze statuettes from the Sardinian nuraghe. Whether the Shardana originated in Asia Minor, like the Etruscans, and only

1 Nordmann, "Megalithic", p. 122.
settled in the Western Mediterranean after raiding Egypt,\(^1\) or were actual descendants of the Copper Age Sardinians,\(^2\) their connection with the island in its nuragic age is indisputable, as is the stimulus given to West Mediterranean development by their experiences in the East.

But the result was not the establishment of a city-state organization such as the Etruscans created. In the island the highest social unit was a cluster of round huts sheltering beneath the dry-stone tower—*nuraghi*—of the clan chief. Architecturally as well as sociologically these complexes are significantly like a modern Nigerian village.\(^3\) Mines and smelting furnaces, as well as many hoards, belonging mostly to founders, disclose indeed an active and efficient metalurgical industry. The variety of types comprised in the hoards would suggest trade with, or raids on, both the *Ægean* (double-axes, axe-adzes) and Atlantic coasts (double-eared palstavs, carp’s tongue swords). But the island industry was extraordinarily conservative. Hoards of nuragic age may contain every sort of axe\(^4\) from flat or flanged types assignable by typologists to the Copper or Early Bronze Age, up to socketed forms of the Late Bronze Age and of stabbing weapons from archaic round-heeled daggers\(^5\) to flange-hilted swords. Luckily a few imported manufactures prove that these archaic types were still current in the eighth or even seventh century B.C., when the Etruscan Iron Age was in full bloom in Italy.\(^6\)

Yet the nuragic bronzes appear in the archaeological record as the immediate successors of the Copper Age types just as nuragic pottery occurs already in the rock-cut tombs of Anghelu Ruju itself. We have unconsciously overstepped the chronological boundaries of this book. The excursus demonstrates how dangerous it would be to apply to the West Mediterranean typological systems that may work well within the Danubian and British commercial spheres and how difficult it is to fill with developments in tools and vessels, weapons and tombs any vast interval between the prehistoric Copper Age or

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2. *BP.*, XXXIX, 100; *M.A.*, XXV, 896; *Archivio*, XLVI (1916), 9; *RM.*, XIII (1928), 74.
4. e.g. at Monte Sa’lidda, *M.A.*, XXVII, 14ff.
Beaker period and the proto-historic Bronze Age of the eighth century B.C. Archaeologically a millennium is not very plausible, two quite incredible.

**The Balearic Islands**

In the Balearic Islands the archaeological record begins with the megalithic culture. In Mallorca the normal family vault was a rock-cut tomb. The chamber (Fig. 105) takes the form of a long narrow gallery round which runs a shallow bench divided into several stalls by low ridges of rock. One or more cells may open off the chamber and it may be preceded by an antechamber. The entrance is a low arch or window cut in the rock and may give on to an uncovered forecourt excavated in the hill-side. In Menorca the form of the underground gallery is reproduced above ground in megalithic chambers enclosed in boat-shaped constructions walled with cyclopean masonry and termed navetas. The end at which the chamber opens is flattened and sometimes even concave in plan.

Evidence of early contact between the islands and the Aegean is afforded only by a matt-painted beaked jug of Middle Cycladic type, certainly an import but found without definite context on Iviza. Otherwise the earliest contacts with the outer world are provided by a single sherd of Beaker ware from the rock-cut tomb of Felanitx, and a conical button with V perforation from the tomb of Son Mulet. Both are indicative of the activities of Beaker-folk on Mallorca. On the other hand splay-footed vases, typical of the Horgen culture, from a rock-cut tomb at Sa Val prove connections northwards as do the similarities of the Balearic tomb plans to those of the Rhône and Seine valleys.

The bulk of the sepulchral pottery from the rock-cut tombs, however, consists of plain vases sometimes provided with upstanding lugs but never with true handles. Technically this fabric resembles the Argaric ware of the East Spanish Bronze Age and several forms can be matched in the same context. But simple round-bottomed and carinated vessels

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1 *Arch.*, LXXVI, 121f.; *Ant. J.*, XIII (1933), 33f.; *CAS.*, 113.
3 Castillo, *Campaniforme*, 125; *CIPMO*, pl. II.
4 In museum at Palma unpublished before the rebellion.
preserve the traditions of the oldest West European neolithic ceramics.

Little metal survives among the grave goods. Round-heeled daggers of "Early Bronze Age" type were recovered from Sa Val and several other tombs,¹ but one tomb yielded an identically shaped dagger of iron!

Indeed the cultural history of the Baleares is parallel to that of Sardinia. There is no obvious break between the "Copper Age" culture represented in the rock-cut tombs and that represented in the "talayots". The latter are fortified hamlets, counterparts of the Sardinian nuragic settlements, and like these, the talayots² continued to be inhabited into the Iron Age. As in Sardinia the archaeological material from the Balearic Isles does not show sufficient typological development to justify a very high dating for the local megalithic culture. If, like Hemp,³ we treat the Mallorcan rock-cut tombs as the starting point for the French series of gallery graves, we must here confess that no valid objections to a reversal of the relation could be based on the relics from the island’s tombs or the chronology deduced therefrom.

¹ Ant. J., XIII, 35, 39; CIPMO., pl. III.
² So the axes of the Talayot-culture include both flat and socketed forms, CIPMO., 21.
³ PPS., I (1935), 110.
CHAPTER XV

THE IBERIAN PENINSULA

The Iberian Peninsula offers the most natural route by which Oriental influences transmitted by land across North Africa or coastwise along the southern shores of the Mediterranean, could percolate into Europe. And accordingly they should be more tangible there than on the West Mediterranean islands. On the other hand a relatively large indigenous population survived from the Old Stone Age and might be expected to mould to its own traditions East Mediterranean contributions received through Africa. But that population was itself largely African in culture; the South-east Spanish rock-paintings, the persistence of which into the Copper Age provides one proof of the survival of palaeolithic traditions, have notoriously affinities in Africa rather than in the rest of Europe. Flintwork points in the same way; the so-called Solutrean of Almeria and of Parpallo in Valencia will probably turn out to be really a branch of the North African Atérian, while the "mesolithic" microliths are admittedly derivatives from the African Capsian. The impact of Oriental ideas and economic devices on these residual food-gatherers produced varied and vigorous local cultures.

Unfortunately few of their monuments have been explored in a really scientific manner. The bizarre relics are mostly derived from collective tombs used for many generations or from towns, occupied no less long but never stratified like tells;

1 General Accounts:
   Nils Aberg, La civilisation énéolithique dans la Péninsule ibérique, Uppsala, 1921 (to be used where other references are not given).
   Bosch-Gimpera, Etnologia de la Peninsula ibérica, Barcelona, 1932. (Contains good illustrations, but the Spanish text is extremely speculative.) In all cases reference to the original reports is essential.
2 The Solutréan (including tanged-and-barbed arrow-heads) was found stratified between two "Aurignacian" layers.
3 Leakey, Stone Age Africa.
they cannot be classified on the basis of successions of super-imposed burials or habitations. The culture sequence has to be deduced by typological studies uncontrolled either by stratigraphy or closed finds containing reliably dated imports. The direction of the typological series can therefore be determined only by *a priori* principles. In accordance with the general outlook of this book, a diffusionist interpretation is adopted and many series are presented as illustrating progressive cultural degradation. Adopting a purely evolutionary standpoint Bosch-Gimpera has worked out in detail a more or less consistent picture of cultural development diametrically opposed to that here presented. On several points his conclusions seem, however, to conflict with stratigraphical data from related areas, particularly from South France.

**Neolithic Cultures**

Only in Almeria is a reasonably complete culture sequence accepted by general agreement, and only there do we encounter a “neolithic” phase unsuspected of any taint of later admixture. And Prof. Bosch-Gimpera himself admits that in Almeria food-production and the associated arts were introduced by colonists from overseas. Indeed the coastal plains are where reflections of Oriental advances should first be expected.

The neolithic colonists settled generally on hill-tops like the type site, El Garcel, overlooking the fertile valleys; they arrived at a time when pines still grew on the now treeless hill. In addition to breeding stock and cultivating cereals they may have introduced the culture of olive-trees since olive stones were found, but grape-seeds are said to be derived from wild vines. The grains were reaped with sickles armed with serrated flint teeth, like those from the pre-dynastic Fayum, stored in subterranean silos and ground on saddle-querns. Tied to the soil by their fruit trees, the villagers lived in round or oval huts, partly excavated in the soil but roofed with a superstructure of wattle-and-daub. Huntsmen still used

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1 Summarized in *Revue*. s.v., Pyrenäenhalbinsel.
2 Siret, *RQS*, XXXIV (1893), 48ff, and *Les premiers Âges du métal dans le sud-est de l'Espagne*.
transverse arrow-heads—micro-gravers\(^1\) found at El Garcel may be by-products in the manufacture of these.

Carpenters employed ground stone axes, adzes and gouges. A textile industry is implied by biconical whorls. Pottery was undecorated and vases were never provided with true handles though singly or even doubly perforated lugs were applied. Forms include jars with pointed bases (Fig. 123, 3) like the early Egyptian (Gerzean) and North African,\(^2\) curious bottles, oval in plan, that also recur in North Africa and sack-like leathery vessels related to the neolithic pottery of the Fayum and

Merimde\(^3\) in Egypt. The leathery sack-like forms continued to be popular in all later phases of Almerian culture. In Siret’s second neolithic phase as represented at Tres Cabezos\(^4\) they are provided with upstanding perforated lugs (Fig. 126, 1), while bowls may be carinated, and even double-vases were made as at Merimde in Egypt. Vessels were also woven of esparto grass.

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\(^1\) Micro-gravers occur also in the “néolithique de tradition capsienne” of North Africa; Vaufrey, \textit{BSPF.}, XXXIII (1936), 631.

\(^2\) \textit{BSPF.}, XXXIII, 633; \textit{Rev. Anthr.}, XLI (1931), 158, fig. 1, 4.

\(^3\) Caton-Thompson, \textit{The Desert Fayum}; Childe, \textit{NLMAE.}, 58.

\(^4\) Siret, \textit{Âges du metal}, pl. 3; segmented bone beads, a clay plaque perforated at the four corners and a heap of ore suggest that this site should be assigned rather to the Copper Age.
Disc-beads of shell, made also by African Capsians, and bracelets of Pectunculus\textsuperscript{1} shell and stone, beads of callais and later of steatite were worn as ornaments. The dead were buried probably in natural cave ossuaries or separately in oblong cists of stones. A crude fiddle-shaped figurine of stone, like Fig. 8, 14, from El Garcel is supposed to represent the East Mediterranean "Mother Goddess".

A culture, chronologically as well as morphologically neolithic, is at present distinguishable only in South-east Spain. But all over the peninsula inhabited and sepulchral caves have yielded material that is formally neolithic. On the cave walls and in adjacent shelters their inhabitants have painted in a conventional manner wild animals and episodes of the chase, but also domestic cattle, sheep, goats, swine and equids (? horses), and pastoral scenes and even an agricultural deity holding a sickle; sledges and, in the north, wheeled carts, are also depicted.\textsuperscript{2} The least conventionalized paintings, found only in the south, are evidently descended from the more naturalistic South-east Spanish group of Upper Palæolithic art. Presumably their authors were descendants of the older hunters. Representations of the Almerians' idols and of the owls' faces that recur on Copper Age vases and tomb walls show the source of the domestic stock, the sickles and other "neolithic" traits in the cave culture. These signs, representations of copper daggers and agreements between the parietal art and the ceramic art of Los Millares (Fig. 126) at the same time prove that most settlements date from the Copper Age.

\textsuperscript{1} Siret, \textit{Questions}, 38; \textit{Archivo de Prehistoria Levantina}, I (Valencia, 1928), 25.

On the other hand the richly incised cave pottery differentiates its makers from the Almerians. Bosch-Gimpera accordingly treats the cave pottery as the hall-mark of a distinct cycle of culture, which he claims goes back to the same early neolithic times as El Garcel. But he is forced to admit that “a neolithic facies can only be deduced from the typology of ceramic decoration”. In reality beaker sherds and other relics of the Copper Age are nearly always found in the cave deposits. But whatever its age or ages, the cave pottery discloses one branch of a ceramic art, represented all round the Mediterranean from Morocco to Sardinia. Vases decorated in cardial style, i.e. with horizontal and vertical patterns executed with the edge, or even the back, of a shell, are most abundant in the caves of Valencia and Barcelona, but occur even in Portugal. The designs are almost identical with those on vessels from the cave of Achakar, C. Spartel (Morocco), which were associated with vessels of early Almerian (El Garcel) form and present some analogy to the Stentinello style of Sicily. Semicircles, channelled, as in South France, or milled with a shell edge, as in Sardinia, decorate some sherds from Central and Northern Spain and from Portugal. Plain leathery pots from Casa da Moura in Portugal—a classic site for Copper Age relics—agree precisely in shape with the earliest “Western” neolithic vases.

So the caves disclose the remains of poor and relatively backward communities, relying largely on hunting and stock-breeding. Seeking fresh pastures for their stock and roving in pursuit of game, such groups might travel far and yet maintain spasmodic intercourse one with the other. They might thus come to form a sort of continuum from Morocco to Liguria. And they would have opportunities of meeting with, and borrowing cultural devices from, other communities more settled and progressive, and diffusing such acquisitions. They

1 *Real.*, X, 352.
2 Note especially the diadem of Bronze Age type from the Cueva de los Murciegos (Granada), which Bosch-Gimpera claims as specially early ; *Cartailhac*, fig. 76 ; *Anuari*, 1915-20, 540.
4 Colomines Roca, *Prehistoria de Montserrat*, Barcelona, 1925.
5 At Santarem, Estramadura, in Belem Museum, unpublished.
6 *Rev. Anthr.*, XLI, 1581.
7 Casa da Moura and Furninha ; cf. Castillo, pl. I.
THE IBERIAN PENINSULA

were presumably the principal agents in transmitting to the megalith-builders of the Copper Age artistic traditions inherited from palaeolithic times. But beyond this the material from Iberia provides no reliable data for determining either the origin of the cave populations nor yet the chronological limits of their neolithic culture.

THE COPPER AGE

Almeria is rich in copper, silver, lead and other minerals. These natural resources permitted the rise of a new economy in which industry and trade could absorb surplus rural population as in the East Mediterranean. The type station, Los Millares, a few miles up the Andorax from Almeria City, is indeed a regular township, covering 5 hectares (12.5 acres) and protected by wall and fosse. Outside the wall lay a cemetery of a hundred or so collective tombs, some containing up to 100 corpses. Settlements or cemeteries illustrating the same economy are found at Almizaraque, about a mile up from the mouth of the Almanzora, at Belmonte, Purchena and Tabernas and Velez Blanco, though the last four sites are to some extent provincial.

Generally metal-working has been added to the primary occupations of farming, hunting and fishing. Slags attest the extraction of copper and lead. Siret believes that thick clay arcs, perforated at both ends and up to 22 cm. long between the holes, formed parts of a reverberatory furnace for cupellation. These arcs, which are in any case characteristic of the period, are, however, on Anatolian analogies more probably to be interpreted as loom-weights. The copper-smith produced narrow flat adzes, notched daggers with a midrib on one face only (like Fig. 128) and others of West European type (Belmonte, Los Millares), cutters as in the Cyclades, quadrangular awls and even saws.

Trade brought to Los Millares hippopotamus ivory and ostrich egg shells from Africa, turquoise, callais, amber and jet.

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1 *RQS.*, 1893.
3 Three sites never fully published; material seen in Siret's collection at Cuevas (subsequently removed to Madrid).
from undetermined sources. But stone was still normally used instead of metal for axe-heads, and flint was now superbly worked by pressure flaking for arrow-heads, dagger or halberd blades (Fig. 125, 4), as well as knives and sickle-teeth. Apart from transverse arrow-heads which were still used, 68 per cent. of the specimens from Los Millares are hollow-based, 17 per cent. tanged-and-barbed, 7 per cent. leaf-shaped (Fig. 125, 5). Thick plaques of clay, perforated at the four corners, may have been used as wrist-guards or loom-weights. A stone plaque perforated at each end from Belmonte was used as a whet-stone.

1 From Tres Cabezon (neolithic !), Velez Blanco, Mas de Menente (Alicante, Bronze Age !).
The pottery on the whole carries on the native Almerian tradition, but some vases are decorated with incised patterns that include oculi motives (like Fig. 126, 2) and conventionalized stags (Fig. 126, 3), with small knobs or even with paint. New forms include squat birds' nest pyxides, sometimes with plaster necks, cylindrical tumblers and little globular vases with short necks as well as a few multiple vessels. Beakers were found, apparently as an intrusive element, in only four tombs at Los Millares and from one tomb each at Belmonte, Purchena and Tabernas. Vases were also made out of plaster to imitate ostrich eggs, and unguent flasks were carved out of ivory or white limestone.

As toilet articles and ornaments, bone or ivory combs were worn at Los Millares, the clothing fastened with shanked stone buttons, and simple disc or barrel beads of stone, shell, talc, and imported materials were hung on strings round the neck. At Almizaraque, conical and prismatic buttons with V perforation and a grooved bone toggle of a type found at Troy and Alijar were used as dress-fasteners, and in the tholos at Tabernas and probably also in that at Llano de Media Legua on the Almanzora, bone pins with grooved cylindrical heads (like Fig. 128) were found.

The Almerians were, however, deeply preoccupied with immaterial ends. The collective tombs were constructed with great care; sixty-five of those at Los Millares, as at Almizaraque, Belmonte, Tabernas, are corbelled tholoi (Fig. 104), often with cells opening off the chamber or passage, and with porthole slabs for entries, covered with circular cairns supported by a

1 Leisner, in Marburger Studien, I, 14ff.
Fig. 127. Ritual objects: 1, Almeria; 2 and 4, Portugal; 3, Granada (i)
built retaining wall on to which straight or curved walls may be built to frame a forecourt. Wooden pillars are said to have supported the roof. A few tombs at Los Millares are rectangular or trapezoid megalithic cists from 2 to 5 m. long, preceded by a short entrance passage. But at Velez Blanco the dead were buried individually in polygonal cists under a barrow. Ritual objects include owl-eyed female figurines made by painting bovine phalanges (Fig. 127, 1), or stone and ivory cylinders, plain plaques of schist (Los Millares), and flat stone figures without faces like Fig. 8, 13, and, at Almizaraque, bone models of sandals. Axe-amulets were worn as charms at Los Millares and elsewhere.

The urbanization of Almerian economy seen at Los Millares and Almizaraque is presumably a reflection, however indirect, of Oriental cities' demands for metal. But the townships, thus created, themselves constituted local secondary centres of demand and radiated their influence right across the Peninsula. Westward, parallel or colonial settlements sprang up all across Andalusia to the coasts of Portugal along the natural route, followed by the modern railways from Almeria to Algarve, and principally at focal-points (now junctions) thereon or in metalliferous districts.

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On the plateau of Granada are several large cemeteries of collective tombs round Guadix, Gor and Gorafe, composed partly of tholoi, more often of cists of the Almerian form and frequently entered through porthole slabs. The tombs contain typical Almerian products—oculi vases (Gorafe 36), flat stone idols (Gorafe 46, etc.), phalange idols (Gorafe 8, Gor 113, 116), ribbed cylinder-headed pins (Fonelas 1, Gorafe 22)—as well as occasional beakers (Eriales 11, Fonelas 16). Yet other tombs of the same form in these cemeteries contain pottery and bronzes characteristic of the succeeding Argaric Bronze Age. Farther west at Antequera and in the Province of Sevilla the route is marked mainly by the funerary architecture of superbly built tholos tombs. But at Campo Reale near Carmona, Bonsor

1 Mostly unpublished material seen in Siret's collection, but cf. Murburger Studien, 149.
found "silos" containing human bones, polished stone axes, plain pottery and a little painted ware akin to the Almerian and the characteristic clay arcs.

Then, in Algarve, a metalliferous region where the rocks are suited to dry-stone masonry, a cemetery of seven tholoi at Alcalá\(^1\) marks the site of a smaller Los Millares. The tombs contained flat adzes, notched daggers with midribs on one or both faces, awls and saws of copper (Fig. 128), superbly worked hollow-based arrow-heads of flint (Fig. 125, 1), birds' nest and other undecorated vases of Almerian type, a marble paint-pot, a clay arc, and beads of amber, callais and jet, but not Beaker ware nor West European daggers. Corbelled tombs extend along the Portuguese coasts as far north as Torres Vedras (Peña and Barro with semicircular forecourt\(^2\)). Tombs at Monge and San Martiño, Cintra,\(^3\) excavated in the rock but roofed by corbelling, illustrate the transition from the built tholos to the rock-cut tomb.

\(^1\) Estacio de Veiga, *Antiguidades monumentaes do Algarve*, Lisbon, 1886-91.
\(^2\) Peña (OAP., XIV, 354), and Barro, with semi-circular forecourt. V. Correia, *CIPP. Mem. 27* (1931), 72, relics at Belem.
\(^3\) Cartailhac, op. cit.; OAP., II, 211.
Tombs of the latter class, agreeing in plan with the tholoi, like them sometimes preceded by an ante-chamber or a curved forecourt and with entrances carved in the rock that give the same effect as the porthole slabs, are in fact the commonest form of sepulchre on the Portuguese coasts. At Alapraia on the Tagus estuary and Palmella farther south, such tombs form regular cemeteries, adjacent to fortified hill-top townships, just as at Los Millares. The cemeteries are situated, like those in Almeria, Andalusia and Algarve, at focal points on terrestrial and maritime routes.

In the Palmella culture the essential features of the Millares economy are conserved though less fully than in Almeria or even Algarve. Metal tools and weapons are rare in the rock-cut tombs and practically confined to the odd “points” (? arrow-heads) shown in Fig. 125, 2. The place of copper in industry is taken by stone axes and adzes and superbly worked flints including halberd blades like Fig. 125, 4, that may be polished on the faces as if in imitation of metal. Arrow-heads include still the transverse type and its derivatives, but hollow-based, tanged and leaf-shaped forms, none comparable in delicacy to those from Alcalá, occur in the proportions of 72, 19 and 9 respectively at Palmella. Trade brought gold, callais, amber and ivory, while the connections with Almeria are explicitly attested by cylinder-head pins (Alapraia, Palmella, the Peña tholos and the natural caves of Casa da Moura, Cascaes and Lapa Furada), and by clay plaques perforated at the four corners from contemporary settlements. Some half-spool shaped beads from Palmella, however, seem related to the Sardinian-South French type of Fig. 122, a.

In the Palmella pottery Beaker ware, both of the early incised type of Fig. 107, 1-2, and of the later “classical” variety decorated with rouletted zones, is the most prominent element, but plain round-bottomed and carinated vessels may be related to the Almerian and Andalusian series.

Among the ritual objects too, besides familiar Millares types phalange (S. Martinho) and cylinder idols and schist sandals (Alapraia), the Palmella tombs contain a variety of peculiar Portuguese forms—plaque idols richly decorated with incised
patterns (Fig. 127, 2) and similarly decorated croziers of schist and marble copies of a shafted hoe-blade (Fig. 127, 4).

In addition to the semi-urbanized population living in fortified townships and burying their dead in rock-cut tombs or tholoi, more rustic communities living off the main routes, sometimes on fortified hill tops, continued to bury their dead in natural cave ossuaries or erected megalithic passage graves many of which reproduce faithfully in orthostatic masonry the plans of the rock-cut tombs and tholoi (two are even entered through porthole slabs). The megalithic tombs may form small cemeteries of four or five and extend over the rough highlands of Portugal into the adjacent Spanish provinces of Salamanca, Badajoz and Carceres. Their furniture is generally

![Fig. 129. Pottery from Portuguese passage graves. After Leeds (4).](image)

1 Correia, CIPP., Mem. 27, 1-24 (Castillo de Pavia).
2 Marburger Studien, I, 150.
3 JSEA., Mem. 113 (Madrid, 1930).
poor, stone axes and plain, round-bottomed and carinated pots (Fig. 129) being conspicuous, but in all groups sherds of Beaker ware, rare West European daggers, cylinder-head pins, beads of callais, schist idols and croziers suffice to prove a partial synchronism with the richer cemeteries of the Palmella culture at more focal points. So the orthostats may be painted or engraved with the owl face of the Millares goddess, or even representations of a copper dagger. The country folk were imitating in barbaric architecture the more sophisticated sepulchres of the townsmen and were obtaining occasionally products of urbanized industry and trade.

Similarly on the east coasts from Almeria northward to Catalonia rural communities continued to bury the dead in natural cave ossuaries. While they relied mainly on stone for axes, they obtained from the Millares centres objects of copper and beads of callais, even learned to work metals and copied locally such Almerian types as cylinder-head pins. Flint daggers and hollow-based arrow-heads of Portuguese form are not, however, found north of Almeria. The local pottery preserves the rounded Almerian shapes but is generally mixed up with decorated “Cave wares” and beakers. A round-headed minority is represented in most of these caves.

The Beaker culture itself, if not the result of a fresh African intrusion, may be due to such an impact of the Millares culture on some group of earlier cave folk, perhaps in the Guadalquivir valley. Troglodyte pastoralists would have learned—but degraded—the metallurgical technique of the Millares smiths and slowly transformed their journeys in quest of pastures into trading expeditions. The purest Beaker settlement known was found by Bonsor near Carmona at Les Lapidés of Acebuchal. The vases are decorated mainly in the heavy incised style, encountered at Palmella in Portugal (together with the rouletted variety) and at many sites in Central Spain notably in graves (of uncertain character) at Ciempozuelos.

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1 e.g. CIPP., Mem. 27, 75; Forde, Am. Anthr., XXXII (1930), 35-45.
2 Cylinder-head pins come from Anta grande da Ordem, Alemtejo (Aberg, 97) and Monte Abrao, and clay arcs from the Castillo de Pavia.
3 Breuil, Les peintures rupestres schématiques, IV, 148.
4 Blanquizes de Labor, Murcia; Cami Real and Barranc de Castellet, Alicante (Arch. Preh. Levant., I, 31-72); Monte de Barsella, Alicante, JSEA., Mems. 112 (1930).
6 Bol.R.Acad.Hist., XXXV (Madrid, 1894), 436; LXXI, 22.
near Madrid, in one of which a West European dagger was also found. In the cave of Somaen, Soria, beakers decorated in the Ciempozuelos style are said to occur in a stratum lower than that containing generalized rouletted beakers. On the other hand the Beaker pottery from Les Lapides, Acebuchal, comprises abnormal forms including a goblet like a decorated version of Fig. 130, 4-5, a shape distinctive in Almeria of the Bronze Age culture of El Argar. The relics include whet-stones perforated at both ends that are also normally Argaric rather than Copper Age, though a specimen occurred in the tholos at Belmonte that also contained a beaker.

The Beaker culture would then have expanded from its primary focus to appear with typical pottery and daggers in some tholoi or megalithic cists of the Millares culture in Almeria and Granada, in undifferentiated passage graves in Sevilla (e.g. Cañada de Carascal a gallery grave 9 m. long, containing a West European dagger, a gold ring, hollow-based arrow-heads and beakers) in the rock-cut tombs, natural caves and megalithic passage graves of Portugal and Western Spain. The moment of this expansion within the long Copper Age is not easily defined. Beakers apparently occur in some Portuguese tholoi (Barros), but are conspicuously absent from those at Alcalá and apparently from the tholoi in Sevilla too. On the other hand sherds of Beaker ware were collected from an Argaric Bronze Age site at Orihuela (Alicante), while from the Iron Age "Castro de Sendem" in Portugal comes a vase which in form and decorative style is a beaker, but technically agrees with the rest of the Iron Age pottery. Hence the expansion of the Beaker complex may occur relatively late in the Copper Age. Even so, its bearers must have played an important rôle in the diffusion of metallurgical knowledge in the Peninsula as in the rest of Western Europe.

The Millares Copper Age civilization should result, like its counterpart in Sicily, from the impact of East Mediterranean influences on the Peninsula. Some Millares pot forms have general parallels in the Early Minoan ossuaries of Crete, the

2 Seen in Bonsor's collection, unpublished.
3 *Bol. R. Acad. Hist.*, LIV (Madrid), 357; Castillo, *Vaso campaniforme*, 75.
5 Xanthudides, *Vaulted Tombs*, pls. XI, 1850 (stone birds' nest vases), XXXI, 687 (clay tumbler), XXX, 4982 (stud-ornament, M.M.1).
stone figurines are obviously like Cycladic and Anatolian ones; the owl-face engraved on plaques and vases or painted on phalanges and caves belong to the same “goddess” whom the Sumerians depicted on the handles of funerary jars and the Trojans on a stele and on face-urns. The plaque-ids like Fig. 127, 2, are very like Egyptian block figures and their Minoan derivatives (p. 18). The clay arcs have exact parallels in Anatolia as has the toggle1 from Almizaraque; a segmented stone bead from Palmella is quite like Fig. 12, 2. The idea of the artificial collective tomb is East Mediterranean and was translated into corbelled vaults in Crete and the Cyclades in the third millennium. Imports of hippopotamus ivory and ostrich eggs prove maritime contact at least with the African coasts. Admittedly no actual import of Oriental manufacture has yet been identified in a Millares tomb to date it precisely. Striking similarities between the finer Iberian tholoi and those of Mycenae and Orchomenos have indeed often been emphasized.2 To infer therefrom a date after 1500 B.C. for Los Millares, as Siret has done, involves apparent contradictions when attempts are made to link the West European sequence with the Central European even on the shortest Danubian chronology.

The implantation of the Oriental ideas reflected at Los Millares manifestly involves colonization though the colonists cannot be traced to any known East Mediterranean centre, but came presumably from some secondary metropolis in North Africa as did the Carthaginians in the first millennium. Their objectives would have been metal and probably also magic substances. They would have secured their wealth by exporting to the natives some material trinkets and religious ideas. And the latter provided the more effectual incentive to labour and left the deeper impression on native culture. Thus inspired and guided, the Almerians would have helped to continue the process till they secured access to the metal resources of Portugal and a footing on the Atlantic coasts from which to prosecute further the search for precious stones and ores. But the secondary cultures thus generated diverge ever farther from the East Mediterranean pattern till among the

1 Schliemann, Ilion, fig. 536; van der Osten, “The Alishar Hüyük, 1928-9”, O.I.C. Pubs., XIX, fig. 85; for arcs see p. 38, n. 1.
rude hillsmen who built the megalithic tombs the material and technical elements were almost swamped by the extravagant elaboration of the equally Oriental funerary ritual.

That seems a consistent account, but it is diametrically opposed to the conclusions of Bosch-Gimpera. Elaborating ideas previously advanced by Åberg, Leeds¹ and Obermaier,² the Catalan professor contends that the megalithic civilization evolved without external stimulus in Northern Portugal. The poorest and most ruinous megalithic tombs are termed “dolmens” and presented as illustrating the initial phase of this development. From Northern Portugal the megalith-builders would have expanded, when the dolmen had been enlarged to the passage grave, to the Tagus basin and, later still, replacing the megalithic passage grave by the built tholos, to Algarve and across Andalusia to Almeria. Alcalá represents the ultimate phase of this evolution, reached only after beakers had gone out of fashion, and Los Millares would reflect an eastward expansion of the Alcalá culture in the wake of a previous Beaker inroad.³ On this account not only architectural forms but metal types and economy can be arranged in plausible evolutionary series.⁴ But besides lacking any stratigraphical basis and conflicting with diffusionist principles, it involves contradictions when an attempt is made to fill up the rest of the prehistoric period with connected material.

The Bronze Age

In Eastern Spain the Copper Age culture of Los Millares develops into, or is succeeded by, a no less well-defined semi-urban culture of Bronze Age type, named after the type station at El Argar.⁵ Its authors continued to live in hill-top townships, or citadels, more solidly fortified than before. There might even be galleries in the walls. The houses are agglomerations of rectangular rooms with stone foundations, but the total areas are small—the acropolis of El Officio covered 2½ acres. The dead were no longer buried in collective tombs but individually in cists or jars among the houses; the 780 graves

¹ Arch., LXX (1920), 201ff.
² CIPP., Mem. 26.
³ Préhistoire, II (1933), 200, 237, n. 3.
⁴ The thesis is devastatingly criticized by Forde, Am. Anthr., XXXII, 33ff.
⁵ Siret, Les premiers âges is the principal source.
actually identified at El Argar give some indication as to how
large the population must have become or how long the Argaric
Bronze Age lasted. Metal was mined and worked locally on a
larger scale than in the Copper Age and was effectively dis­
tributed throughout the province. Long distance trade on the
contrary languished; it brought only a few beads of callais
and segmented beads of Egyptian fayence like those from
Perjámos graves. Tin was scarce and the smith had generally
to be content with copper or poor bronze. But he could turn
out flat axes with splayed blades or even with hammered
flanges, awls, round-keeled daggers that might be elongated
into swords up to 70 cm. long (Fig. 130) and specialized halberds
which seem to be local translations of Copper Age flint forms.¹
Silver was sometimes used for rivets. Whet-stones perforated
at both ends were in regular use.

Round-bottomed and carinated pots might seem to carry
on some Copper Age traditions (Fig. 130), but technically the
fabric, red, black or mottled, is surprisingly like Anatolian
Bronze Age pottery and its Danubian IV analogues. The
carinated shapes, too, but for the absence of handles, would
fit well into the Aunjetitz repertory.

Ornaments included diadems of silver (Fig. 130, 1), beads,
rings and simple bracelets of gold, silver or copper, perforated
boars’ tusks carrying tiny rings of copper wire, shells, fish­
vertebrae and various beads (none of amber). Apart from an
“altar” surmounted by “horns of consecration” at Campos,
ritual objects are no longer conspicuous. In the mixed
population round heads were mingled with a majority of
Mediterraneans.

This culture might be regarded as a continuation of the
Millares civilization, cut off from the avenues to wealth offered
by foreign trade and consequently producing for a restricted
local market and seeking to replace by war the gains previously
obtained by peaceful trade and kept in circulation by works of
superstition. That it was not altogether cut off from Eastern
influence may, however, be inferred from the Anatolian
similarities in the pottery, the Anatolian practice of jar burial,²
the Ἑgean horns of consecration, and more securely from

¹ Arch., LXXXVI (1936), 288, 298.
² The Argaric citadels are absurdly like Central Anatolian townships
such as Ahlatlibel.
imported fayence beads from Fuente Alamo. The latter show that the Argaric Bronze Age culture was flourishing about 1400 B.C. How much earlier it began is uncertain, how much longer it persisted still more so. There are no connected remains outside the Argaric citadels and graves till the Iron
Age after 1000 B.C., so that Almeria is in much the same plight as Sardinia. Outside that province the position is still worse. Typical Argaric cemeteries, well provided with metal tools, as far north as Orihuela in Alicante\(^2\) illustrate the effective extension of the Almerian economic system. But in the province of Alicante itself in the Alcoy district on the hill-top citadels of Mola alta de Serelles\(^3\) and Mas de Menente\(^3\) axes of Argaric type were cast, or Argaric riveted daggers used, but the round-bottomed bowls and globular jars preserve traditions of the Copper Age in contrast to the sharper profiles of Argaric pottery, while polished stone axes were still regularly employed.

Westward in Granada some megalithic tombs in the cemeteries of Gor, Gorafe and Los Eriales contain Argaric bronzes and ornaments and pots, but otherwise there is nothing till the Iron Age. In Sevilla and Huelva there are no "Bronze Age" remains unless the more monstrous "undifferentiated passage graves" be dragged in to fill the gap. In Portugal cemeteries of cist graves containing (?Argaric) carinated pottery are rare and concentrated chiefly in Algarve—just where Bosch-Gimpera wants to insert a special Alcalá phase to fill the beginning of the Bronze Age. Sometimes the capstones of the short cists are carved with representations of developed metal axes.\(^4\) Apart from cist graves, only the megalithic passage graves and natural cave sepulchres are available to fill the gap in the funerary record between the Copper and Iron Ages; carinated and even handled pots from such might be well "Bronze Age" (Fig. 129). Several fortified sites contain relics only of these two periods. Even stray finds of halberds and other Early Bronze Age types are rare. On the other hand bronzes of highly specialized type, especially two-eared palstaves,\(^5\) show that there arose in North Portugal and Galicia during the later Bronze Age an important centre of metallurgy the products of which were exported to Britain, France and Sardinia, while gold lunulæ from Galicia\(^6\) may be copies of Irish types.

\(^1\) Bol. R. Acad. Hist., LIV (Madrid), 357, Castillo, Vaso campaniforme, 57.
\(^2\) JSEA., Mem. 94 (1927).
\(^3\) Arch. Preh. Levantina, I, 101-12.
\(^4\) OAP., XI (1906), 180.
\(^5\) Angel del Castillo Lopez, gives a map of their distribution, Public. de Facultad de Filosofía y Letras, Universidad de Santiago, III, 1927.
\(^6\) Préhistoire, II, 237.
The "Oriental" metal-workers and traders who had settled in the Peninsula at the beginning of the Copper Age had promoted both an economic and a religious revolution. They seem in the sequel to have been cut off from their bases and markets by the jealousy of intermediate islanders and by the diversion of traffic to the Danube-Brenner routes during Danubian period IV. In Almeria the effects of the Oriental contacts remained for a while a driving force in material development; on the western coasts only the spiritual impulse had impetus enough to be propagated longer, and culture relapsed into a barbarism whose surviving achievements are unnecessarily big tombs rather than populous townships. And even on this hypothesis Bosch-Gimpera's attempt to inflate the age of the Portuguese megalithic culture at the expense of the Almerian cannot be made plausible. The latter region does offer us a substantial array of imposing citadels and cemeteries subsequent to the Copper Age. Nothing comparable is available in Portugal unless we follow the suggestion made here and transpose from before to after the Copper Age Bosch-Gimpera's "dolmens and early passage graves".
CHAPTER XVI

WESTERN CULTURE IN THE ALPINE ZONE

The diversified region north of the Pyrenees and west of the Rhine and the high Alps, which had been steppe and parkland during the Ice Age, in the subsequent forest period still supported Azilian descendants of the Magdalenian reindeer-hunters and salmon-fishers, of Tardenoisian immigrants from Africa and of Forest folk who spread southward. These autochthonous food-gatherers were converted gradually to a food-producing economy by the spread of an exotic neolithic culture, and, multiplying in response to the new opportunities of livelihood, accelerated its expansion. The Western neolithic culture, that originally caused the transformation, is itself largely an inference from later survivals. While its diffusion must have been due to the immigration of farmers with their cereals and herds, these seem everywhere to have been ready to borrow equipment from the autochthonous population. And in time most fell under the sway of the megalithic idea and subsequently of the Beaker folk. Only in the lowest levels of some caves in Aude (p. 285), on the upland fringe of the province to the east and beyond the Channel in Southern England (p. 305) can the original Western culture be grasped in any sort of purity.

As exemplified by its survivals in these sheltered regions Western economy was originally based primarily on the breeding of horned cattle together with pigs, sheep and goats, supplemented by the cultivation of cereals (including emmer) and by hunting. The husbandman may have used a sort of plough, the huntsman tipped arrows with double-ended bone points, or flint heads worked on both faces. The communities, if small, were so well organized that the settlements normally take the form of fortified hill-top “camps” or lake-dwellings such as could only be constructed by societies disciplined for co-operation. And the immigrants may have included families

experienced in mining. Archaeologically the Western complex is most easily recognized by its pottery. The dark-faced, undecorated, round-bottomed baggy or carinated vases are evidently imitations of vessels made in tensile leather, such as are appropriate to cattlemen. They are regularly associated with clay ladles. Moreover, the woodworker used axes, whether of polished stone or of flint, in preference to adzes.

The pottery and other traits indicate the origin of the West European neolithic culture in a North African cycle best represented at Merimde on the Western edge of the Nile Delta. Intermediate stages in the expansion of this complex cannot yet be identified, but the most likely route is by land across North Africa along the Iberian Peninsula and round the Pyrenees. Characteristically Western leathery pots have in fact been found in Portuguese and North Spanish caves, but not separated stratigraphically from decorated Copper Age fabrics. Indeed, much of the Almerian and Portuguese pottery of the latter period embodies, albeit in more sophisticated form, the same Western leathery tradition.

It is convenient to describe first the manifestations of Western culture in areas unaffected by the megalithic and Beaker complexes. The waters of the Swiss lakes have preserved not only a unique record of neolithic equipment, but the fullest picture of a pure Western culture. Having typified the New Stone Age to archaeologists since their discovery in 1853, the Swiss lake-dwellings now provide the clearest record of cultural development in Western Europe, thanks mainly to the stratigraphical explorations conducted by Vouga on L. Neuchâtel since 1919. At several sites he has recognized the same succession of four occupations with a sterile layer between the first two.

**The Cortaillod Culture of the West Alpine Lake-Dwellings**

The oldest lake-dwellings in Western Switzerland were erected by farmers who arrived with a complete neolithic equipment (constituting the Cortaillod culture). They

2. Casa da Moura (lugged pots, etc., noted in Lisbon).
cultivated wheat (emmer and probably also bread wheat—
*T. compactum*) and barley, and also peas, beans and lentils.¹
Plums and apples were at least gathered; apples were eventu-
ally cultivated by the Lake-dwellers, though not certainly in
the Cortaillod phase, and a sort of cider brewed from them.
Horned cattle (*Bos brachyceros*) were bred together with minor
herds of pigs and small flocks of sheep and goats.² Perhaps
the ox was already harnessed to the plough. Vouga considers
some stone implements to have been used as ploughshares.
Game contributed much less to the community's diet than
domestic stock. But the huntsman used arrows tipped with
double-ended bone points (Fig. 131),
or more rarely with transverse or
triangular flint heads. Fish were
captured in traps, in nets weighted
with grooved stones and suspended
from birch-bark floats, and were
perhaps also speared with antler
"harpoons".

The farmers lived in rectangular
houses³ strung out in small clusters
along the shore and raised on piles
above the waters. So the cultivable
land was left unencumbered with
dwellings, and the wood felled in
clearing fields was usefully disposed
of. The wood-work was done with
stone axes and adzes made from suitably shaped pebbles or
sawn-out blocks of fine grained rock. They were mounted in
tapering antler sleeves (Fig. 135, A) which were fitted into
straight wooden shafts. Antler axes and picks with square-cut
shaft hole were also employed.

A local flax was cultivated for its seeds and for its fibres
which were woven into linen, but the spinner did without
whorls. Skins were doubtless largely worn; bundles of bone

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¹ Plants from Neuchâtel not yet identified; cf. instead, Beck, Rytz,
Steklen and Tschumi, "Der neol. Pfahlbau Thun," *Mitt. naturforschenden
Gesellschaft*, Bern, 1930.

² The proportions are: oxen 39 per cent., swine 21 per cent., sheep and
goats each 18.5 per cent. of total animals; game only 30 per cent. of total
animal bones; Vouga, *op. cit.*

³ Not certainly rectangular; Vogt, *Germania*, XVIII, 93.
spines, like the antler combs of Michelsberg and Windmill Hill, were probably used in leather dressing. The pots are of simple Western leather-forms without handles save for lugs which may be perforated with several vertical holes (Fig. 132). Baskets were plaited with great skill.

The flint instruments were all made from an exotic flint strange to the Neuchâtel basin, but its provenance is unknown. Otherwise the Cortaillod sites have yielded no unambiguous evidence for trade or specialization in industry.

Combs for the hair were made of wood. As charms and ornaments were worn beads of steatite and wood and bored teeth, cranial amulets as in South France, grooved tine-tips, perforated bones, models of wooden clubs, and boar's tusks perforated at both ends. No burials have been discovered, but some human bones from the settlements had been broken as if to extract the marrow. So the Cortaillod people may have been cannibals. Two measurable skulls have been recovered; both were dolichocranial. The oldest neolithic civilization of the Alpine zone is no more associated with the imaginary brachycephalic invaders than is the Danubian.

The derivation of the Cortaillod culture of Switzerland from the south-west is supported by analogous ceramic material from L. Chalan and Camp Montmoret¹ in the Jura, from Camp de Chassey in Central France and from the cave of Bize near Narbonne. But traits, missing in its remote African ancestral complex may have been borrowed from mesolithic groups—harpoons and the use of antler sleeves from Azilians, perforated antler axes perhaps from Forest folk. In Switzerland itself the Cortaillod culture can be traced to the Rhine and the Lakes of Zurich and Thun.²

¹ Antiquity, VIII (1934), 27.
² Germania, XVIII (1934), 91.
THE ALPINE ZONE

THE MICHELSBERG CULTURE

North of the Cortaillod province in pile-villages on the Lake of Constance, in moor-villages north of the Rhine, in hill-top camps in South-west Germany, and at the flint-mines of Spiennes in Belgium, the place of Cortaillod is taken by a different but partly contemporary facies of Western culture—named after the hill-top camp at Michelsberg¹ in Baden.

The moor-villages may comprise up to 24 houses grouped along regular corduroyed streets.² In land settlements as many as 75 houses have been recorded, but, since a hut might be pulled down at its owner’s death, they cannot all be regarded as contemporary. The houses themselves were again rectangular, varying in size from 6 by 3·6 m. to 5·3 by 3·2 m. or less, but normally divided into two rooms with a hearth in the inner and an oven in the outer (like Fig. 134). The land stations in Germany were generally defended by flat-bottomed ditches and palisades; the ditches of many camps are interrupted by frequent causeways as in England.

Economically Michelsberg and Cortaillod stand on a similar footing, but hunting was much more prominent in the Michelsberg food-quest and the bones of horses, presumably wild, occur in their kitchen refuse. Moreover, Spiennes³ was a community of specialized flint-miners skilled at sinking shafts and digging out subterranean galleries. Indeed the Michelsberg settlers there constituted a specialized industrial community, supplementing their livelihood by exporting the products of their mines and workshops—and Spiennes was no isolated phenomenon within the Western complex. It implies also the development of hunting expeditions and transhumance into something like regular commerce. Hoards of Western axes in Southern Germany may belong to Michelsberg traders. As a result of such trade some communities, like that at Weiher near Thayngen, eventually obtained copper axes and amber beads.

But on the whole Michelsberg equipment is typically neolithic and agrees generally with that of Cortaillod save for

¹ Childe, Danube, 178-84; Buttler, Donauländische, 79-91.
² Buttler, Donauländische, 74-8; R. R. Schmidt, Jungsteinzeitliche Siedlungen in Federoxmoor, 1930ff.
³ Loe, La Belgique ancienne, I, 190ff; and Antiquity VII, (1933), 166-183.
a preference for leaf-shaped arrow-heads in Belgian stations\(^1\) and occasional perforated axes of Danubian type. The pots are still leathery, but some are flat-bottomed and jugs may have genuine handles. The distinctive shapes are, however, the so-called tulip beakers (Fig. 133, 12 and 14), and flat circular plates supposedly used for baking cakes. For leather dressing

\(^1\) *BSA. Brux.*, XXXIX (2), 150ff; *Arch. J.*, LXXXVIII, 43.
brush-like antler combs were employed at Spiennes as in England.\(^1\)
The dead were generally buried contracted or extended in the settlements, sometimes in the ruins of their huts, but small cemeteries containing up to seven graves have been recorded.\(^2\)
The skulls are dolicho- to mesaticranial, again not brachycranial!

The Michelsberg culture admittedly flourished for a long time. Weiher, for instance, was overwhelmed by a flood and then rebuilt. The earliest village was occupied in the Atlantic phase before the beech was prominent in the glens.\(^3\) Vogt\(^4\) infers a partial synchronism between Cortaillod and Michelsberg, and in fact Cortaillod sherds have been found at Michelsberg sites on the Lake of Constance. The population of the earlier Michelsberg villages overflowed, spreading from the Alps and Rhineland across South-west Germany into Upper Austria and as far east as the Elbe in Saxo-Thuringia and Bohemia. In this expansion the Westerners overflowed into the territory once occupied by the Danubians, who for their part had been spreading into the Western province. Owing to the contrast between the more pastoral Western economy and the more agricultural Danubian, contacts and clashes may have been delayed, but eventually they give clues as to the chronological relations between the Western and Danubian sequences.

Contacts between late Michelsberg and Battle-axe cultures have to be admitted on the Rhineland as evidence for the former’s persistence till late in Danubian period III.\(^5\) At the Goldberg in Württemburg, Michelsberg folk succeeded the Rössen-Danubian (p. 106) settlers who had originally fortified the hill. But sherds of Rössen pottery from Michelsberg itself and from Michelsberg lake-dwellings on the Lake of Constance and in Switzerland prove a substantial overlap in time between the two cultures\(^6\) so that Michelsberg must go back to period II. On the Federsee south of the Danube in Württemburg the oldest moor-village of Aichbühl\(^7\) reveals an equipment apparently derived from Danubian II—two-roomed houses with ovens

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\(^1\) Loe, La Belgique ancienne, 190 ff.
\(^2\) Buttler, Donauländische, 79-80.
\(^3\) BRGK., XVIII (1928), 38.
\(^4\) Germania, XVIII, 92.
\(^5\) Childe, Danube, 176.
\(^6\) Buttler, Donauländische, 62-3; Nbl.f.d.V., XII (1936), 98.
\(^7\) Childe, Danube, 166-8; Buttler, Donauländische, 42.
in the outer room (Fig. 134), shoe-last celts and perforated hammer axes, pedestalled bowls. So much of this equipment reappears at Weiher and "classical" Michelsberg sites in the Rhineland (not, however, in Belgium) that period II would seem an upper limit for the Michelsberg culture proper. The general economy of Aichbühl, however, and some details in the industry suggest that its occupants already comprised a Western contingent. Moreover, though Aichbühl I was overwhelmed by an inundation, the flood is more probably to be correlated with that after Middle than with that after Early Neolithic on L. Neuchâtel. The Cortaillod culture may accordingly go back to period I.

The Middle Neolithic Horgen Culture

On L. Neuchâtel after a flood which overwhelmed the Early Neolithic stations, many sites were reoccupied and new ones founded by people of a quite different culture—

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Horgen culture. It is recognizable too above a Michelsberg settlement at Greifensee, on many lakes and probably also in land stations. Economically the Middle Neolithic witnesses a cultural regression. On L. Neuchâtel agricultural equipment is poorer (no more “plough-shares”); hunting increases at the expense of stock-breeding, the percentage of bones of game as against those of domestic beasts rising from 30 to 45 per cent.; local flint replaces the imported material. But triangular perforated axes now reach the Rhône valley, copper double-axes were copied in stone and unbored western celts were mounted as axes in perforated or heeled antler sleeves

![Fig. 135. Types of antler sleeves for axes: A-B, Lower; C, first in Middle; D, first in Upper Neolithic; L. Neuchâtel (§).](image)

and as adzes in socketed ones (Fig. 135, B). Continued inter-communal specialization is illustrated by an axe-factory at Mumpf, Aargau. The pottery is coarse, badly baked and ornamented only with raised ribs (what used to be regarded as early because crude), but the vases have flat and even splayed bases (cf. Fig. 142). Spindle-whorls of stone, however, came into use.

Even architecture declines; while some Horgen houses from the Lake of Constance are long rectangles as at Aichbühl, the occupants of other sites, like Dullenried, were content with small rectangular houses with a peaked roof, more suited to pastoral nomads than sedentary cultivators.¹²

¹ *Germania*, XVIII, 92-4.
² *Germania*, XXI, 155-8; Buttler, *Donauländische*, 76.
Such deterioration might be attributed to adversities overtaking the Western farmers. More probably it denotes the advent of new settlers of more purely mesolithic traditions. Judged by its pottery the Horgen culture is only one, non-megalithic, aspect of what we shall meet in the collective tombs of the Seine-Oise-Marne basins. About Middle Neolithic times too contact seems to have been established across the Alps between the Rhône valley and the head of the Adriatic. A fragment of coral was found in a Middle Neolithic lake-dwelling on L. Neuchâtel. From the vicinity of Basle in the Aar valley to the upper Rhône and thence beyond the Great St. Bernard along the Aosta valley into Upper Italy extend a series of small cemeteries of cist graves. They contain contracted skeletons accompanied by types characteristic of Middle and Upper Neolithic—unpolished flint axes of West European type, hollow-based flint arrow-heads, a triangular perforated axe, coral and Mediterranean shells, boars’ tusks perforated at both ends, a button with V-perforation and a cranian amulet. These Chamblandes cemeteries, as they are termed, might mark halting places for hunting expeditions or bands of herdsmen, but afford no sufficient clue as to the homes of their authors.

**Upper Neolithic and Chalcolithic Periods**

Though separated by a “flood layer” from the Middle, the Upper Neolithic strata on L. Neuchâtel exhibit essentially the continued evolution of the Horgen culture; there are new types of antler sleeve (Fig. 135, D) and tanged-and-barbed or hollow-based arrow-heads. But battle-axes indicate that warlike tribes from the North European plain were already reaching the western Lakes. On L. Zurich typical corded ware from the immediate successor of a Horgen village attests already the sway of Battle-axe warriors.

In the Chalcolithic phase on L. Neuchâtel their sway was extended westwards; for cord-ornamented sherds and fine battle-axes are found in the Chalcolithic villages. The barrows

1 *Antiquity*, VIII (1934), 38.
2 Tschumi, "Die steinzeitliche Hockergräber der Schweiz," *AsA.*, XXII-XXIII, 1920-1 (with map); *Altschles.*, V, 96.
3 *Antiquity*, II, 398; *AsA.*, XXXI, 171.
4 *Germania*, XVIII, 94.
5 *Antiquity*, II, 401; VIII, 38; Childe, *Danube*, 175-6.
of the invaders covering cremation burials were raised in the interior. But in the western lake-villages the native tradition is presumably illustrated by coarse wares decorated with finger-printed cordons. This decoration at the same time recalls that of the Cave pottery of North Spain, South France and Liguria. On the Lake of Geneva south-western connections are more explicitly attested by polypod bowls,⁴ like the Pyrenean vase of Fig. 139. A surplus, perhaps exacted by Battle-axe chieftains, was now available to purchase foreign material; objects of metal including flat axes and riveted daggers, Grand Pressigny flint from Central France, and, on the Lake of Geneva, winged beads (like Fig. 140, i, n) from the Midi³ occur in the lake-dwellings. But not till the Late Bronze Age did bronze-smiths, supplied with raw materials by regular commerce, establish themselves in the lacustrine villages. Stray axes and triangular and rhomboid daggers, appropriate to periods IV and even V, together with bone copies of Aunjetitz pins (Fig. 136) have indeed been collected from many “neolithic” (in Vouga’s sense Chalcolithic) lake-dwellings.³ But the economy remained formally neolithic.

On the contrary cemeteries of flat graves in the Rhône and Aar valleys⁴ are well furnished with bronze weapons and ornaments. The types—ingot-torques, ring-head, trilobate, trefoil, raquet, and bulb-headed pins, even knot-headed and Bohemian eyelet pins—are mostly derivable from Central Europe in period IV. They denote clearly enough the extension westward of the Danubian school of metallurgy and commercial system. But the local smiths in the West developed the models on independent lines; the long flanged axes and ogival daggers show that most graves in Vallais belong rather to period V than to IV. Though a relatively brilliant bronze age arose on the upper Rhône, it possessed less of an urban character than that of Hungary.

⁴ At Greng and Morges, Altschles., V (1934), 102.
² Altschles., V, pl. XVIII, 5 (Morges).
³ AsA., IV, 2ff.; Viollier in Opuscula archaeologica O. Montelio dicata, 126ff.; Magaz., XXIX, 200; Sarasin-Festschrift, 1919, 260ff.
⁴ Altschles., V, 103-7; Kraft in AsA., XXIX (1927), 5ff.
It follows that the Western Chalcolithic period is just a survival occupying part of period IV and perhaps persisting into V. Accordingly battle-axes can hardly have reached the Western lakes in the Upper Neolithic phase till at best very late in period III, and the Middle Neolithic Horgen culture need not begin there before period III. This agrees with the stratigraphy of the Goldberg farther east, where Horgen elements are detectable in the third (Altheim) settlement that succeeded the Michelsberg occupation.

The Eastern Alps

Goldberg III, fortified hill-top camps in Bavaria (Altheim) and lake-dwellings on the Mondsee and Attersee in Upper Austria recall Western settlements though in all cases they exhibit also connections with the East and South-east. The Eastern Alps are particularly rich in copper ores, and the peculiarities of the East Alpine cultures are determined by this fact. All the sites are formally chalcolithic; flat axes and rhomboid daggers of copper occur side by side with stone axes, polygonal battle-axes and spheroid mace-heads, hollow-based and exceptionally transverse arrow-heads, lance-heads and crescentic sickles of flint, axes and sleeves of antler, and awls and double-pronged fish-spears of bone. Though cultivating emmer, bread-wheat and barley, beans and even apples, and breeding pigs, horned cattle, sheep and goats, the lake-dwellers in Upper Austria found wealth and employment also in working and shipping copper for their villages are situated at the head of navigation on the Danube’s tributaries. There were presumably kindred groups already mining surface lodes of copper in the Salzkammergut and Tyrol, though the intensive exploitation of these began in the Late Bronze Age.

The pottery from all the foregoing settlements includes coarse wares decorated with finger-printed cordons and allied on

1 *Germania*, XXI (1937), 149, pls. 30-2.
2 Reinecke in *Bayerische Urgeschichtsfreund*, IV (Munich, 1924), 13ff.
4 Willvonseder, *Oberösterreich in der Vorzeit* (Vienna, 1933), 20-8, figs. 6, 9, 13, 14, 16, 18, 20, 21, 23.
5 Franz, “Mondsee”, 11-12.
the one hand to that of Horgen, on the other to "Danordic" fabrics. But in the Attersee and Mondsee stations jugs and other vases are decorated with deeply incised patterns (Fig. 137) surprisingly like those current in Cyprus in the third millennium.² Perhaps metal workers from the Copper Island had actually settled round the Upper Austrian lodes. Connections southward as far as Italy have already been noted, when it was pointed out that some local stone axe-heads² have notched butts, in imitation of, rather than as models for, the Italian bronze axe-heads.

The metal industry represented in these East Alpine lake-dwellings does not offer the models from which the Danubian Aunjetitz types might develop, but does offer prototypes for ogival daggers used by the Middle Bronze Age.

¹ Schaeffer, *Mission en Chypre* 30ff. Note prototypes for Mondsee and Remedello daggers too, but the Cypriote daggers allegedly found in Europe are all doubtful.
² *MAGW.*, LXI (1931), 74-80.
descendants of the Battle-axe folk in South-west Germany and Bohemia. And in fact Middle Bronze Age types have been collected at the Attersee stations. The East Alpine lake-dwellings thus yielded an incongruous assortment of types—polygonal battle-axes assigned farther north to the beginning of period III, flint sickles proper rather to IV, and bronzes appropriate to V. Their cultural position remains ambiguous.
CHAPTER XVII

MEGALITH-BUILDERS IN ATLANTIC EUROPE

The corridors of the Garonne and Rhône valleys offer passages to the Atlantic West from the Mediterranean. Along these valleys or their margins the megalithic idea was spread from colonies around the Gulf of Lions. But before its expansion the Western neolithic culture, revealed in the Cortaillod layers on the L. Neuchâtel, must already have spread over Central France to the Channel, and even during the megalithic period it could survive in some purity in sheltered parts of France as in Switzerland.

In South France itself the first explicit evidences of a neolithic culture are derived from caves that had been used for habitations or sepulchres also in palaeolithic and mesolithic (Azilian) times and continued to be used right down to the Late Bronze Age. The stratigraphy observed by M. Heléna1 of Narbonne, particularly in the Grotte de Bize, provides the best data available for the definition of a pre-megalithic phase of neolithic culture. From the lowest neolithic level come axes and adzes of fine grained stone, transverse and leaf-shaped arrow-heads of flint and plain pottery of Western type, all separated by a sterile layer from an Azilian occupation.2 In a later occupation the isolation, characteristic of a pure neolithic economy, has been broken down presumably through the same causes as conditioned the spread of megalithic tombs. Beads of callaïs and other materials were imported; axes were mounted in antler sleeves; tanged-and-barbed arrow-heads were used as well as leaf-shaped and transverse types; palettes were made for grinding paints, and the vases were richly decorated. Three styles of decoration may conveniently be distinguished in view of their distributions and affinities, though in Aude and Gard all seem contemporary—(i) knobs, (ii) fine incisions in the

1 P. Heléna, Les Origines de Narbonne, Toulouse and Paris, 1937 (authority for statements referring to South France not otherwise documented).
2 J. Hawkes, in Antiquity, VIII (1934), 30.
dry clay forming hatched ribbons, triangles and chequer patterns; (iii) channelling (using shallow grooves), stab-and-drag or cardial technique forming motives including semi-circles often arranged in panels. The first style we have already met in Almeria, the second in Malta, Western Sicily and Sardinia. In the latter island semicircle-patterns in cardial technique seem associated with the second style, but on the whole its closest analogies are to be found in the Cave pottery of the Iberian Peninsula, where its affinities have already been discussed. In the French caves this decorated

![Fig. 138. Vase-supports in Chassey style: 1, Le Moustoir, Carnac; 2, Motte de la Garde, Charente.](image)

ware appears before Beakers, but it also occurs in megalithic tombs. In fact with Bize II we have already reached the megalithic period, Heléna's Chalcolithic I. It is therefore convenient to leave South France till the non-megalithic aspects of Western culture farther north have been described.

**Chassey and Fort Harrouard**

The famous but badly excavated station of Camp de Chassey¹ (Saône et Loire) in the Massif Central certainly marks one route in the expansion of Western neolithic culture. It is

a fortified hill-top, and from it have been gathered many objects distinctive of the Cortaillod culture—tapering antler sleeves for axes, plain leathery pots, and grooved tine pendants. But the collectors failed to separate these from types proper to Middle or Upper Neolithic in the Alps and Chalcolithic I in South France—sleeves like Fig. 135, B, perforated stone axes, and spheroid mace-heads on the one hand, tanged arrow-heads, palettes and pottery decorated with knobs and fine incisions on the other. The latter ware is so abundant at the site that it is generally termed Chassey ware. The vase-support (Fig. 138) is a distinctive shape. Sherds decorated in this style have been found at Michelsberg, but it belongs to a later phase of Western culture than that illustrated at Cortaillod and presumably reflects fresh influence from the Mediterranean coasts.

After crossing the Massif Central the neolithic colonists reached the downlands of Northern France, an area rich in flint and apparently already inhabited by hunters of the Forest culture. In the oldest neolithic settlements yet recognized here, much of the gatherers' equipment seems to have been adopted by the Western colonists—notably core-axes and flake-axes like those of Ertebølle, transverse arrow-heads. The best picture available is provided by Fort Harrouard (Eure-et-Loire) a promontory camp about 17 acres (7 hr.) in extent, where Father Philippe could distinguish two neolithic strata.

The villagers lived by cultivating indeterminate grains and breeding mainly horned cattle; they kept also some pigs and goats and a very few sheep too, but relied very little on hunting or fishing. They lived in irregular oval huts partly excavated in the ground and dressed in woven fabrics using whorls for spinning and clay loom-weights in weaving. The carpenter used polished axes of imported stone occasionally, but relied

1 *BSPF.*, XXVII (1930), 268-76.
2 This is the truth underlying Bosch-Gimpera’s thesis of the existence in North France of a "culture de silex"—just another way of saying that in this area rich in flint but poor in fine-grained rocks, flint was the normal material even for axes, *cf*. *Rev. Anthr.*, XXXVI (1926), 320.
3 Philippe, "Cinque années de fouilles au Fort Harrouard" (Société normande d'études préhistoriques, XXV bis), Rouen, 1927.
4 The actual proportions are: cattle 68 per cent., swine 18 per cent., sheep 10 per cent., goats 1.5 per cent., game 2.5 per cent.; *L’Anthr.*, XLVII (1957), 292.
5 *L’Anthr.*, XLVI, 270-1.
mainly on the "mesolithic" flint hatchets and "picks", together with rare antler axes.\(^1\) Besides transverse arrowheads the bowman sometimes used triangular ones. Before the end of the period Grand Pressigny flint was imported, as were amber beads and arc-shaped pendants of schist.\(^2\)

The pots, baked in the fort in tiny kilns, are typically Western but include besides simple leather forms, baking plates as in the Michelsberg complex, vessels with multiple tubular lugs perforated vertically and horizontal tubes expanding at the ends like the horned lugs of Troy I, and vase-supports and other vessels decorated in the Chassey style.

Though there is a megalithic tomb in the valley in sight of the camp, villagers were buried extended, or in one case contracted, within the enclosure.\(^3\) Female figurines were modelled in clay, a quite exceptional cult practice within the Western cycle.

Judging by the pottery other sites in North France, notably the celebrated fortified station at Le Campigny (Seine Inferieure) (once made the patent station for a mesolithic culture) and the Camp de Catenoy (Oise) were occupied at the same time as Fort Harrouard I. At that station the second neolithic stratum illustrates a development of the older culture. While cattle-breeding predominates, a large breed of *Bos brachyceros* now co-existed with the small cattle of the older herds. Goats had died out, but game bones now amount to as much as 8 per cent. of the total. And oysters and other shell-fish were imported from the coast. Finished implements, such as daggers and lance-heads of Grand Pressigny flint, were also obtained by barter. But the old types of tools including the "mesolithic" core and flake-axes were still retained. The pottery shows a development of the Chassey style with much coarser incisions combined with rusticated wares.

Since the late Chassey style inspires the decoration of "Incense Cups" at the beginning of the Middle Bronze Age in Southern England, it must follow that Fort Harrouard II falls at least into the "Beaker" period of the West; it may indeed outlast it since, as on the Swiss lakes, the record of settlement is continued only by the Late Bronze Age occupation of Fort

\(^1\) L'Anthr., XLVI, 559.
\(^2\) L'Anthr., XLVI, 604.
\(^3\) L'Anthr., XLVI, 541f.
ATLANTIC MEGALITH-BUILDERS

Harrouard III. For all we can tell, the pastoral communities of Northern France preserved their neolithic economy and equipment unaffected by the megalithic movement, the Beaker expansion and the subsequent development of the Danubian and Britannico-Hibernian commercial systems in the Bronze Age.

Even Brittany may have been reached by the neolithic herdsmen in pre-megalithic times, who would have joined forces with survivors of the Teviec strand-loopers. The stone-walled camps of Croh Collé and Lizo have indeed yielded pottery of the channelled and late Chassey styles current in the megalithic tombs of the Peninsula. But there are groups of small cist graves some of which have yielded plain Western pottery remarkably like that of Cortaillod, others Chassey ware and horned lugs. Sometimes, notably at Manio, these cists are covered by an elongated mound of earth and stones, the plan of which offers the nearest Continental analogy to the British long barrow.

THE MEGALITHIC CULTURE OF SOUTH FRANCE

Megalith-builders, landing round the Gulf of Lions, diffused their funerary practices and architecture westward and northward and at the same time modified the economy of the established population along the lines already foreshadowed in describing Heléna’s chalcolithic caves (p. 286).

A few passage graves were erected in Catalonia and there is quite a group of corbelled passage graves and cists with short entrance passages in Provence. The Provençal megaliths may contain as many as forty-five corpses accompanied by leaf-shaped arrow-heads, buttons with V perforation, beads of stone (jadeite) and Beakers, and some chambers are covered by long cairns. The inspiration here is presumably Almerian.

The great majority of the collective tombs, west of the Rhône, in South France and, beyond the Pyrenees, in Catalonia

1 But besides Late Bronze Age pins the crutch-head type occurs, as in the Copper Age lake-dwellings, Philippe, "Cinque Années," pls. XI, 11 and XVIII, 19.
2 L’Anthr., XLIV (1934), 486-9.
3 Antiquity, XI (1937), 441-52.
4 Pericot, Civilización megalítica, 25.
and the Basque Provinces, belong to the family of gallery-graves. Near the coast the monumental galleries of Castellet and Bounias near Arles\footnote{Arch., LXXVI, 150, and Cazalis de Fondoue, Les Allées couvertes de la Provence, 1873-8.} are cut in the rock but roofed with slab lintels and covered by round barrows. Segmented cists occur in Catalonia (Puig Rodo), in the Basque Provinces\footnote{Pericot, Civilización megal., 27, 101, 117, 131-2.} and at La Halliade\footnote{Mat., 1881, 522.} near Tarbes; that at La Halliade was 14.2 m. long, divided by septal slabs into seven compartments with a lateral compartment added at one end and covered with a cairn of stones. Others like St. Eugénie near Carcassonne are subdivided by internal portals.\footnote{BSPF., XXVII (1930), 536-9; the tomb contained 300 corpses, at least, 7 beakers, 12 palettes, gold beads, tanged arrow-heads.} All such reproduce in a somewhat barbarized form the plans of the Sardinian Giants' Tombs and of the Balearic navetas and rock-cut tombs and form a typological link between these and the segmented cists of North Ireland and the Clyde. On the analogy of the latter it may be inferred that they go back to pre-Beaker times, and are contemporary with the burials of Chalcolithic I in the caves. Megalithic architecture and funerary rites were presumably introduced by chiefs from the West Mediterranean islands among a mixed population (round heads and long heads occur in all tombs) already accustomed to collective burial in natural caves. These chiefs, however, adopted the native superstitions about trephining and eventually even cremation. And their architecture declined. The post-Beaker tombs of the Cévennes\footnote{Chantre, Études paléoethnologiques dans le Bassin du Rhône, II, “Age du Bronze”, gives inventories.} and Pyrenean slopes are abbreviated versions of the older galleries.

If the latter were built by megalithic chiefs in Chalcolithic I, their founders were soon followed by Beaker folk, whose relics are found in all the larger tombs and stratified above the layers containing channelled and Chassey wares in Hélène's\footnote{Hélène, Origins, 102, n. 1; types from the “dolmens” not represented in the caves have been added in the text here.} caves. They should then represent a second layer of aristocracy. They may have come in quest of ores.\footnote{Copper was actually mined in Hérault in prehistoric times, L’Anthr., XXII (1911), 413.} They certainly used copper and gold and organized some machinery for the
distribution of these substances. The earlier burials of the Beaker period (Heléna’s Chalcolithic II) are accompanied by West European daggers, tanged-and-barbed flint arrow-heads, wrist-guards plated with gold leaf strips like Fig. 109, 4, schist palettes, beads of gold and callais and Beakers decorated in classic style or with spiral cord impressions. Perhaps to this period or the next belong polypod bowls with grooved shoulders related to Scottish and Irish Food Vessels (Fig. 139).

But the Beaker fashion lasted for several generations and specialized local styles arose in South France and Catalonia assigned by Heléna to Chalcolithic III. To the same phase he attributes serrated and long-tanged arrow-heads (Fig. 140, o), and lance-heads polished and then flaked as in predynastic Egypt. Beads of amber and jet and trinkets of poor bronze were now imported. Half-spool beads, like Fig. 122, a, c, from the caves attest contacts with Sardinia (p. 245). Grooved and winged beads (Fig. 140, k, i, n) from caves and Cevennian cists, are presumably inspired from the East Mediterranean and furthermore establish a synchronism with the Chalcolithic lake-dwellings. A segmented fayence bead, imported from Egypt, was found with the foregoing types in the sepulchral cave of Grotte du Ruisseau (Monges) and implies that Chalcolithic III lasted till 1400 B.C. The beakers

1 Castellet, Puig Rodo. 3 St. Eugénie.
2 Castellet, La Halliade. 4 La Halliade.
5 Chantre.
that distinguish it are found even in large galleries, but in the caves and some Catalan cists smooth pots occur too, including carinated cups with thumb-grip handles exactly like the South Italian specimen shown in Fig. 112, 3.

Chalcolithic III in South France was accordingly already contemporary with the Bronze Age in Almeria, Central Europe and Brittany. But despite the local ores and proximity to Sardinia, the post-Beaker Chalcolithic IV layers of the caves and the small megalithic cists of Catalonia and the Cevennes still illustrate an essentially neolithic economy. Save for British imports in Vendée and some hoards of Danubian bronzes east of the Rhône, Early and Middle Bronze Age metal types are practically unknown in South France. The tools and weapons,

Fig. 140. Late Chalcolithic types from Cevennian cists: a-e, Liquisse; f-i, Grotte d’en Quisse, Gard; j-o, “dolmens” of Aveyron (§).

1 e.g. St. Eugénie.
2 e.g. Ruisseau and Falaise, Helêna, “Les Grottes”; Buffens (M. Carcassonne); Cueva de la Foie Bor, Catalonia (Anuari, 1916-20. 492); cist of Puig ses Forques, Pericot, Civilización, 41.
deposited in the communal ossuaries are still mainly of stone as in the preceding phase. Only a few imported bronze daggers, bulb, trefoil, and racquet pins derived through Switzerland from the Aunjetitz repertoire, beads of fayence and even iron prove that this Cevennian "Copper Age" is in fact contemporary with the advanced Bronze Age, period V in other lands. And it is in this period that pottery decorated with applied ribs, such as Bosch-Gimpera regards as the earliest in France, becomes most typical though it goes back to Chalcolithic II. But this Copper Age persisted unchanged till Late Bronze Age—Hallstatt times when invaders from Central Europe established a new economy.

![Fig. 141. Statue-menhirs from Gard and sculptured tomb, Petit Morin (Marne).](image)

Here we have a classic instance of commerce used mainly for ritual ends—the provision of magic substances and charms—and of a culture devoted to spiritual rather than material goods. The pursuit of these involved some remarkable achievements in addition to the erection of megalithic tombs. A large number of the skulls from the Cevennian megaliths and from the caves had been trephined, some while their owners were still alive! As the cranial amulets produced by this operation were found in Cortaillod sites in Switzerland, the

2 Hélène, Origines, fig. 64.
3 St. George de Levezac, Lozère, Mat., 1869, 328.
5 In Lozère 52 cases come from " dolmens "; 105 from caves, Déchelette, Manuel, I, 474f.
practice presumably goes back to pre-megalithic times in South France, though it persisted like so much else. In Aveyron, Gard, Hérault and Tarn monoliths were carved with representations of a female divinity armed with an axe; one such statue-menhir was used as a lintel in a corbelled megalithic tomb at Collorgues, Gard (Fig. 141). Clearly this is no “portrait statue” but represents the same deity as the citizens of Troy carved also on a monolithic stele. We shall meet her again in the Marne valley. Presumably these statue-menhirs mark her route northward, but otherwise they are undated. Sculpture and surgery in South France developed outside the frame of urban life and without relation to practical ends, as we understand them, in a society whose material culture remained fossilized for perhaps a thousand years.

**The Seine-Oise-Marne (SOM) Culture**

The adoption of the megalithic faith by a forest population on the chalk downs of Champagne and round the Paris basin, produced a remarkable culture, known almost exclusively from collective tombs and termed the Seine-Oise-Marne culture (abbreviated SOM). The burial-places may be natural caves, artificial caves hewn in the chalk, or a specialized type of gallery grave. In the Marne the rock-cut tombs form regular cemeteries; there are some fifty in the valley of Petit Morin alone. All are rectangular chambers entered by a descending ramp like the dromos of a Mycenaean tomb. A few are more carefully excavated than the rest and are provided with an antecella on the walls of which may be carved or sketched in charcoal representations of the same funerary goddess, bearing an axe, as appears on the statue-menhirs of the Midi (Fig. 141). While the smaller tombs contain forty or more corpses (including some cremated bones) not more than eight bodies were deposited in the more elaborate chambers, but the funerary furniture in them is much richer. They accordingly belong

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1 Rev. Anthr., XLI (1931), 300ff.
2 Afas., 1890, 629 ; Rev. Anthr., XLI, 362 ; the usual plans are wrong.
3 e.g. Vaucelles, Narmur, Lot, La Belgique ancienne, I, 144.
5 J. de Baye, L’Archéologie préhistorique, Paris, 1884 ; cf. also BSPF., VIII (1911), 669.
to “chiefs”, while poorer common-folk were crammed into family ossuaries. The gallery graves in the valleys of the Aisne, Seine, Oise and Eure are generally built of slabs erected in a long trench, a compartment at one end, divided from the rest by a porthole slab, serving as the entrance (cf. Fig. 96). The funerary goddess reappears in the entrance, generally more conventionalized than on the Marne, so that only her breasts are recognizable.

The grave-goods disclose a warlike population living by stock-breeding and hunting, but almost certainly also tilling the soil. Its rôle in flint mining is uncertain, but Grand Pressigny flint was obtainable, and the chieftains of the Marne secured even beads of amber, callais and rock-crystal and small copper trinkets. Even flanged axes of bronze have been recovered from SOM gallery graves. The normal grave gear consisted, however, of polished flint axes, normally mounted in perforated antler sleeves, antler axes with square-cut shaft-holes, very numerous transverse arrow-heads together with a very few leaf-shaped ones, daggers of Grand Pressigny flint and characteristic splay-footed vases of rather coarse ware (Fig. 142). The ornaments include shells, bracelets, rings and

Fig. 142. Horgen pot from Paris cist (Mureaux) (†), and channelled vase from Conguel, Morbihan (†).

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3 Breuil in Aias., 1899, 590.
arc-pendants (Fig. 143) of stone, axe-amulets and cranial amulets. Nearly one-third of the population was round-headed, less than a quarter really dolichocranial. A relatively large number of skulls have been trephined, as in the Midi.

The tomb-plans and sculptures and the trephined skulls show that the megalithic complex reached the Seine-Marne area from the Lower Rhône, the round-headed skulls and the flint-work suggest that it was adopted by a population largely recruited from mesolithic stocks. But the pottery, so closely allied to Horgen pottery of Switzerland, raises the possibility of a pre-megalithic culture of neolithic type, indebted for its grains and domestic stock perhaps to Danubians as well as Westerners; for some pottery from the Marne¹ and from the Somme,² from Villejuif near Paris³ and Spondylus bracelets from Frignecourt,⁴ Marne, suggest an infiltration of Danubian peasants even to the Paris basin.

The megalithic SOM culture itself lasted for a long time. The bronze axes from some gallery graves imply a persistence into the Middle Bronze Age, and the funerary record discloses nothing beside the collective tombs themselves to occupy that or the preceding Early Bronze Age. But before then the prolific pastoralists had been forced to find an outlet for their growing numbers in colonizing expansions. To the south two porthole dolmens⁵ in the Cevennes and one in Vienne might be attributed to SOM colonists, but that the idea itself came from the South. Westward the whole complex with its specialized gallery graves, porthole slabs and appropriate splay-footed vases reached Brittany and even Jersey, but not Guernsey, while beakers were still current there. To the north-east gallery graves of the Paris type occur in Belgium and even Westfalia. Finally the long cists of Montelius’ period IV in

¹ At Anthe near Clôn; Chenet in Bul. de la Soc. d'Arch. champenoise, 1926, 4.
² Rev. Arch., XXV (1894), 264.
³ L'Anthr., VII (1897), 388.
⁵ Déchelette, Manuel, I, 403; Rev. Éc. Anthr., 1906, 283.
South Sweden not only reproduce the Paris plan but also contain splay-footed vases of degenerate SOM form.

From this expansion the chronological limits of the megalithic phase of the SOM culture can be deduced. It arrives fully formed in Brittany while beakers were still current there. Its Swedish colonies are not earlier than period IV of the Danubian series, but the furniture (collared flasks) of the gallery grave at Züschen, Hessen, means that the Seine type reached Germany in Danubian III. And arc-pendants establish a partial synchronism with Fort Harrouard I. The beginnings of the megalithic phase in the Paris basin and Champagne cannot therefore be much later than in other parts of Northern and Western Europe. On the other hand it must have persisted locally into a period when bronze was in general use in Central Europe as in Britain. Though they could obtain amulets and precious stones for funerary ritual, the Marne chiefs did without metal weapons and did not use their surplus wealth for the encouragement of trade to supply such regularly.

The Armorican Megalithic Culture

In megalithic times the Armorican Peninsula with its extension to the Channel Islands became a goal of pilgrimage so that a bizarre assortment of cultures was superimposed on the primary Western neolithic described on p. 289. Brittany offers the first land-fall on the northward voyage from the Iberian Peninsula to Cornish tin-lodes and Irish gold-fields and sets the limit to terrestrial wanderings in search of isles of the blest beneath the setting sun. Moreover, its old rocks contain gold, perhaps also tin and callais. The densest and most varied concentration of collective tombs in Europe is to be found round the Gulf of Mornihan but from this centre the tombs spread coastwise to the mouth of the Loire and to Jersey (still perhaps joined to the Continent in megalithic times) and Guernsey. The diverse tomb-plans and the heterogeneous articles constituting the furniture of every sepulchre indicate

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1 A small fragment of Beaker was found in the SOM gallery at Benne-ment (Set-O), Man., XXIX (1929), 18.
2 Forde, l.c., 85.
3 Types summarized by le Rouzic, L'Anthr., XLIII (1933), 233-48; for Guernsey, T. D. Kendrick, Archaeology of the Channel Islands, I (1928), for Jersey, J. Hawkes, Archaeology of the Channel Islands, II (1939).
the varied traditions that went to make up the Armorican culture and the complexity of their interweaving.

Corbelled passage graves are concentrated on the coasts and Islands and are obviously inspired by Iberian, immediately by Portuguese, models. The translation of the tholos into the orthostatic architecture, more suited to the local rocks, produces a megalithic passage grave, often P-shaped in plan (Fig. 144), rarely with a lateral cell, as the standard type for Morbihan, while undifferentiated passage graves, like the South Spanish, are commoner in the Channel Islands. The gallery grave on the other hand exhibits a more inland distribution and does not cross the sea to Guernsey. Accordingly the idea was brought by land from the Paris basin by migrant pastoralist families. Divergent variations on the exotic models were devised locally. Undifferentiated passage graves with one or two pairs of lateral chambers, arranged like transepts on either side of the principal gallery may be derived from tholoi with lateral cells

\[ \text{Fig. 144. Passage Grave, Kercado, Morbihan.} \]

\[ ^{1} \text{Forde, } Man., \text{ XXIX, 80; Am. Anthr., XXXII, 74.} \]
as at Los Millares and are common to the Peninsula and the Islands (La Hougue Bie, Jersey, and Déhus, Guernsey). Passage graves with a bent corridor and gallery graves similarly "angled" are peculiar to Armorica.

Most tombs were covered by a cairn or barrow, generally round and carefully constructed, but sometimes two or even three tombs are covered by a single mound which may then be oblong. Elaborate carvings, including representations of hafted axes and human feet, are a feature of the megaliths of Morbihan. And in Brittany the tombs often contain remains of cremated skeletons, a rite doubtless due to some secondary foreign influence.

Most tombs have been violated in Roman times and further disturbed in the nineteenth century, so that the grave-goods do not contribute as much help as might be expected to unravelling the components of the megalithic complex and establishing the sequence of events. Tombs of most types contain Beaker ware, proving that the Paris galleries had arrived and the local variants been elaborated during the Beaker phase. But the number and variety of the beakers prove that this period was a long one. Z. le Rouzic and Jaquetta Hawkes assign to a pre-Beaker phase the corbelled passage graves of Morbihan and Jersey; they certainly contain no Beaker ware, but one at Parc Guerin yielded a segmented faience bead which, if primary, would imply continued use into the fifteenth century B.C.—i.e. the post-Beaker period equivalent to El Argar in Spain and Aunjetitz in Central Europe. That some megaliths are really pre-Beaker is established by the succession of burials in the passage grave (one wall of which was formed of natural rock) at Conguel, Quiberon. There the later interments only were accompanied by beakers, the earlier by vases bearing channelled semicircle patterns as in Chalcolithic I of South France (Fig. 142, 2).
This fabric is found in other tombs too, and in the fortified settlement at Croh Collé.\(^1\) It denotes connections with the Pyrenees or Portugal.

Chassey pottery, chiefly in the form of vase-supports, is represented in many tombs on the Mainland and in Jersey (Fig. 138). In that island it was found below the Beaker layer in the stratified settlement at le Pinnacle.\(^2\) It was presumably introduced by land from Central France and the first connections with Grand Pressigny were probably established at the same time. Neither Chassey ware nor Grand Pressigny flint reach Guernsey.

The Beaker-folk seem to have come by sea; they reached even Guernsey, but have left no traces on land between the Loire and the Garonne. Besides the classic rouletted style, cord ornament is common on Breton beakers while specifically South French variants are missing. Wrist-guards\(^3\) are represented by a gold strip from Mané Lud, like the South French ones, and a few doubtful stone specimens which may really be whet-stones. West European daggers have been found only in Finistère\(^4\) and on Guernsey.\(^5\)

From the Paris basin came the SOM gallery grave, the porthole slab, carvings of a funerary goddess, characteristic splay-footed vases\(^6\) and arc-pendants.\(^7\) Finally from the North came an amber bead, a battle-axe of Scandinavian type\(^8\) and perhaps a collared flask.\(^9\)

The culture which blended all these foreign elements preserved a rigidly neolithic aspect in Morbihan. Axes were made with pointed butts of fibrolith and greenstone. Large, thin and superbly polished specimens, obviously ceremonial and perhaps late,\(^10\) are surprisingly common and were exported to Portugal and England. Celts with a knob at the butt end

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\(^1\) *L'Anthr.*, XLIV (1934), 496, fig. 9, 8 and 12-16.
\(^2\) *CISPP.*, London, 1932, 140; Hawkes, *Channel Islands*, 7, 162.
\(^3\) *L'Anthr.*, XLIV, fig. 19, 11; *Rev. Arch.*, 1883, pl. XIV.
\(^6\) Kendrick, *Axe Age*, 34.
\(^7\) Jersey, Kendrick, *Channel Islands*, 94.
\(^8\) *L'Anthr.*, XLIV, 504, fig. 14, 5 and 15.
\(^9\) The vase from a passage grave with bent corridor at Lann Blaen, Morbihan, is considerably larger than the Northern flasks.
\(^10\) Some have expanded blades imitating copper axes, *Am. Anthr.*, XXXII, 87.
found stray in Morbihan seem to copy Egyptian adzes, while double-axes of stone imitated the Minoan metal form that may have served as a sort of currency in Western Europe. For arrows transverse and tanged-and-barbed heads were preferred; leaf-shaped forms are exceptional. In addition to the foreign pottery absorbed, carinated bowls adorned with pairs of vertical ribs are a distinctively Breton variant on the West European tradition, replaced in Jersey by similar shapes decorated with horizontal lines and punctuations.

As charms were worn rather simple beads of talc, callais, rock-crystal, or gold, axe-amulets and bracelets of hammered gold. The callais and gold may have been obtained locally, but Grand Pressigny flint was certainly imported. Unless the Portuguese and South French callais be of Armorican origin the peninsula’s exports must have been immaterial goods. Whatever they were, they were employed to obtain magical rather than practical materials. The whole society was so obsessed with funerary cult that material advancement was neglected.

The chronological criteria applicable to more materialistic societies cannot then be used for dating the megalithic culture in Brittany. Despite its neolithic exterior it may have lasted well into the Bronze Age elsewhere. In fact in Guernsey some megalithic tombs do contain “incense cups” and cinerary urns of types appropriate to the advanced Bronze Age of England. In Morbihan closed megalithic chambers under gigantic barrows at Tumiac, Mont St. Michel and Mané er Hroek are assigned to the Bronze Age by le Rouzic on typological grounds. But they contained ceremonial axes of greenstone, greenstone bracelets and beads of callais and rock-crystal that can be matched in more normal megalithic tombs.

The Armorican Bronze Age

Throughout the Atlantic megalithic province, desire for a good burial stimulated production of surplus wealth; the erection of gigantic tombs and the importation of magic

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1 Petrie, Tools and Weapons, Z, pl. XVII.
2 L’Anthr., XLIV, figs. 14, 11 and 16, 1; Ant. J., VII, 17.
3 Copper double-axes with a hole too small to take a shaft occur in Central France, Switzerland and Southern Germany, ZfE., XXXVII, 525; Childe, Danube, 177, 193.
4 L’Anthr., XLIII, 251-3; Forde, Am. Anthr., XXXII, 76-9, notes that the supports are sculptured like those of normal collective tombs.
substances kept accumulated wealth in circulation. But it was not used to support professional smiths nor to purchase ores. In France graves furnished with bronze tools and weapons and hoards of bronzes begin in general only during the Middle Bronze Age when Tumulus-builders from Central Europe spread along the Massif Central. Only in Armorica is there a group of graves richly furnished with weapons of Early Bronze Age type.

The tombs in question are closed chambers of dry masonry, sometimes roofed by corbelling and always surmounted by a cairn. The dead were buried in them, generally but not always after cremation, on wooden planks (remains of coffins?), with arms and ornaments. The armament consisted typically of one or two flat or hammer-flanged axes, several daggers and superb arrow-heads with squared barbs and tangs. The daggers are either round-heeled and strengthened with a midrib or triangular with grooves parallel to the edge and sometimes a rudimentary tang. In eight cases the wooden hilts (or scabbards) had been adorned with tiny gold nails forming a pointillé pattern. Ornaments include a ring-head pin and some spiral rings of silver and beads of amber. Pottery is represented by biconical urns with two to four handles joining rim and shoulder (Fig. 145).

Evidently these graves belong to rich and warlike chiefs. They are concentrated in the north and interior of the peninsula and in general avoid the principal megalithic centres where the old family vaults were presumably still in use. The Bronze Age war-lords can therefore hardly be descendants of the old megalithic chiefs or Beaker-folk, and owe nothing of their equipment to these. Their silver probably came from Almeria or Sardinia. The ring-head pin is a Central European type. The grooved daggers seem related to the North Italian series and those from the Rhône valley in Switzerland (p. 281). But the chief source of metal and the dominant inspiration in

1 L’Anthr., XI, 150; XLIV, 511; Bul. Soc. Arch. Finistère, XXXIV (1907), 125; Ant. J., VII, 18; Les Trésors archéologiques de l’Armorique occidentale.
2 Bul. Soc. Arch. Fin., XXXIV.
3 See map in PPS., IV (1938), 65.
metal-work must have been in the British Isles, where for instance gold-studded dagger hilt also occur. Relations with Britain were indeed so close that for a while Armorica and Wessex became a continuous cultural province.

Piggott explains this continuity by an invasion of Southern England from Brittany. The cogency of his argument is diminished by the difficulty of finding a satisfactory continental origin for the Armorican Bronze Age culture—intermediate sites between Brittany and Switzerland are practically unknown. In any case the connections with Wessex establish a partial synchronism between that "early Middle Bronze Age of Britain" that falls within the lower limits of Danubian period IV, about 1400 B.C. (p. 321). This dating is in turn confirmed by the limits provided by the Swiss and Italian prototypes for the grooved Armorican daggers. But the mysterious bronze-culture that emerges so abruptly from the megalithic night failed to develop. It is not till the very late Bronze Age that immense hoards reveal the inclusion of Brittany and the rest of France in a commercial system maintaining the regular distribution of metal.

\[1\] PPS., IV, 64ff.
\[2\] Apart from a burial at Singleyrac, Dordogne (Déchelette, Manuel, II, 142), the poor non-megalithic cists found in Vienne, Charente and Lozère (de Mortillet, Origine du culte des morts, Paris, 1921, 79ff) might be Bronze Age but only one contained bronze. East of the Saône there are Early Bronze Age graves connected with the Swiss and Central European, but often containing polished flint or greenstone axes; Rev. Préhist., 1908, 141; Déchelette, Manuel, II, 136ff; L'Anthr., XXVIII, 64.
CHAPTER XVIII

The British Isles

All routes from the South hitherto considered, converge on Britain. It is the northern terminus of the "megalithic" seaway along the Atlantic coasts from Portugal; the land route across France is continued beyond the Channel by the South Downs; the Danube thoroughfare and the wide corridor formed by the North European plain converge on the North Sea coasts to be continued in Kent and East Anglia. And the British Isles offers to voyagers, migrants and prospectors inducements to settlement—downs and moors swept bare of trees, excellent flint, copper and gold, and above all tin. But islands they were already in neolithic times. Would-be colonists embarking in frail craft must discard unessential equipment and relax the rigid bonds of tribal custom. Any culture brought to Britain must be insularized by the very conditions of transportation. Many streams contributed to the formation of British culture, but the blending of components already insularized inevitably yielded a highly individualized resultant.

Nor is Britain a unity. The Highland Zone of mountains and ancient rocks to the West and North is contrasted with a "Lowland Zone" of more recent formation in the South-east. And beyond the Highland Zone lies Ireland. It is the Highland Zone with Ireland that yields tin, copper and gold. But the megalithic route alone leads thither directly. Cultures and peoples, desiring "short sea crossings", must land in the Lowlands and reach the Highland Zone only after crossing them and absorbing their already insular cultures.

Cultures arriving from the Continent often preserve their ancestors’ lineaments recognizably in the Lowland Zone; in the Highlands they assume a mask of stubborn insularity.

Great Britain and Ireland were relatively well populated with mesolithic hunters and fishers. But a neolithic culture

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1 A. Toynbee, A Study of History.
2 Fox, The Personality of Britain, Cardiff, 1938.
of distinctive Western type was first introduced by peasants who crossed to Southern England from North France and Belgium and did not mingle with the pre-existing food-gatherers. In Sussex the latter occupied the greensands, the neolithic peasants colonized the chalk.¹ The neolithic farmers owed hardly an item in their equipment to their mesolithic forerunners and competitors.

Windmill Hill Culture

The oldest neolithic culture is best known from a series of hill-top encampments² strung out all along the downs and uplands of Southern England from eastern Sussex at least to Devon and probably to Cornwall. The classic site where this culture was first really defined—as recently as 1925!—Windmill Hill, near Avebury, Wilts, must serve hereafter as the patent station. The hill-tops are girt with a system of three or four flat-bottomed ditches, interrupted at frequent intervals by causeways, as in Michelsberg camps, and supplemented by palisades. The areas thus enclosed are often small: the diameters of the inner ring lie between 250 ft. at Windmill Hill and 400 ft. at the Trundle, though there is room for settlement beyond it and Maiden Castle covered 12 acres. It is not yet clear how far the "camps" should be regarded as permanent villages rather than centres to which families, normally roaming in isolation, repaired periodically.

The camps' occupants lived principally by breeding cattle—of a robust breed, perhaps a cross between imported short-horns and native oxen of *Bos primigenius* stock. But they kept a few sheep, goats and pigs and cultivated bread wheat (*Triticum vulgare*).³ And naturally they hunted deer and collected nuts and shell-fish. The huntsman used leaf-shaped arrow-heads, Fig. 146, 2 (the transverse type of mesolithic folk occurs exceptionally at Windmill Hill). Axes were made of flint where this material is abundant and then include archaic "picks" as well as polished implements. Elsewhere, in Devon for instance, polished celts of fine grained

¹ Clark, *Mesolithic Britain*, 90.
² *Antiquity*, IV (1930), 22-40; *Ant. J.*, XIV (1934), 100-33; XVII, 261; *SAC.*, LXXVII (1936), 60-92; *PDAES.*, I (1931-3), 180; II, 161.
³ *Ant. J.*, XIV, 128-9; *CISPP.*, London, 1932, 151.
⁴ *PDAES.*, I (1931-3), 180.
stone competed with flint axes. In Southern England and Norfolk flint was systematically mined¹ by specialized groups of highly skilled miners who must have lived largely by exporting the products of their industry. But while flint mining began in Windmill Hill times, it flourished more in the subsequent Beaker period. And in Norfolk and even Wiltshire Peterborough folk (p. 315, below) were associated with its exploitation. A textile industry is not clearly attested but innumerable flint scrapers and characteristic brush-shaped combs of stags’ antler emphasize the importance of leather-dressing.

The earliest Windmill Hill vases² (Fig. 147) are leathery round-bottomed pots with simple rims and vertically pierced lugs for handles. In time a peculiar fashion of thickening the rim by pressing down or rolling over the wet clay and insular styles of decoration, notably flutings produced with the fingertips, grew up. In Devon and Dorset horned lugs were used as in Brittany and at Fort Harrouard. Ladles are attributed to the Windmill Hill equipment on technical grounds only.

A few figurines and phalli carved³ in chalk or bone, so rudely as to be rather dubious, are all that have survived of ritual paraphernalia. Nor are ceremonial burials adequately attested in the pure Windmill Hill culture. Skeletons or parts thereof have indeed been found in or between the ditches of

¹ Antiquity, VII (1933), 166-83.
² Piggott in Arch. J., LXXXVIII (1931), 83-100; PSEA., VII (1934), 373-82; PPS., III (1937), 189-99.
³ Figurines from Maiden Castle and perhaps Windmill Hill, phalli from Whitehawk Camp, Brighton.
several camps. But unchambered long barrows, though occurring in the same counties as the camps, must, as will be shown on p. 311, be regarded as secondary additions to the Windmill Hill culture.

Causewayed camps have so far been found only in Southern England, but Windmill Hill pottery turns up in a pre-Beaker horizon in the Cambridgeshire fens embedded in an Atlantic peat overlaid by estuarine clays deposited at a time of marine transgression. It occurs too on the Lyonesse surface off the Essex coast, probably submerged by the same transgression. In the Highland Zone relics of Windmill Hill culture were collected from Ehenside Tarn in Cumberland, presumably the site of a lake-dwelling. And the so-called Campignian of Northern Ireland may denote an extension thither of Windmill Hill culture in pre-megalithic times. But elsewhere in the Highlands it is known only from "megalithic tombs" or

1 e.g. *Antiquity*, IV, 35; *Ant. J.*, XIV, 108, 112.
3 Whelan in *PRIA.*, XLII, C (1934-5), 121-43.
settlements explicitly associated therewith. In time the culture lasted long. In several camps Windmill Hill ware is associated with relics of the Beaker period.\(^1\) But at the patent station the primary silting of the ditch was grass-grown when Beaker folk arrived, and at Maiden Castle, Dorchester, a long barrow was heaped, still in pre-Beaker times, over the camp’s defences.\(^2\)

However far back their arrival be placed, the bearers of the Windmill Hill culture reached England from Northern Gaul. Its pastoral economy, hill-top camps, leathery pots, arrow-heads and antler combs disclose it unmistakably as a branch of the great Western family.\(^3\) Most British types can be paralleled at Spiennes, Campigny, or Fort Harrouard, and in the non-megalithic Breton cists. But all the more specialized Continental traits—perforated antler sleeves and axes, baking plates, and the like—are missing. Had they been discarded and forgotten in crossing the Channel, or did the first herdsmen embark before they had learned to use them?

### Megalithic Tombs

The megalithic idea was superimposed upon this pure neolithic culture. It was presumably brought by sea, and in fact tombs which adhere most closely to Continental models are located in the Atlantic provinces of Ireland and Western Scotland. Two main sources of inspiration can be detected with the aid of the architecture. Segmented cists, like the Pyrenaean, occur in Northern Ireland (Fig. 106), Man and South-west Scotland.\(^4\) The chamber is generally covered by a disproportionately long cairn with a semicircular forecourt on to which the chamber opens so that the whole looks like an exaggerated Giants’ Tomb. Tombs of the same family spread to the Hebrides, across Scotland down the Tay and southward into Derbyshire and Wales.

The tombs contain up to sixteen corpses, normally inhumed but occasionally cremated,\(^5\) as in Brittany. They

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\(^1\) *PDAES.*, I, 163; *Ant. J.*, XIV, 119.

\(^2\) *PPS.*, III (1937), 440; the “barrow” was anomalous, being one-third of a mile in length!

\(^3\) *Arch. J.*, LXXXVIII, 37-56; *PPS.*, I, 127-9.


\(^5\) *U.J.A.*, 1938, 66.
occur isolated as if they represented the burial place of a tiny clan or an Einzelhof. Evidently their builders included influential southerners familiar with Pyrenæan funerary ritual and ceramic traditions, who can only have come by sea. Whether these picked up Windmill Hill folk on the way or found such already in occupation and established authority over them is quite uncertain.

Tombs of the passage-grave family are best represented in regular cemeteries along the Boyne and right across the central valley of Ireland. The classic type here is a corbelled chamber with three cells grouped around it so that the whole plan is cruciform. The chamber is generally covered by a round cairn but at Carrowkeel one such chamber was placed at the small end of a long horned cairn! The stones forming the roofs, walls and kerbs of many Irish passage graves are elaborately carved with spirals, conventionalized boats and other figures. Breuil has insisted on the similarity of these designs to Copper Age paintings in Spain, and Mahr has pointed out a striking parallel to Portuguese plaque-idols (Fig. 127, 2).

On the treeless moors of North Scotland corbelled passage graves were generally subdivided by paired jambs into three compartments (Fig. 148, 2) and buried under an extravagantly long horned cairn. In Orkney elongated chambers divided into “stalls” by paired transverse slabs with benches in the stalls (Fig. 149) or small groups of cells round a larger rectangular chamber (Fig. 148, 1) reproduce in dry-stone masonry and beneath oval or round cairns, albeit often in an artificial excavation, the plans of Balearic and Sardinian rock-cut tombs. The tombs of Caithness and Orkney may mark the route by which the passage grave idea reached Denmark. Elsewhere in Great Britain such tombs are rare. In the hinterland of the Bristol Channel approximations thereto occur under long pear-shaped cairns with a cuspidal forecourt. In some an elongated

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2 *PSEA.*, VII (1934), 293ff.
3 *PPS.*, III, 354.
5 *PSAS.*, LXVIII (1933-4), 320-50; LXIX, 325-51; LXX, 407-19; LXXI, 115-54; 297-308; LXXII, 193-216.
6 Crawford, *Long Barrows of the Cotswolds* (Gloucester, 1925); *Arch.*, LXXXVI, 119ff; *PPS.*, IV, 188ff.
gallery, with one or two transepts as in Brittany (p. 298) and the Channel Islands, opens on to the forecourt. Often, however, this ends in a dummy portal while one or more small chambers, in two cases entered through porthole stones, open on to the sides of the barrow. Finally both in South England, East Anglia and Yorkshire there are "unchambered" long barrows covering no stone chambers. But traces of a wooden chamber were found at Wor Barrow, Dorset,¹ there are "pit-dwellings"—perhaps attempts at a rock-cut chamber—under several Yorkshire long barrows² and at Skendleby, Lincolnshire³ and Maiden Castle, Dorset,⁴ the forecourt of the long cairn was reproduced in a timber revetment at the east end.

An almost slavish adherence to details of Iberic and Pyrenean funerary architecture in Scotland and Ireland proclaims the South-western origin of our tombs' designers. The interpenetration of several types and local divergences from standard plans indicate the complex relations and prolonged development of insular megalithic culture. The grave-goods justify the same conclusions.

Late and specialized varieties of Windmill Hill pottery and leaf-shaped arrow-heads were deposited with the primary

¹ PPS., I, 119, fig. 3.
² PPS., I, 124, fig. 7.
³ Arch., LXXXV (1936), 46-9, 86.
⁴ PPS., III (1937), 440.

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Fig. 148. North Scottish passage graves: 1, Quoyness, Sanday, Orkney; 2, Ormiegill, Caithness.
burials in tombs of all groups save the Boyne tholoi, which had been plundered in antiquity. Some Scottish\footnote{Childe, Prehistory of Scotland, 65-67.} and North Irish\footnote{PSEA., VII (1932), 62; UJA., 1938, 70.} segmented cists contain also vases decorated with semicircles and other designs arranged in panels and executed either by channelling as in South France and Brittany or with twisted cord impressions, as in Denmark (Beacharra Ware, Fig. 142, 2). In Orkney and at least one tomb of the Boyne group\footnote{JRSAI., LXV (1935), 320-4.} the place of Beacharra ware is taken by Unstan pottery—wide bowls decorated with alternating triangles hatched with heavy incisions or stab-and-drag lines.

Some tombs in all groups contain also Beaker ware or polished and slug knives proper to the same horizon. In Skye, the Hebrides\footnote{Arch. Camb., LXXXVIII (1933), 223.} and Anglesey,\footnote{Arch. Camb., LXXXVIII (1933), 223.} however, the beakers were demonstrably associated with secondary interments, later than those accompanied by Windmill Hill or Beacharra ware. In Wessex, too, Wor Barrow and that at Maiden Castle had been piled up demonstrably before the arrival of Beaker folk, though the barrow at Maiden Castle straddles the abandoned defences of an earlier "neolithic" causewayed camp. The barrow at Skendleby, Lincolnshire, however, was not erected before B Beakers had

\begin{itemize}
  \item Fig. 149. Long stalled cairn, Midhowe, Rousay.
\end{itemize}
reached the county, though it was older than A Beakers.\(^1\) Hence on the Atlantic coasts and even in Wessex long collective tombs are pre-Beaker, but some continued in use into the Beaker period, and on the East Coast were still being erected during that phase. A still longer use of collective sepulchres may be inferred from the occurrence in Irish tholoi of Food Vessels and stone beads proper to the post-Beaker period in England. In general the culture sequence in Britain—pure Western neolithic, megaliths, Beakers—presents a satisfactory parallel to that already expounded in Almeria, South France and Brittany.

But, judged by the grave-goods, the megalithic culture in Britain remained neolithic. The multitude of bones of calves, sheep and game animals (including horses\(^2\)) suggests an economy based mainly on stock-breeding and hunting, a conclusion reached by anthropologists from the fine preservation of teeth in skulls from long barrows. Normally the sepulchres stand alone as if belonging to an Einzelhof or a tiny local clan. Only the passage grave cemeteries of Central Ireland (Lough Crew, Carrowkeel Mountain) could belong to even a large village—at Carrowkeel a group of round huts was actually surveyed.

Nevertheless it is likely that the megalith-builders indirectly promoted trade and brought in their wake expert metallurgists. In Ireland hollow-based arrow-heads of Portuguese type and even halberd-blades with polished faces (like Fig. 125, 3) are relatively common. The exploitation of Irish copper and probably also of Cornish tin must go back to the megalithic period. At least by Beaker times flat and hammer-flanged axes were being exported from Ireland to Britain.\(^3\) The flint halberd had been translated into metal and been developed through four stages before the first Irish halberds were exported to the Continent in Danubian period IV.\(^4\) But the first British purchasers for Irish metallurgical products were the Beaker invaders who also created the political conditions necessary for their regular distribution.

\(^1\) Arch., LXXXV (1936), 53.
\(^2\) Crawford, Long Barrows of Cotswolds, 26.
\(^3\) Fox, Personality of Britain, pl. II, maps the distribution.
\(^4\) Arch., LXXXVI, 298-305.
THE ROUND-HEADED INVADERS

While the megalithic culture was still spreading from the West new invaders, the Beaker folk, were establishing their sway in Lowland Britain. This invasion, first scientifically demonstrated by Abercromby in 1902,¹ can now be seen to be a very complex process. All the invaders indeed were round-headed, practised individual interment, generally under round barrows, and deposited beakers in their graves. But two main groups² can be distinguished by peculiarities of armament and pottery and the first groups, characterized by so-called B Beakers, must be subdivided. The first arrivals brought B Beakers decorated with simple zoned patterns, rouletted or cord-impressed and preserving the profile of Continental Beakers, together with West European daggers, tanged-and-barbed arrow-heads (Fig. 146, 1) and stone wrist-guards. In Southern England some of these invaders may have crossed the Channel from Brittany while others admittedly came from the Rhineland. In Scotland and Western Yorkshire B Beakers decorated with a spiral cord impression are more closely connected with those of north Holland and the Pyrenees. One beaker from Sligo is Breton or Pyrenæan. This group reached Britain before the marine transgression which submerged the "Lyonesse" surface along the Essex coast.

A later but larger contingent of intruders came from the Rhineland via Holland. These used A Beakers, coarser in fabric than B, often decorated with metopic patterns and in profile resembling corded beakers. They were armed with round-heeled riveted daggers, presumably of Irish manufacture, or with flint imitations, arrows tipped with tanged-and-barbed flint heads and stone battle-axes. Their armament, pottery, burial rites and tall stature suggest that the A Beaker folk were a hybrid stock with a mixed culture, blending Bell-beaker and Battle-axe traditions. In Britain the two groups seem to have amalgamated. Beakers remained in fashion, especially in North Britain, for quite a long time, but the late degenerate Beakers, termed C Beakers, seldom clearly disclose their ancestry in A rather than B vases.

¹ JRAI., XXXII, 391; the same author's Bronze Age Pottery of Great Britain and Ireland, Oxford, 1912, remains the principal source for the Beaker and Food Vessel cultures.
² Clark, Antiquity, V (1931), 415; Piggott, PPS., IV, 56.
While these invasions were in progress, other groups emerge in Eastern Britain. Peterborough folk\(^1\) settled by preference along river valleys, around the fens and on the coasts like mesolithic Forest folk, and their economy seems at first to have been largely mesolithic. As arrow-heads they used lop-sided derivatives\(^2\) of the transverse mesolithic type. But they did make pots, badly fired, modelled on baskets and decorated with horizontal zones of pits, "maggots" made with a loop of whipped cords and the imprint of birds' leg bones (Fig. 150). Both in form and decoration these vases are extraordinarily like those made by Forest folk around the

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\(^1\) Arch. J., LXXXVIII, 58-66; 110-30; PPS., IV, 55.

\(^2\) Arch. J., XCI (1934), 32-55.
Baltic so their makers may have come from the now submerged fringe of the North European plain beyond the North Sea where food-gatherers had survived into period III (p. 202). But in England they began to thicken their pots' rims in the later Windmill Hill manner. In any case they were firmly established in East Anglia before the so-called “Lyonesse” transgression of the sea.

During the Beaker period Peterborough folk spread westward to Galloway and Anglesey. Peterborough and Beaker wares are often found together, and Peterborough vases occur even in megalithic tombs in Wessex and Anglesey. Some groups of Peterborough folk seem to have turned from gathering to industry and to have combined hunting expeditions with trade. Their pottery has been found in flint mines at Grimes' Graves, Norfolk, and they may have been responsible for transporting axes of Graig Llwydd stone from the factory in North Wales to Wessex and Anglesey.

The Skara Brae culture was due to pastoral communities who bred sheep as much as cattle and, like Peterborough folk, appear in East Anglia before the Lyonesse transgression. But during the Beaker period they spread westward as far as Wessex and northward right to Orkney. On the wind-swept islands they found ideal pastures for their flocks and herds, but were forced to translate into stone, dwellings and furniture elsewhere made of wood. Their huts, grouped in hamlets of seven or eight, and several times rebuilt on the old site, were some 15 ft. square. On either side of the central hearth are fixed beds framed with stone slabs on edge and covered with canopies of hide. A dresser stood against the back wall, there were cupboards above the beds and tanks let into the floor. As clothing skins were worn for the dressing of which innumerable scrapers of flint and awls and other bone tools were made. Axes, of polished stone, were mounted in perforated antler sleeves. The pots, though badly fired, were flat-bottomed and decorated with grooved or applied ribs and knobs forming lozenges, wavy lines and even spirals.

1 From the buried channel of the Ebbsfleet stream Burchell has recovered sherds with simple rims more like the Baltic pots, PPS., IV, 336.
2 Arch., LXXXV, 285.
4 PPS., II (1936), 191-201.
A good deal of the Skara Brae equipment might be derived from the Forest culture; the sheep might have been taken from Beaker folk, but, like the antler sleeves, alternatively might have been introduced by an infiltration of SOM people from North France. In Orkney the culture retained its individuality till Beaker folk (with degenerate C Beakers) reached\(^1\) at length the remote islands. And elsewhere too it formed an important constituent of the later Bronze Age cultures.

Throughout Great Britain the Beaker folk came to form the dominant element in a very heterogeneous population. They even gained admission into communities using megalithic sepulchres, but eventually put an end to collective burial in Britain; in Ireland the practice persisted, the few Beaker folk who crossed over from England\(^2\) being absorbed in the native population. The invaders cultivated cereals and indeed ate more of them than the megalith-builders. But they were still pastoralists and probably introduced more extensive sheep-breeding. They purchased weapons of bronze and flints from the mines, and ornaments of gold, amber and jet. They thus encouraged trade, but there is no evidence that they engaged themselves in the exploitation of these substances. Very few Beakers have been found in Cornwall and Ireland, and metal workers seem to have been excluded from the classes entitled to burial under a barrow or in a circle.

The Beaker aristocracy of Britain devoted their surplus wealth and energies to the erection of sepulchral and religious monuments carrying on the tradition of the megalith-builders. Circular fosses or rings of posts or stones had been an integral element in Battle-axe funerary practice even in South Russia. In Britain it finds its culminating expression in circles of huge stones or timber uprights like Avebury and Stonehenge. These monuments in Britain are not in all cases demonstrably sepulchral and could serve a useful secular purpose in the regulation of the calendar.\(^3\) The extravagant size of the uprights must, however, be due to the example of megalith-builders, and it must have been they who invested particular stones with such sanctity that it was felt essential to bring

\(^1\) *Ant. J.*, XVIII, 402; *PSAS.*, LXXIII (1938-9).
\(^2\) *UJA.*, 1938, 178-88.
\(^3\) Hogben, *Science for the Citizen*, 69.
monoliths from Preselly in South-west Wales all the way to Wiltshire for re-erection in Stonehenge.

THE DAWN OF THE MIDDLE BRONZE AGE

The Beaker period in Britain coincides effectively with the Early Bronze Age. By its end a substantial cultural uniformity had been established throughout the Island. This uniformity was broken up and the British Middle Bronze Age ushered in with the establishment in Wessex of a new culture. It is distinguished by the emergence of a class of rich chiefs or aristocrats, by the general adoption of cremation, by new weapons—grooved daggers like the Armorican ones described on p. 302—and new pottery fashions—small vessels decorated with finely incised and punctuated ribbons or with knobs—grape cups. These pots clearly derive from the later Chassey ware of France; the grooved daggers resemble the Armorican ones described on p. 302. Hilts studded with gold nails, arrow-heads with squared tangs-and-barbs, sceptre-mounts and other Armorican types occur in the Wessex barrows, too. The Wessex and the Armorican Bronze Age cultures are closely interrelated, and Piggott has argued that the rich Wessex chieftains were conquerors, come from Brittany. However, Beaker, Skara Brae and Peterborough traditions survived and assert themselves in the Cinerary Urns often associated with the small vases of Chassey ancestry.

Despite very numerous barrows, settlements of the Wessex and contemporary cultures are unknown, and the causewayed hill-top camps, still sometimes frequented during the Beaker phase, were definitely deserted. It looks as if hunting and pastoralism had gained in importance at the expense of agriculture. But the Wessex chieftains created political conditions favourable to trade and industry. Commerce brought supplies of copper, tin, gold and amber. Scandinavian thick-butted axes and daggers of flint, occasional pins of Aunjetitz type and beads of Egyptian fayence (Fig. 151).

Fig. 151. Segmented fayence beads, Wilts. (\(\)) By permission of the Trustees of the British Museum.

ones described on p. 302. Hilts studded with gold nails, arrow-heads with squared tangs-and-barbs, sceptre-mounts and other Armorican types occur in the Wessex barrows, too. The Wessex and the Armorican Bronze Age cultures are closely interrelated, and Piggott has argued that the rich Wessex chieftains were conquerors, come from Brittany. However, Beaker, Skara Brae and Peterborough traditions survived and assert themselves in the Cinerary Urns often associated with the small vases of Chassey ancestry.

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1 Piggott, PPS., IV, 60-90.
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Native metallurgists developed the celt with cast flanges leading on to the palstav and the tanged spear-head which they converted into a distinctively British type of socketed spear-head (Fig. 152).

Outside the Wessex province the Beaker culture lingered on in some areas like Derbyshire and Aberdeenshire while generally in the Highland Zone megalithic and Peterborough elements reasserted themselves. The latter are represented by

![Evolution of a socketed spear-head in Britain after Greenwell: 1, Hittlesham, Suffolk; 2, Snowshill, Glos.; 3, Arreton Down, Wilts. (I).](image)

1 Abercromby, *Bronze Age Pottery*, I; Childe, *Scotland*, 89.
like the Iberic bowls associated with Bell-beakers shown in Fig. 107, 2. Elements derived from the megalithic pottery of

Northern Ireland can also be detected. Indeed Food Vessels of this series recur, as stated, in some corbelled tombs of the Boyne type at Carrowkeel and elsewhere.

While there are no more settlements of the Food Vessel than of the Wessex culture, trade and industry developed. It was now that the Irish halberd reached the form that was exported to the North of Europe. The gold-smith, already expert in shaping and engraving sheets of hammered metal, was proceeding to work cast bars. Basket-shaped earrings (Fig. 154) exported to Scotland, Yorkshire, Belgium\(^1\) and Poland are derived in the last resort from the

\(^1\) *Mat.*, 1885, 318.
Trojan earrings like Fig. 22, 1. Gold lunulæ (Fig. 155), which were traded to North Germany, Brittany and perhaps Portugal, may in the last resort be inspired by the collars worn by Egyptian nobles, but they may be immediately translations into sheet gold of the crescentic jet necklaces so common with Food Vessels in Scotland, just as in Wessex these were translated into amber.

The widespread diffusion of Britannico-Hibernian metal work and the variety of foreign products that reached the British Isles in exchange not only illustrate the leading rôle of the islands at the dawn of the Continental Bronze Age and the diverse influences blended in insular culture. They also provide a unique opportunity for correlating several chronological sequences. The segmented beads, found as imports in Wessex graves (Fig. 151) point to a date round about 1400 B.C. for the burials in question. A gold-plated amber bead from a grave of the same culture narrows down the limits; for it is identical with an amber bead from a L.M.I tomb at Knossos. Hence the Wessex phase should begin as early as 1500 B.C. Danubian

1 *PSAS.*, LXIII, 164; twelve have been found with Food Vessels, two with beakers.
2 *Arch.*, LXV (1913-14), 42; cf. *PPS.*, IV, 70, No. 23; and *Am. Anthr.*, XXXIX (1937), 20, No. 10.
and North European chronologies can be checked against this dating.

Bulb, trilobate and crutch-headed pins of Aunjetitz type\(^1\) like Figs. 59, 6, 8 and 9, from Wessex graves and an Irish gold ornament of the bar style\(^2\) and derivatives of Irish halberds in Aunjetitz graves and hoards establish a partial synchronism between Danubian period IV and the "early Middle Bronze Age" in Britain. Similarly, a double-axe bead of shale, imitating the Danish Passage Grave type, from a Wessex grave at Normanton and parallels to Passage Grave axes from contemporary East Anglian barrows\(^3\) suggest that the same advanced phase of the British Bronze Age overlapped with part at least of the Northern Passage Grave period, Montelius' neolithic III. Accordingly the Beaker invasion of Britain must go back well into Danubian III. And the still earlier megalithic phase in Britain must coincide with the beginning of that period or even the later part of Danubian II. Correlations with the Iberian Peninsula follow. Segmented fayence beads establish a partial synchronism between the Argaric Bronze Age and the Wessex culture, i.e. Danubian IVb. The preceding phases of Danubian IV and III must then be occupied in the Peninsula, as in Britain, by the long Beaker phase. No room is left after that in Spain for a beakerless Los Millares-Alcalá phase. This must accordingly be pre-Beaker and contemporary with the earlier British megaliths and so begin no later than Danubian III.

Britain forms an exception to the principles of zoning which we have hitherto observed. Though lying at the extreme pole from the East Mediterranean foci of civilization, she outstripped in metallurgy and commerce such intervening regions as South France, Switzerland and Southern Germany, to say nothing of the North. This superiority may be explained by the variety of cultural influences focused on the islands by reason of their geographical position and wealth in metal. The failure to advance farther towards urban civilization, may be attributed to the exposure of the Lowland Zone to invasion by less progressive Continentals and the persistence in the Highland Zone of that pre-occupation with superstition everywhere associated with the megalithic cult.

\(^{1}\) _PPS._, IV, 85; _Am. Anthr._, XXXIX, 10.  
\(^{2}\) _Germania_, XXII (1938), 7-11.  
\(^{3}\) _Ant. J._, XV (1935), 62.
CHAPTER XIX

Retrospect

Our survey of prehistoric Europe has disclosed a fragmentary mosaic of barbaric cultures—or rather several imperfect mosaics one on the top of the other. All are so incomplete that the pieces can be fitted to make different patterns. It is often doubtful to which mosaic an individual fragment belongs. By transposing pieces from one mosaic to another the patterns are radically altered and their whole significance is drastically changed. Four maps below illustrate the sort of patterns obtainable on one system of grouping the fragments. Other systems have been considered in the text. By transferring Northern and Western cultures here shown only on maps III and IV to maps I and II another picture would emerge involving a new interpretation of the relations between Orient and Occident. The pattern here adopted has frankly been determined as much by a subjective thesis as by the interdigitation of its component parts.

Concrete links have been traced between Hither Asia and the Ægean on the one hand and Western and Northern Europe on the other, along the Danube thoroughfare, over the great European plain and round the Western coasts. There is no doubt about the solidity of the links, but they are ambivalent. From Mesopotamia, Anatolia and Crete to illiterate Scandinavia, Britain and Spain the chains are unbreakable. But the component links are so loose that the lengths of the chains are variable at will. We are left in doubt how far they hang down into the timeless abyss of prehistory from their firm attachments in Oriental history.

In the several corridors and provinces surveyed we could recognize several periods, generally reducible to four. In each region these are well interlocked, but there is room for much play when different regions are compared. In the synchronistic tables that follow, the several columns can often be moved up and down freely and independently.
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- **X** STONE BATTLE AXES.
- **G** SEGMENTED FAYENCE BEADS.
- **O** BEAKERS.
- **O** CHASSEY & CHANNELED WARES.
- **T** HAMMER-HEADED NAXIS.
- **X** WINGED BEADS.
- **X** HALF BARREL BEADS.
- **+** HANDLE OF TYPE OF FIG 112-3.
- **Z** AXE ADZE.
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<td>LEUBINGEN LAUSITZ</td>
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It is not till period IV that actual Egyptian manufactures and slavish copies of Asiatic ornaments prove beyond cavil the reception of Oriental influences in the Danube valley, in Spain and Britain. There is no doubt that the segmented fayence beads from graves of that period in Hungary and England are of Egyptian manufacture. Their dating about 1400 B.C. depends, however, on a single grave-group and cannot therefore be accepted as final. The ornaments copied in Central Europe were fashionable in Asia for nearly two thousand years after 3000 B.C. Hence they give no precise terminus post quem for the Early Bronze Age in Europe.

We have here adopted the one documented date for the beads and correspondingly low dates for the bronze ornaments. Not only does such a chronology give a consistent pattern. Not only does it accord with a priori expectations. A survey based on it reveals a zoning of culture of quite the same sort as written history discloses in the second half of the first millennium B.C., and down to the collapse of Rome—indeed just the sort of zoning deduced from the diffusionist postulate itself. Moving from the metropolitan civilizations of Egypt, Babylonia and the Hittite realm at the centre, our map IV discloses:

(1) Fully-literate city-dwellers in peninsular and insular Greece;
(2) Illiterate townsmen in Macedonia and Sicily;
(3) Sedentary villagers with at least a specialized bronze industry and regular commerce to support it, in the Middle Danube basin, in South-east Spain and perhaps on the Kuban.
(4) Less stable communities less highly differentiated, in the Upper Danube basin, Southern and Central Germany, Switzerland, England and South Russia;
(5) Self-sufficing neolithic societies in Southern Scandinavia, Northern Germany and Orkney;
(6) Groups barely emerging from savagery in the far northern forests.

Even by adopting a long chronology, i.e. by taking the maximal dates for the Oriental ornaments copied in period IV, this picture will not be seriously distorted. Egypt and
Mesopotamia, but not Anatolia, retain their capital status. The Ægean world, and with it Sicily, descend one grade in the scale. Central Europe, South-east Spain and Britain still rank as Bronze Age, Scandinavia, and Orkney remain neolithic. But South Russia looses grade.

But for earlier periods, the adoption of a long chronology has disconcerting results. The Vardar-Morava continuum must be interpreted as the result of a southward spread of Danubian culture; the Battle-axe cultures must start spontaneously in Central Europe or Denmark, and thence flood the Caucasus, Anatolia and Greece. The spread of megalithic tombs must be reversed so that Minoan tholoi and even Egyptian mastabas become final elaborations of architectural forms created in the barbaric west or north. We are left in period I with neolithic Westerners and Danubians, certainly a stage or two below the contemporary Halafians of Hither Asia and Badarians in Egypt, but no longer connected therewith by recognizable intermediate stages.

The long chronology may be gratifying to the local patriotism of North Europeans. Assuming the identity of Battle-axe folk and Indo-Europeans, it relegates the Aryan cradle to the Baltic coasts or Central Germany. For this reason it is on the way to becoming a statutorily sanctioned dogma in Germany—and is suspect scientifically. But this long chronology and its consequences cannot be refuted by any single concrete fact. It is rejected here essentially on grounds of general probability.

Our short chronology preserves for the New Stone Age the same sort of pattern as prehistory (on any chronology), offers in the Bronze Age and history discloses from the second Iron Age. Our picture of period I differs from that of period IV in the same way as the latter picture differs from the earliest historical picture ten or twelve centuries later. We have the same sort of zones, but their radii are shorter. Moving from the centres of fully literate urban life in Egypt and Mesopotamia map I shows:

1. "Bronze Age" townships in Crete, Anatolia and peninsular Greece.
2. Sedentary neolithic villagers in Thessaly, the Balkans, South-eastern Sicily and South-east Spain.
Semi-nomadic self-sufficing peasants on the Danubian löss lands and in Western Europe, including perhaps Southern England.

Only food-gatherers on the North European plain and in the northern forests.

Maps II and III then disclose the orderly expansion of these zones till the configuration, admittedly subsisting in period IV, be reached.

Is this latter picture really so unflattering to our ancestors? Had these attained a Bronze Age culture before 2500 B.C., the progress they made in the next two millennia compared with the achievements of Egyptians and Babylonians would seem quite insignificant. They would have to be judged backward, slow-witted barbarians. On the short chronology the creation, albeit not unaided, of a Bronze Age economy in fifteen hundred years, the ascent to the brilliant Celtic culture of La Tène in the next thousand would be respectable achievements.

Nor does the short chronology finally relegate the Aryan cradle to Asia. If any group, discoverable by archaeological means, can lay claim to represent the ancestors of the Celts, the Teutons, Italici, Illyrians and Slavs, it is the so-called Battle-axe culture. It was traceable even in Greece and Macedonia shortly before the cultures that have some claim to the name Hellenic first emerge. But the Battle-axe cultures themselves might still originate in Jutland, in Central Europe, or in South Russia or indeed at any and every point on the European plain where Forest folk came into collision with advancing peasant cultures. But the battle-axe itself seems older in Anatolia than in any more westerly region!
EXPLANATION OF MAPS
EXPLANATION OF MAP I
EUROPE IN PERIOD I

I  Minoan civilization.
II  West Anatolian culture.
III  Early Cycladic culture.
IV  Early Helladic culture.
V  Vardar-Morava culture.
VI  Körös culture.
VII  Bükk culture.
VIII  Danubian I culture.
IX  Boian A culture.
XIII  Stentinello-Molfetta cultures.
XV  Almeria culture (El Garcel).
XVI  Cortaillod culture.
XVIII  Windmill Hill culture.
EXPLANATION OF MAP II
EUROPE IN PERIOD II

I Early Minoan civilization.
II West Anatolian culture.
III Early Cycladic culture.
IV Early Helladic culture.
V Early Macedonian culture.
VI Vardar-Morava complex.
VII Tisza culture.
VIII Danubian II culture.
VIIIa Danubian I survivals.
IX Gumelnita culture.
X Tripolye culture.
XI Kuban culture.
XIa Steppe cultures (?)
XII First Northern culture.
XIII Siculan I culture.
XV Los Millares culture and colonial extensions.
XVI Cortaillod culture.
XVIa Michelsberg culture.
XVII Chassey culture.
XVIII Windmill Hill culture.
XIX Beacharra culture.
XIXa Unstan culture.
XX Forest cultures with pit-comb ware.
EXPLANATION OF MAP III
EUROPE IN PERIOD III

I Minoan civilization.
II West Anatolian culture.
III Cycladic culture.
IV Middle Helladic culture.
V Middle Macedonian culture.
VII Bodrogkeresztur culture.
VIII Baden culture.
IX Gumelnita culture.
X Tripolye culture.
XII Northern Megalithic culture.
XIIa Walternienburg culture.
XIII Siculan I culture.
XIV South Italian Copper Age.
XIVa Remedello culture.
XV Los Millares—Palmella—Ciemposuelos.
XVI Horgen culture.
XVIa Michelsberg culture.
XVIII Britannico-Hibernian Bronze Age culture.

BATTLE-AXE CULTURES
A Pontic-Kuban.
B Zlota.
C Saxo-Thuringian.
D Fatyanovo.
E Boat-axe.
F Separate Grave.
G Oder.
PERIOD III

- Boundaries of Neolithic Cultures
- "Copper Age"
- "Bronze Age"
- "Urban Civilizations"
- Battle Axe Cultures
- Bell Beakers
EXPLANATION OF MAP IV
EUROPE IN PERIOD IV c. 1400 B.C.

I Minoan-Mycenaean civilization.
II Civilization of Troy VI.
VII Perijamos culture.
VIII Aunjetitz culture.
IX Glina III culture.
X Pontic Copper Age.
XII Northern culture.
XIIa Globular Amphore.
XIII Siculan II culture.
XIV Terremare and allied cultures.
XV El Argar culture.
XVI Mondsee-Altheim culture.
XVII Armorican Bronze Age.
XVIII Wessex culture.
XIX Food-vessel culture.

BATTLE-AXE CULTURES.
E Boat-axe.
F Separate Grave.
G Oder.
PERIOD IV

- Boundaries of Neolithic Cultures
- Copper Age
- Bronze Age
- Urban Civilizations

+++ Central Amber Route
++++ SOM Megaliths
Battle Axe Cultures
○ Globular Amphoras
***** Megaliths
NOTES ON TERMINOLOGY

Definitions of certain terms, descriptive of ceramic decoration, here used in a special or restricted sense.

Cardial—decorated with lines executed with a shell edge.
Channelled—with relatively wide and shallow incisions, round-bottomed.
Cordoned—with applied strips of clay in relief.
Crusted—with colours (paints) applied to the vase surface after the firing of the vessel.
Excised—with regular small triangular or square hollows made by depressing the surface or actually cut out ("fret-work" or "chip-carving" or "false relief").
Fluted—with flutings separated only by a sharp narrow ridge.
Grooved—with broad incisions, not normally round-bottomed.
Incrusted—with incised lines filled with white or coloured paste.
Maggot—with the impressions of a loop of whipped threads, see Fig. 150.
Particoloured—by firing the vessel so that part is reddened by the oxidization of the iron oxides exposed to a free access of air while part is blackened by the reduction of these oxides. (Egyptian black-topped ware is one variety.)
Rusticated—by roughening the surface, generally covered with a thick slip, by pinching with the fingers, brushing, etc. ("barbotine").
Rouletted—as described on p. 214.
Stab-and-drag—decorated with continuous lines formed by jabbing a pointed implement into the soft clay, then drawing the point backwards a short distance and stabbing it in again and so on.

Celt, a term formerly used to describe chopping implements of stone or metal that could be used as axes, adzes, gouges, chisels or even hoe-blades. Here we distinguish, where possible, between the several types and in particular describe as

Adze—a celt that is asymmetrical about its major axis so that it could not possibly be used as an axe (Fig. 29, D, B). When hafted the handle is perpendicular to the plane of the blade.
Axe—therefore describes a celt that is symmetrical about its major axis even though such a celt could often be used as an adze.
An axe (or adze) provided with a hole for the shaft, like a modern axe-head, is termed a shaft-hole axe (or adze), but, if the butt end is elongated and carefully shaped, the term battle-axe is conventionally used.

Burials should be described as contracted when the knees are drawn up towards the chin so as to make an angle of 90° or less with the spinal column. When the angle is more than a right angle, the term flexed should be used. Owing to ambiguities in the authorities followed, it has not been possible to maintain this distinction strictly here.
ABBREVIATIONS

PERIODICALS AND COLLECTIVE WORKS

*Aarbøger*  
*Aarbøger for Nordisk Oldkyndighed og Historie*, Copenhagen.

*Acta Arch.*  

*AΔ.*  
*Ἀρχαιολογικῶν Δελτίων*, Athens.

*A.E.*  
*Archaeologai Eretitō*, Buda-Pest (A Magyar Tudományos Akademia).

*AfO.*  
*Archiv für Orientforschung*, Vienna.

*AfA.*  
*Archiv für Anthropologie*, Brunswick.

*Afas.*  
Association française pour l’avancement des Sciences (Reports of congresses).

*A.J.A.*  
*American Journal of Archaeology*, Bryn Mawr (Archaeological Institute of America).

*Altschles.*  
*Altschlesiens*, Breslau (Schlesische Altertumsverein).

*Am. Anthr.*  
*American Anthropologist* (New Haven).

*A.M.*  
*Mitteilungen des archäologischen Instituts des deutschen Reiches, athenische Abteilung.*

*Antiquity*  
*Antiquity*, Gloucester.

*Ant. J.*  

*Anuari*  
*Anuari de l’Institut d’Estudis Catalans*, Barcelona.

*Arch.*  
*Archaeologia*, London (Society of Antiquaries).

*Arch. Camb.*  
*Archæologia Cambrensis*, Cardiff.

*Arch. Ert.*  
see A.E.

*Arch. Hung.*  
*Archæologia Hungarica*, Buda-Pest.

*Arch. J.*  

*Årsberättelse.*  
*K. Humanistitska Vetenskapssamfundets i Lund.*

*A.P.L.*  
*Archivo de Prehistoria Levantina*, Valencia.

*ASA.*  
*Anzeiger für schweizerische Altertumskunde*, Zurich.

*ASAg.*  
*Archives suisses d’Anthropologie générale*, Geneva.

*ASPRB.*  
American School of Prehistoric Research, *Bulletin*, Newhaven, Conn.

*BCH.*  
*Bulletin de correspondence hellénique.*

*Bl.f.d.V.*  
*Blätter für deutsche Vorgeschichte*, Königsberg.

*BoI.R.Acad.Hist.*  
*Boletín de R. Academia de la Historia*, Madrid.

*BP.*  
*Bullettino di paletnologia italiana*, Parma, Roma.

*BRGK.*  
*Bericht der römisch-germanischen Kommission des arch. Instituts des deutschen Reiches*, Frankfurt.

*BSA.*  
*Annual of the British School at Athens.*

*BSR.*  
*Papers of the British School at Rome.*

*BSABrux.*  

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CIIA. Institut international d’anthropologie, Congrès.
CIPP. Comisión de investigaciones paleontológicas y prehistóricas, Madrid (Junta para Ampliación de estudios científicos).
CISPP. Congrès international des sciences préhistoriques et protohistoriques.
Dolg. Dolgozatok a m. kir. Ferencz József-tudományegyetem archaeologai intézetéből, Szeged.
'Εφ. 'Αρχ. 'Εφημερίς 'Αρχαιολογική, Athens.
ESA. Eurasia septentrionalis antiqua, Helsinki.
FM. Finskt Museum, Helsinki.
Germania Römisch-germanische Kommission des archäologischen Instituts des deutschen Reiches.
IPEK. Jahrbuch für prähistorische und ethnographische Kunst, Köln.
Iraq. Iraq, London (British School of Archaeology in Iraq).
JRAI. Journal of the Royal Anthropological Institute, London.
JRSAI. Journal of the Royal Society of Antiquaries of Ireland, Dublin.
JSEA. Junta superior para excavaciones arqueológicas, Madrid.
JST. Jahresschrift für die Vorgeschichte der sächsisch-thüringischen Länder, Halle.
LAAA. Annals of Archaeology and Anthropology, Liverpool.
MA. Monumenti Antichi, Rome (Accademia dei Lincei).
MAGW. Mitteilungen der anthropologischen Gesellschaft in Wien.
MAGZ. Mitteilungen der antiquarischen Gesellschaft in Zürich.
MDOG. Mitteilungen der deutschen Orient-Gesellschaft, Berlin.
MSAN. Mémoires de la Société des Antiquaires du Nord, Copenhagen.
ABBREVIATIONS

NNU. Nachrichten aus Niedersächsens Urgeschichte, Hannover.
Obzor. Obzor prahistoricky, Praha.
OAP. O Archaeologo Portugues, Lisbon.
P.A. Památky archeologické a místopisné, Praha.
PRIA. Proceedings of the Royal Irish Academy, Dublin.
PrzegA. Przeglad Archeologiczny, Poznan.
PRSAI. Proceedings of the Royal Society of Antiquaries of Ireland, Dublin.
PSFA. Proceedings of the Prehistoric Society of East Anglia, Ipswich (continued as PPS.).
PZ. Prähistorische Zeitschrift, Berlin.
RAZ. Russ. Antropologicheskii Zhurnal, Moskva.
Real. Realexikon der Vorgeschichte, edited by Max Ebert, Berlin.
Rivista Rivista di Antropologia, Rome.
RQS. Revue des Questions scientifiques, Bruxelles.
SAC. Sussex Archæological Collections, Lewes.
SM. Suomen Museo, Helsinki.
SMYA. Suomen Muinaismuistoyhdistyksen Aiakahauskirja= Finska Fornminnesföreningens Tidskrift, Helsinki.
Swarotowit Swiatowit, Warsaw.
UJA. Ulster Journal of Archaeology (3rd ser.), Belfast.
WA. Wiadomości archeologiczne, Warsaw.
WPZ. Wiener Prähistorische Zeitschrift, Vienna.

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