

The Aryans

A Study of Indo-European Origins

By

V. GORDON CHILDE

B.Litt. (Oxon),

Author of "The Dawn of European Civilization"

LONDON

KEGAN PAUL, TRENCH, TRUBNER & CO., LTD.

NEW YORK: AEFRED A. KNOPF, INC.

1926

CONTENTS

CHAPTER	PAGE
I. LANGUAGE AND PREHISTORY	3
Appendix: Comparative tables of declensions and conjugations.	
II. THE FIRST APPEARANCE OF THE ARYANS ON THE STAGE OF HISTORY	16
(1) Aryan dynasts in Mesopotamia in the XVIth century B.C. (2) The problem of the Hittites. (3) Archæological pointers. (4) The Aryan invasion of India. (5) The Iranians in the first millennium B.C.	
III. THE ARYANIZATION OF THE MEDITERRANEAN	42
(1) Hellenes and Ægeans. (2) The Thracians and the Phrygians. (3) Ligurians and Italci. (4) The Peoples of the Sea and of the North in the Egyptian records. Appendix: the Achæan period.	
IV. PRIMITIVE ARYAN CULTURE RECONSTRUCTED BY LINGUISTIC PALÆONTOLOGY.	78
V. THE CASE FOR AN ASIATIC CRADLE OF THE ARYANS	94
(1) The alleged brachycephalic invasion. (2) The Vase-painters. (3) The Caucasus and the Iron Age in Europe. (4) The possibilities of the Anatolian plateau.	
VI. DID THE ARYANS ORIGINATE IN CENTRAL EUROPE ?	138
(1) Dr. Giles' hypothesis and the Danubian peasants. (2) The rite of cremation. (3) The Nordics in the Danube Valley. (4) The Alpines' descent upon the Danube Valley.	

CHAPTER	PAGE
VII. THE THEORY OF A NORTH EUROPEAN CRADLE	159
(1) The Aryans as blondes. (2) Scandinavia and the Germanist hypothesis.	
VIII. THE ARYANS IN SOUTH RUSSIA	183
The Migrations of the Aryans. Aryan groups in the Bronze Age. Appendix.	o
IX. THE RÔLE OF THE ARYANS IN HISTORY	207
BIBLIOGRAPHICAL NOTE	213
INDEX	217

LIST OF ILLUSTRATIONS

FIGS.	PAGE
1. Narâm-Sin, King of Agade, Semite	17
2. Asiatic Enemies depicted on the Chariot of Thothmes III	25
3. Axe from Susa	29
4. Early Iron Age Jug	49
5. Sherd of Achæan Ware from Tiryns	51
6. Bell-shaped Craters	54
7. Introduction of the Horse into Crete	57
8. Brooches	62
9. An Attack by Peoples of the Sea repulsed by the Egyptians	73
10. Head of a Philistine	74
11. Sword of Shardana Type in the British Museum	75
12. Types of Dagger	99
13. Painted Pottery from the Province of Honan, China	104
14. Painted Vases from Susa I	105
15. Painted Vase from Susa II	107
16. Types of Sickle	116
17. Engraved Bronzes of the Early Iron Age	117
18. Early Iron Age Brooches	118
19. Early Iron Age Vase, Transcaucasia	119
20. Early Iron Age Vase, Lower Austria	120
21. Early Iron Age Vase, Greece	121
22. Decorated Stone Battle-axe, Troy II	133
23. Decoration of Danubian Pottery from Butmir in Bosnia	140
24. Hungarian Battle-axes	150
25. Rapiers and Swords	153
26. Silver Vase from Maikop depicting Przybalski's Horse in a Caucasian Landscape	184
27. The Typology of the Battle-axe	190
28. Palæolithic Drawings of Horse and Mammoth from Combarelles, Dordogne (Magdalenian)	191

LIST OF PLATES

		<i>To face page</i>
I.	Hittite Deity (after <i>Wissenschaftliche Veröffentlichungen der deutschen Orient-Gesellschaft</i> , I)	28
II.	1. Darius the Great	38
	2. Iranian in Scythian Dress	38
	<i>(From photographs by the British Museum.)</i>	
III.	Achæan and Minoan Armament	52
IVa	Bronze Statuette from Sardinia (British Museum)	72
V.	1. Shakalasha	74
	2. Shardana	74
	<i>(From photographs by Sir Flinders Petrie.)</i>	
VI.	Seals, Painted Pottery and Figurines, from the Indus Valley (<i>from photographs by the Director-General of Archaeology in India</i>) .	108
VII.	1. Derden	134
	2. Takrui	134
	3. Pulesatha	134
	<i>(From photographs by Sir Flinders Petrie.)</i>	
VIII.	1. Magaron House from the Federsee about 2000 B.C. (<i>From a model reconstructed by the Urgeschichtliches Forschungsinstitut, Tübingen.</i>)	160
	2. Head of a Kurd (<i>after J.R.A.I., xli</i>)	160
	Map showing the distribution of Aryan languages and painted pottery in Europe and Asia.	

PREFACE

THE startling discoveries in the Ancient East and the great progress made in the study of the prehistoric civilizations of Europe, and especially of Greece, seem to make the moment propitious for a fresh survey of the fascinating question as to the origin and diffusion of those languages to which we, in common with the ancient Greeks, Romans, and Hindus, are heirs. In fact, no full discussion of the Aryan question has appeared in English for the last twenty-five years, while during that time the Minoan origins of the pre-Hellenic civilization of Greece, the presence of Aryan rulers in Mesopotamia by the XVth century and of an Indo-European element in the Hittite language have been revealed.

Yet my path is beset with pitfalls. Philologists will at once complain that the term "Aryan" is unscientific. Of course, I know that only the Indians and Iranians actually designated themselves by this name. But what expression is to be used conventionally to denote the linguistic ancestors of the Celts, Teutons, Romans, Hellenes, and Hindus if Aryan is to be restricted to the Indo-Iranians? The word Indo-European is clumsy and cannot even claim to be scientific now that Indian Sanskrit is no longer the most easterly member of the linguistic family known. Dr. Giles' term, *Wiros*, is certainly accurate, but, as thus written, it is so ugly that the reviewers have laughed it out of literature. Aryan on the other hand has the advantage of brevity and familiarity. I therefore propose to retain it, quite conventionally, in the traditional sense.

In the second place views on several crucial issues are very much in a state of flux at the moment. They may at any time be revolutionized by the fresh discoveries that are being announced

every day from India and Cappadocia. Yet it is just this activity which makes an attempt to clarify the whole question urgently needed. To await the decipherment of all the Hittite archives and the excavation of every mound in the Indus valley would be cowardice. Still, the uncertainty ruling in these domains makes a relatively full statement of evidence desirable. That has been attempted in Chapters II and III. Without going into technical details, I have tried to summarize the main possibilities and to refer the reader to the chief sources of fuller information.

But the literary evidence from the Ancient East and the Ægean is still inconclusive. It must be supplemented by archæological and anthropological data. Hence in the subsequent chapters, the several traditional theories on the "cradle of the Aryans" have been re-examined in the light of the new evidence of that kind. But this procedure is peculiarly precarious. "Race" has different connotations for the physical anthropologist and the philologist. At the same time the correlation between the cultural groups, defined by pottery, tools, and weapons, and ethnic or linguistic groups is always speculative. It is only exceptionally that we find in a given area one culture superseded bodily by another in such a way that only ethnic movements will explain the change, and it is still rarer that the new element can be traced unambiguously to a specific focus. Normally other factors, such as trade and cultural borrowing or mere convergent evolution, have to be taken into account. Conversely a new racial or linguistic element may insinuate itself into a given province without producing any abrupt change in culture. As a science based upon abstraction and comparison, prehistoric archæology cannot aspire to the concreteness of history. Hence, while making every possible allowance for such disturbing factors, I have deliberately simplified—perhaps over-simplified—my account of the racial history of Europe and Asia rather than cumber these pages with a mass of technicalities which would still fall short of the complexity of the real.

It has seemed kindest to pass over in silence two theories recently propounded in England and France respectively, since they are so ill-founded that they will not even possess an interest as historical curiosities.

For the photographs illustrating this book, I am indebted to

the courtesy of the Deutsch Orient-Gesellschaft (Plate I), the Trustees of the British Museum (Plates II and IV), Sir Flinders Petrie (Plates V and VII), the Director-General of Archæology in India (Plate VI), the Urgeschichtliches Forschungsinstitut, Tübingen (Plate VIII, 1), and the Royal Anthropological Institute of Great Britain and Ireland (Plate VIII, 2). I must also express my sincerest thanks to Miss M. Joachim for reading the proofs.

V. GORDON CHILDE.

TRANSLITERATIONS

The palatals are represented in Indo-European by \acute{k} , \acute{g} , \acute{gh} . The corresponding sounds in Sanskrit are transcribed, according to the orthography of the *J.R.A.S.*, by *c*, *j*, *jh* and the palatal *s* is written \acute{s} (pronounced rather like *sh*).

The Sanskrit linguāls are written *t*, *th*, *ḍ*, *ḍh*, *s* (pronounced *sh*) and *n*.

The Sanskrit anusvara, \tilde{h} , is derived from final *s* or *r* which is, however, sometimes retained for clearness.

In Old Persian \acute{s} is pronounced *sh* and so in other languages using the cuneiform script and in Zend.

In Gothic the symbol β has been retained to express a sound resembling *th* in then.

In Lithuanian *sz* is pronounced *sh*; *w* stands for *v*, and *j* for *y*; \acute{a} , \acute{e} are nasalized vowels, *y* the hard *i*, as in Russian.

The exact differences in pronunciation denoted by the modified letters in Tocharian, *t*, *k*, *c*, etc., is uncertain; they correspond to special letters in the Tocharian texts; otherwise the orthography of Tocharian follows that adopted for Sanskrit.

THE ARYANS

NEW LIGHT ON INDO-EUROPEAN ORIGINS

CHAPTER I

LANGUAGE AND PREHISTORY

Man's progress from savagery to civilization is intimately bound up with the advance of abstract thinking, which enables him to rise above the chaos of particular sensations and to fashion therefrom an ordered cosmos. The growth of reasoning in its turn goes hand in hand with the development of language. The substratum of modern intellectual activities is very largely composed of those syntheses of audile and muscular sensations or images which represent words. These are not only means of communication, but also the vehicles of our abstract ideas. Words are the very stuff of thought. It follows then that a common language does imply a common mental outlook in its speakers; it not only reflects but also conditions ways of thinking peculiar to the users of the tongue in question. Moreover, intellectual progress may to a large extent be measured by the refinement of language. Hence to inherit an exceptionally delicate linguistic structure gives a people a vantage point on the path of progress.

Philology may therefore claim a place among the historical disciplines, the functions of which are to reanimate and interpret the process whereby man has raised himself from animalism to savagery, from savagery to barbarism, from barbarism to civilization. The painful steps of this advance at first lie beyond the reach of all written records. That is especially the case with the early cultures from which the contemporary civilization of the white races in Europe and in America is directly descended. Archæology, co-operating with anthropology, can indeed throw much light on the later phases of the process; it can provisionally identify the material forces under which certain types of culture have been generated and flourished, and the currents of trade and of migration which fostered their growth. But the individuality of the groups thus distinguished eludes explanation in abstract material terms. Why, for instance, had Europe, starting on the race 1,500 years behind Mesopotamia and Egypt, outstripped those pioneers in a millennium? Why did our continent then continue to progress while

the Ancient East stagnated or declined? Favourable climatic conditions, peculiar natural resources, a happy conjuncture of trade routes do not suffice to explain this phenomenon; behind it lurks the true historic fact of personal initiative. That archæology cannot grasp, indeed the concrete person lies beyond the sphere of prehistory. But an approximation thereto in terms of racial individuality is attainable with the aid of philology. Language, albeit an abstraction, is yet a more subtle and pervasive criterion of individuality than the culture-group formed by comparing flints and potsherds or the "races" of the skull-measurer. And it is precisely in Europe, where the critical point of cultural evolution lies enshrouded in the gloom of the prehistoric period, that the linguistic principles just enunciated are most readily applicable.

Most of the languages of Europe, America, and India to-day belong to one linguistic family generally called the Indo-European. The direct ancestors of these modern tongues were already diffused from the Atlantic to the Ganges and the Tarim many centuries before our era opens; all seem to be descended from a common parent language (or, rather, group of dialects) which comparative philology can reconstruct in a schematic way. Naturally the parent language must have been spoken by actual people. These we shall call Aryans, and about them we can predicate two things.

To whatever physical race or races they belonged, they must have possessed a certain spiritual unity reflected in, and conditioned by their community of speech. To their linguistic heirs they bequeathed, if not skull-types and bodily characteristics, at least something of this more subtle and more precious spiritual identity. Anyone who doubts this would do well to compare the dignified narrative carved by the Aryan Darius on the rock of Behistun with the bombastic and blatan̄t self-glorification of the inscriptions of Ashurbanipal or Nebuchadrezzar.

Secondly the Indo-European languages and their assumed parent-speech have been throughout exceptionally delicate and flexible instruments of thought. They were almost unique, for instance, in possessing a substantive verb and at least a rudimentary machinery for building subordinate clauses that might express conceptual relations in a chain of ratiocination. It follows then that the Aryans must have been gifted with exceptional mental endowments, if not in enjoyment of a high material culture. This is more than mere inference. It is no accident that the first great advances towards abstract natural science were made by the Aryan

Greeks and the Hindus, not by the Babylonians or the Egyptians, despite their great material resources and their surprising progress in *techniques*—in astronomical observation for example. In the moralization of religion too Aryans have played a prominent rôle. The first great world religions which addressed their appeal to all men irrespective of race or nationality, Buddhism and Zoroastrianism, were the works of Aryans, propagated in Aryan speech.

It is quite possible that the Iranian Zoroaster anticipated even the Hebrew prophets in sublimating the idea of divinity, emancipating it from tribal or material trappings and enthroning an abstract righteousness where personified natural or magical forces had previously reigned. It is certain that the great concept of the Divine Law or Cosmic Order is associated with the first Aryan peoples who emerge upon the stage of history some 3,500 years ago (see p. 20 below). Even the original Aryans themselves worshipped at least one deity, a Sky Father,¹ who, although still anthropomorphic, materialistic and barbaric, was, nevertheless, exalted far above the nameless spirits and magic forces of mere savagery (see p. 81).

Nor were the potentialities of Aryan speech solely intellectual. Poetry in which a fixed metrical structure combines with sweet-sounding words to embody beautiful ideas seems peculiarly Aryan: Semitic poetry, for example, does not rest upon a regular metrical structure involving a fixed number of syllables in the verse. The correspondences between the metres of the Hindu Vedas, the Iranian Gathas, and the Greek lyrics, in fact, allow us to infer some form of common metrical tradition inherited from an earlier epoch.²

Thus philology reveals to us a folk whose language was pregnant with great possibilities. Now it was the linguistic heirs of this people who played the leading part in Europe from the dawn of history and in Western Asia during the last millennium before our era. It is perhaps then not overbold to hope that a collaboration between the two prehistoric disciplines of philology and archaeology, at least in this modest domain, may help to solve certain problems that either science alone is powerless to resolve.

The Indo-European languages, when they first come within our ken in the middle of the 2nd millennium B.C., appear already

¹ Sans. *Dyaus pitā*, Gr. *Zeús*, Lat. *Juppiter*, Teut. *Tiu*.

² Meillet, *Les origines indo-européennes des metres grecques*, cf. Arnold, *Vedic Metres*.

dispersed in several distinct groups. The parent speech from which all are descended is itself preserved in no written documents, we can only reconstruct it approximately by comparative methods. Philologists to-day recognize eleven groups of languages descended from the Aryan root, each group embracing a plurality of languages and each language being in actual life divided up into a multiplicity of dialects. The principal groups known to-day are: (1) Celtic surviving only in Gaelic, Irish, Manx, Welsh, and Breton, but once spoken over a vast area in Western and Central Europe; (2) the Teutonic languages, including Anglo-Saxon, Dutch, German, and the Scandinavian languages, the oldest extant remains being a translation of the Gospels into Gothic by Ulfilas composed about 500 A.D.; (3) the Italic group—Latin, Oscan, and Umbrian all known from about 400 B.C.—together with their modern descendants, Italian, French, Spanish, Roumanian, etc.; (4) Albanian, possibly a survival of ancient Illyrian or Thracian; (5) Greek, in classical times divided into four groups of dialects; (6) the Slavonic tongues—Russian, Polish, Czech, Croat, Serbian, Bulgarian, and many others—the oldest monuments of which were written in Old Bulgarian or Church Slavonic about 900 A.D.; (7) the Baltic family Lithuanian, Old Prussian, and Lettic, all known only from a comparatively late epoch; (8) Armenian with a literature beginning in the sixth century A.D.; (9) Iranian dialects—represented first in the Old Persian inscriptions of the Achaemenid kings on the one hand, and in the Gathas and later sacred books of the Parsis (Zend) on the other, and then in a great number of disparate dialects once diffused over an enormous area from Eastern Turkestan to the Caucasus and Europe (with the Alans) and still surviving in Ossetian, Kurdish, Persian, etc.; (10) Indic, primarily Sanskrit, then the ancient Prakrits, and finally the modern vernaculars; (11) Tocharian—an extinct language with two dialects known only from ancient manuscripts recently unearthed among the buried cities of the Tarim valley and probably dating from the later half of the 1st millennium A.D.

These eleven groups are doubtless only a fraction of the total number of Aryan languages which have once existed. The scanty fragments of ancient Phrygian, Messapian, and Venetic make it probable that these extinct tongues belonged to the Indo-European family. How many others there may have been which have vanished without leaving any trace we can only surmise. At the moment of writing quite unexpected traces of an Aryan language spoken in

Cappadocia during the 2nd millennium B.C. are coming to light. Are these eleven divisions final? Many endeavours have been made to simplify the scheme.

And, in fact, the eleven distinct families may be reduced to nine. The Baltic tongues, although more archaic, are so closely related in phonetics, structure, syntax, and vocabulary to the Slavonic that the two may be conveniently treated as a single group under the name of Balto-Slavonic. The same procedure can be applied with even greater security to the Indic and Iranian groups: the Sanskrit of the Rigveda and the Iranian of the inscriptions of Darius the Great and the Gathas of Zoroaster are so much alike that they might almost be regarded as just dialectic varieties of a common stock. Indeed, the connections of the Indians and the Iranians are not linguistic only. Both people called themselves by the common name of Āryas (Airya, Ariya), both had once known a common set of rivers and places (e.g. Sarasvati and Hara'uvatiš), worshipped the same deities (Mitrá, Aryamán, Násatyā, etc.), with psalms of the same metrical structure, and shared in the Soma sacrifice and other rites presided over by the same priests (*hótar-zoatar*, *Ātharvan-athravan*).¹ Such correspondences allow us to conclude that the Indians and Iranians are, indeed, two branches of one and the same people who had lived together long after their separation from the parent stem.

No such thoroughgoing agreement links any one of the remaining nine groups to one of its neighbours rather than another. Nevertheless certain similarities in restricted spheres have been detected and proposed as tests of closer kinship. The most important steps in this direction have been taken in the department of phonetics, and phonetic changes, i.e. changes in pronunciation, do constitute a very fundamental feature of a language and may rest upon an ethnic basis. The most generally accepted division is based upon the treatment of the primitive gutturals, notably *k*. Indo-Iranian, Armenian, Balto-Slavonic, and, apparently, Thracian, all change *k* into a sibilant *s*, the remaining groups preserve the stop sound (which becomes *h* in Teutonic in accordance with Grimm's Law). The languages which change *k* to *s* further palatalize the sounds represented in Latin and Teutonic by labio-velars, *q*^h and *g*^h. The test word, which reveals the characteristics of the two divisions, is the name for the numeral 100. The *s* languages

¹ Cf. p. 33 below; the resemblances are conveniently summarized by Griswold, *The Religion of the Rigveda*, Oxford, 1924, pp. 21 ff.

are accordingly called *Satem* tongues and the others *Centum* languages.

The special significance formerly attached to this division was due to the belief that all the *satem* languages lay in Asia or the extreme east of Europe, while the *centum* groups would be restricted to the west. The treatment of the gutturals therefore seemed to mark a geographical as well as a linguistic division. This opinion has received a rude shock within the last decade; ancient manuscripts, written in an Indian alphabet discovered among the ruined cities of the Turfan and Khotan oases, proved to be composed in an Aryan tongue, Tocharian, belonging to the *centum* section! Thus *centum* speech was not confined to Europe; indeed, the easternmost Indo-European language spoken about the eighth century A.D. belongs to its side! Attempts have been made to escape the difficulty by proving that Tocharian was a comparatively late arrival in Chinese Turkestan, and was carried thither by a band of Celts.¹ It cannot be said that the efforts to connect Tocharian with Celtic rather than any other *centum* tongue have been crowned with any measure of success. Nevertheless, Tocharian does differ fundamentally not only in phonetics, but also in vocabulary and inflection from the other Aryan languages of Asia—Iranian and Indian—and moreover possesses a whole series of words which otherwise are peculiar to the European tongues.² Hence the discovery of Tocharian does not destroy the value of the division into *satem* and *centum* speeches, but only complicates its interpretation.

There are, of course, other phonetic peculiarities shared by more than one language or family. Thus Greek agrees with Iranian in changing pure initial or intervocal *s* into *h* in most cases. Again, most Celtic tongues, two Italic dialects (Oscan and Umbrian) and Aeolic Greek labialize *g*, but Old Irish and Gaelic, and two Italic dialects keep the guttural while the other Greek dialects only labialize it before *o* vowels using *t* before *e* and *i*.³ Both these peculiarities then

¹ So Giles (C. A. H. ii). But though middle forms in *-ar* or *tr* and the 3rd plur. pret. in *-are* recall Celtic and Italic forms, the past participles in *-l* suggest just as close affinity with Slavonic. Pokorny (*I.J.*, 1924, p. 43) shows that Celtic peculiarities such as the assimilation of *p* to *q* before *g* (Lat. *quinque*, O. Ir. *cōic* as against Toch. *pi*⁴) are missing in Tocharian and finds its closest analogies in Armenian phonetics. Finally some special affinities in vocabulary to Greek have been noted, e.g. *soyiti* = *vlos*, son.

² Such are *salyi*, salt, *laks*, fish (Ger. *lachs*, R. *lasoŕ*, salmon) and *alyek*, other. See Sieg and Siegling, *Tocharische Sprachreste*, 1921: Meillet, *I.J.*, 1913, and *C.Q.*, xviii, pp. 124 ff.

³ E.g. W. *pimp*, O-U. *pumpe*, Aeol. *πεππε* as against Ir. *cōic*. Lat. *quinque*, Att. *πέπτε*.

cut across the much more fundamental classifications, into Indo-Iranian and Greek in the one case and into Italic, Celtic, and Greek in the other. So they are not suited to act as bases of division. It must also be noted that the division into *satem* and *centum* tongues is phonetic only and could be crossed by other divisions founded on grammatical structure or vocabulary. Thus Greek (*centum*) and Sanskrit (*satem*) seem much more nearly allied in their verbal system than Sanskrit and Slavonic or Greek and Latin. Again, there is a very substantial number of words common to Indo-Iranian and Greek that do not recur in any other Indo-European tongues. On the other hand all the European languages, *centum* and *satem* alike, share a large vocabulary of terms which are strange to Indo-Iranian.

To clarify further our conception of the mutual relations of the nine Indo-European linguistic groups it may be well to dwell for a moment on the partly parallel case of the Romance languages. As everyone knows, French, Spanish, Portuguese, Catalan, Italian, Roumanian and the rest are descended from dialects of Latin—not the literary tongue of Livy or Tacitus, but the speech of the camp and the market place. This Low Latin as it is called must once have been intelligible from the Black Sea to the Atlantic. On the break up of the Roman Empire it gave place to a series of local dialects, each mutually intelligible to their immediate neighbours only.¹ Then political events or great authors raised certain of these dialects to be the official and literary languages of new realms—the dialects of North Castille and the Ile de France, for instance, became the regular media of communication throughout the kingdoms of Spain and France respectively. These State languages gradually ousted and suppressed the old gradation of dialects till to cross a political frontier meant to pass into the domain of an alien and unintelligible speech. Yet the national tongues spoken on either side of the border were equally derived from the common Low Latin substratum.

The linguistic divergences which now sundered the nations were due to phonetic change (i.e. differences in the pronunciation of the Latin sounds), innovations in inflection and syntax, and the adoption of diverse vocables whether variants existing in Latin itself, or distinct new formations from Latin roots, or derived from the pre-Roman languages of the province or again borrowed from later invaders and neighbours. But the divergences were of a regular order, and in the case of phonetics follow definite "laws"; such phonetic modifications do not, however, affect words borrowed

¹ Vendryes, *Language*, pp. 264 f. Isaac Taylor, *Origin of the Aryans*, p. 264.

by the several languages after their constitution as separate entities, such as telephone or tobacco. "New" words can thus be distinguished from those inherited from the original Low Latin. By comparing the several distinct languages and applying the phonetic and other "laws" governing their differentiation so as to eliminate later borrowings, we could roughly reconstitute the parent language, even were no inscriptions or written monuments of it extant.

The divergences which mark off the several Indo-European groups of languages are of the same order as those operative in Romance. In the realm of phonetics the same absolute regularity is observable; changes in the pronunciation of the original Aryan words can be reduced to perfectly exact and universally valid "laws". In their light words descended from the parent speech can be at once distinguished from later borrowings by their conformity to such laws. Inflection has been affected by disintegration to a much greater degree than within the Romance group; the individual languages have in some cases equipped themselves with a whole mass of new formations, generally modelled on the old,¹ or have tended to simplify grammar by assimilating exceptional formations to more common types,² and later by replacing an inflectional by an analytic structure. These alterations have naturally entailed corresponding modifications in syntax. Finally the discrepancies in vocabulary are enormous, but that is not surprising; many of the Aryan languages have superseded older tongues, preserving from the latter many names for novel things or concepts, and the culture of the Aryans itself has been evolving very rapidly for centuries, necessitating the creation of new names. Still, as in the case of Romance, it remains possible to reconstruct the original Aryan speech in an abstract way by comparative methods.

Nevertheless, the analogy must not be pressed too far. To conceive of the parent speech as a mature language with a stereotyped vocabulary and rigid grammatical conventions like Latin would be grotesque. Such a fixed language only exists under the shelter of a stable and partly centralized political organization and enshrined in a written or traditional literature.³ What we are

¹ Thus in Greek the passive, in Sanskrit the passive and the future, and in Latin all the tenses except present and perfect are new formations.

² For instance the replacement of reduplicated perfects or *s* aorists in Latin by perfects in *vi* or *ut*.

³ Vendryes, *Language*, p. 261.

accustomed to call "languages"—the common language of modern newspapers, Greek historians or Babylonian legislators—could not exist in the social and material state of the primitive Aryans, as we shall describe it in Chapter IV. In fact, philology tells us that the parent language must really have been in a fluid state; from household to household, from generation to generation the pronunciation, inflection, and signification of words would vary a little. Comparison gives us only the abstract residuum when these historical diversities are ignored. Again, the causes which led to the diffusion of the Latin language—the creation of the Empire governed from Rome—presuppose a very exceptional degree of social organization and must not be taken as the type of linguistic diffusion.

Nevertheless, our analogy gives us further help. In the first place the extension of the Latin language in the Roman Empire presupposes the historic Roman people who created and spoke that language. On the other hand, their linguistic heirs, the speakers of Romance languages, belong neither historically nor anthropometrically to a single race. The bulk of the French and the Spaniards, for instance, is descended from various Ligurian, Iberian, and Celtic stocks who occupied Gaul and Hispania in pre-Roman times, mingled subsequently with different ingredients due to migrations and conquests by Goths, Alans, Normans, Burgundians, Moors and others and infiltrations of Gipsies, Jews, and suchlike uprooted stragglers. So we cannot argue from unity of language to unity of race. The point is so important that I venture to adduce another example to drive it home. The Bantu languages spoken over an immense area in Africa from the Great Lakes to the Cape are at least as closely allied as members of the Aryan family. Yet their speakers include representatives of the most divergent physical types.¹

Again, the modern languages of France, Spain, and Roumania are not the result of a conquest or colonization of those regions by Frenchmen, Spaniards, or Roumanians. It was a single language that was spread, and that not so much by Roman settlement as by service in the legions and the convenience in law and commerce of the conqueror's speech to the Provincials themselves. The distinct languages have on the contrary evolved locally out of the linguistic continuum. To this extent the "undulation theory" propounded by J. Schmidt in 1872² and elaborated by Pictet and Isaac Taylor

¹ Johnston, *The Bantu Languages*, 1919, p. 25.

² *Die Verwandtschaftsverhältnisse der indogermanischen Sprachen*.

gives a more probable account of the diffusion of Aryan speech than the older "family tree" view. The earlier philologists had conceived of the dispersion of the Indo-European languages as the result of a stream of Aryan peoples flowing from a single circumscribed centre; the stream bifurcated as it advanced and each branch in turn divided in like manner, the separate branches corresponding to the ultimate groups of distinct languages. Schmidt, on the other hand, explained the differentiation of the Indo-European languages in terms of the propagation of various linguistic modifications from different centres within a vast continuum. The latter view evidently accords better with the actual affinities of the several Aryan languages as described on page 8, and with the inferences to be drawn from the Romance parallel.

Nevertheless, the older hypothesis must be invoked to explain the geographical position of some Aryan tongues. It is, for instance, very hard to account for the situation of Tocharian, an island of *centum* speech with marked European affinities in inflection and vocabulary, surrounded by a sea of *satem* Asiatic tongues, save by the assumption of an actual migration. At the same time the correspondences among the Aryan languages are far too close to allow the area of characterization of the parent speech to be regarded as illimitable. The Aryan cradle must have had a geographical unity; the linguistic data alone presuppose a block of allied dialects constituting a linguistic continuum within a specific area and under more or less uniform geographical conditions. The fact that the Aryans worshipped at least one common deity allows us to go further; for it implies not, indeed, political unity, but at least that the authors of the parent speech constituted a single people. To explain the distribution of Indo-European languages in prehistoric times we must then have recourse to some hypothesis of expansion, migration, conquest, or infiltration whereby Aryan speech and cult was carried from the "cradle land" to regions previously un-Aryan. To trace that expansion is the primary aim of this book. We shall first try to delimit the field of observation by locating the several Aryan peoples as they enter the stage of history. Then we shall seek to trace them back towards some common centre by the aid of archaeological remains. The counter part of this inductive study will be deductive. We shall endeavour to identify the primitive material culture and cradle of the Aryans as revealed by linguistic palaeontology among the cultural groups and provinces of the prehistorian. From this point it should be

possible to trace the migrations of the Aryans to their historic seats by cultural evidence. The convergence of the two lines of research would test the validity of our conclusions.

APPENDIX

As illustrations of the relationships of the Indo-European languages, the following rough comparative tables may be of interest to the reader who is not a philologist :—

NUMERALS

	Sanskrit.	Greek.	Latin.	Irish.	Gothic.	Lithuanian.	Tocharian.
1	éka	εἷς	unus	oen	ains	vėnas	šom
2	dvā	δύω	duo	dau	twai	dū, F. dvī	—
3	trīyah	τρεις	tres	tri	*þreis	trīs	traī
4	catvāroḥ	τέσσαρες	quattuor	celhir	fidwor	keturī	štwer
5	pāñca	πέντε	quinque	coic	fimf	penkī	piś
6	ṣāt	ἕξ	sex	se	saihs	szezi	skas
7	saptā	ἑπτὰ	septem	secht n-	sibun	septyni	ṣukt
8	aṣṭāu	ὀκτώ	octo	ocht n-	ahtau	aszūni	okt
9	nāna	ἐννέα	novem	noi n-	niun	devyni	nu
10	dāśa	δέκα	decem	deirh n-	taihun	—	šak
100	śatām	ἑκατόν	centum	cet	hund	szimtas	kante

VERB "TO BE"

PRESENT

Sing.	Sanskrit.	Greek.	Latin.	Irish.	Gothic.	Lithuanian.	Armenian.
1st	अस्मि	εἰμι	sum	am	im	esmi	em
2nd	ási	εἶ(έσοι)	es	at	is	? esi	es
3rd	ásti	ἐστί	est	is	ist	ėsti	e
Dual.							
1st	svás	—	—	—	siju	ėva	—
2nd	sthás	ἑσόν	—	—	sijuts	ėsta	—
3rd	stás	ἑσόν	—	—	—	—	—
Plur.							
1st	smás	εἰμές	sumus	ammi	sijum	ėme	emk'
2nd	sthá	ἑστέ	estis	adib	sijup	ėste	ek'
3rd	sánti	εἰσι	sunt	it	sind	(O.S. sq ²)	en

OPTATIVE.

IMPERFECT.

Sing.	Sanskrit.	Greek.	Latin.	Gothic.	Sanskrit.	Greek.
1st	sydm	εἶην	siem	sijau	dsam	ῖα
2nd	syds	εἶης	sies	sijais	ds	ῖαθα
3rd	sydt	εἶη	siet	sijai	ds, dsī	ῖ
Plur.						
1st	sydma	εἶμεν	siemus	sijaima	dsma	ῖμεν
2nd	sydka	εἶτε	sitis	sijaiþ	dsta	ῖσθε
3rd	syúr	εἶεν	sient	sijaina	dsan	ῖσαν

VERB " TO BEAR "

PRESENT

Sing.	Sanskrit.	Greek.	Latin.	Irish.	Gothic.	Old Slav.	Armenian.
1st	<i>bhārāmi</i>	<i>φέρω</i>	<i>fero</i>	<i>-biur</i>	<i>baira</i>	<i>bera</i>	<i>berem</i>
2nd	<i>bhārasi</i>	<i>φέρεις</i>	<i>-is</i>	<i>biri</i>	<i>bairis</i>	<i>beresi</i>	<i>beres</i>
3rd	<i>bhārati</i>	<i>φέρει</i>	<i>-it</i>	<i>berid</i>	<i>bairiþ</i>	<i>beret'</i>	<i>bere</i>
Plur.							
1st	<i>bhārāmasi</i>	<i>φέρομεν</i>	<i>ferimus</i>	<i>bermai</i>	<i>bairam</i>	<i>berem'</i>	<i>beremk'</i>
2nd	<i>bhāratha</i>	<i>φέρετε</i>	<i>-itis</i>	<i>-berid</i>	<i>bairiþ</i>	<i>berete</i>	<i>berek'</i>
3rd	<i>bhāranti</i>	<i>φέρουσι</i>	<i>ferunt</i>	<i>berait</i>	<i>bairand</i>	<i>berqt'</i>	<i>beren</i>

IMPERFECT

	Sing.	Sanskrit.	Greek.	Irish.	Armenian.
	1st	<i>ábharam</i>	<i>ἔφερον</i>	—	<i>beri</i>
	2nd	<i>ábharas</i>	<i>ἔφερες</i>	<i>-bir</i>	<i>berer</i>
	3rd	<i>ábharat</i>	<i>ἔφερε</i>	<i>beir</i>	<i>eber</i>
	Plur.				
	1st	<i>ábharāma</i>	<i>ἔφέρομεν</i>	<i>-beram</i>	<i>berak</i>
	2nd	<i>ábharata</i>	<i>ἔφέρετε</i>	<i>-berid</i>	<i>berek'</i>
	3rd	<i>ábharan</i>	<i>ἔφερον</i>	<i>berat</i>	<i>berin</i>

MIDDLE PRESENT

	Sing.	Sanskrit.	Greek.	Gothic.
	1st	<i>bhāre</i>	<i>φέρομαι</i>	—
	2nd	<i>bhārase</i>	<i>φέρει</i>	<i>bairaza</i>
	3rd	<i>bhārate</i>	<i>φέρεται</i>	<i>bairata</i>
	Plur.			
	1st	<i>bhārāmahe</i>	<i>φερόμεθα</i>	—
	2nd	<i>bhāradhve</i>	<i>φέρεσθε</i>	—
	3rd	<i>bhārante</i>	<i>φέρονται</i>	<i>bairanda</i>

PERFECT VERB: " I HAVE COME TO KNOW "

	Sing.	Sanskrit.	Greek.	Latin.	Gothic.
	1st	<i>véda</i>	<i>οἶδα</i>	<i>vidi</i>	<i>wait</i>
	2nd	<i>vétiha</i>	<i>οἶσθα</i>	<i>vidisti</i>	<i>waist</i>
	3rd	<i>véda</i>	<i>οἶδε</i>	<i>vidit</i>	<i>wait</i>
	Plur.				
	1st	<i>vidmá</i>	<i>οἶμεν</i>	<i>vidimus</i>	<i>witum</i>
	2nd	<i>vidá</i>	<i>ἴστε</i>	<i>vidistis</i>	<i>witup</i>
	3rd	<i>vidúr</i>	<i>ἴσασι</i>	<i>videre</i>	<i>witun</i>

O-STEM NOUN " WOLF "

	Sanskrit.	Greek.	Latin.	Gothic.	Lithuanian.
Nom.	<i>vfkaś</i>	<i>λύκος</i>	<i>lupus</i>	<i>wulfs</i>	<i>vilkas</i>
Acc.	<i>vfkam</i>	<i>λύκον</i>	<i>lupum</i>	<i>wulf</i>	<i>vilkā</i>
Gen.	<i>vfkasya</i>	<i>λύκειο</i>	<i>lupi</i>	<i>wulfis</i>	<i>vilko</i>
Dat.	<i>vfkāya</i>	<i>λύκει</i>	<i>lupo</i>	<i>(wulfis)</i>	<i>vilkui</i>
Abl.	<i>vfkā</i>	* <i>λύκει</i>	<i>lupod</i>	—	<i>vilko</i>
Loc.	<i>vfke</i>	* <i>λύκοι</i>	<i>lupi</i>	—	<i>vilkē</i>
Ins.	<i>vfkena</i>	—	—	—	<i>vilkū</i>
Dual.					
N.-A.	<i>vfkāu</i>	<i>λύκω</i>	—	—	<i>vilkū</i>
D.-I.	<i>vfkābhyaṃ</i>	—	—	—	<i>vilkāñ</i>

	Sanskrit.	Greek.	Latin.	Gothic.	Lithuanian.
Plural.					
N.	<i>vkāh</i>	λύκοι	<i>lupi</i>	<i>wulfos</i>	<i>vilkaĩ</i>
A.	<i>vkān</i>	λύκους	<i>lupos</i>	<i>wulfans</i>	<i>vilkiūs</i>
G.	<i>vkānām</i>	λύκων	<i>luporum</i>	<i>wulfe</i>	<i>vilkiū</i>
D.-A.	<i>vkēbhyaḥ</i>	—	—	<i>wulfam</i>	<i>vilkaĩms</i>
L.	<i>vkēsu</i>	λύκοισι	<i>lupis</i>	—	<i>vilkiūsu</i>
I.	<i>vkaiḥ</i>	λύκοις	<i>lupis</i>	—	<i>vilkaĩs</i>

CONSONANTAL (N-) STEM

	Sanskrit.	Greek.	Latin.	Irish.	Gothic.	Lithuanian.
N.	<i>svē</i>	κύων	<i>homo</i>	<i>cu</i>	<i>hana</i>	<i>szū</i>
A.	<i>svānam</i>	κύνα	<i>-inem</i>	<i>coin n-</i>	<i>hanan</i>	<i>szūnĩ</i>
G.	<i>svānāḥ</i>	κυνώς	<i>-inis</i>	<i>con</i>	<i>hanans</i>	<i>szūnīs</i>
D.	<i>svāne</i>	—	<i>-ini</i>	<i>coin</i>	—	<i>szūnivi</i>
L.	<i>svāni</i>	κυνί	<i>-ine</i>	—	<i>hanin</i>	<i>szunijė</i>
Plural.						
N.	<i>svānāḥ</i>	κύνες	<i>-ines</i>	<i>coin</i>	<i>hanans</i>	<i>szūns, szūnys</i>
A.	<i>svānāḥ</i>	κύνας	<i>-ines</i>	<i>cona</i>	<i>hanans</i>	<i>szūnīs</i>
G.	<i>svānām</i>	κυνώων	<i>-inum</i>	<i>con n-</i>	<i>hanane</i>	<i>szūnī</i>
D.	<i>svābhyaḥ</i>	—	<i>-inibus</i>	(<i>conaiḥ</i>)	<i>hanam</i>	<i>szūnims</i>
L.	<i>svāsu</i>	κυσί	—	—	—	<i>szūnyė</i>
I.	<i>svābhiḥ</i>	—	<i>-inibus</i>	<i>conaiḥ</i>	<i>hanam</i>	<i>szūnims</i>

DEMONSTRATIVE PRONOUN TO—

	Sanskrit.	Greek.	Latin.	Gothic.	Lithuanian.
N.	<i>sāḥ, tāi, sá</i>	ὁ τό ἡ	<i>iste, tuđ, ta</i>	<i>sa pata, so</i>	—
A.	<i>tām, tāt, tān</i>	τόν τό τήν	<i>-tum, tuđ, tam</i>	<i>pana, pata, po</i>	<i>tā tã</i>
G.	<i>tāsyāḥ, tāsyāḥ</i>	τοῦο τῆς	<i>-tuus</i>	<i>pis pizos</i>	<i>tõ tõs</i>
D.	<i>tāsmāi, tāsyai</i>	τῷ τῇ	<i>-to -ti</i>	<i>ƿamma piƿai</i>	<i>tāmuĩ taĩ</i>
L.	<i>tāsmīn, tāsyām</i>	—	—	—	<i>tami toje</i>
I.	<i>tēna tāyā</i>	τῶ	—	—	<i>tāmi tā</i>
Plural.					
N.	<i>tē, tāni, tāḥ</i>	τοί τά τάλ	<i>-ti, ta, tae</i>	<i>ƿai, ƿo, ƿos</i>	<i>tė, taĩ, tõs</i>
A.	<i>tān, tāni, tāḥ</i>	τούς τά τάς	<i>-tos, ta, tas</i>	<i>ƿana, ƿo, ƿos</i>	<i>tūs, taĩ, tās</i>
G.	<i>tēpām, tāśām</i>	τῶν τῶων	<i>-iorum, tarum</i>	<i>ƿize ƿizo</i>	<i>tū tū</i>
D.	<i>tēbhyaḥ, tābhyaḥ</i>	—	—	<i>ƿaim ƿaim</i>	<i>tėms tōms</i>
L.	<i>tēsu tāsu</i>	τοῖσι τῆσι	<i>-tis, tis</i>	—	<i>tūsė tosu</i>
I.	<i>tāḥ tābhiḥ</i>	τοῖς ταῖς	—	—	<i>tāĩs tomĩs</i>

CHAPTER II

THE FIRST APPEARANCE OF ARYANS ON THE STAGE OF HISTORY

1. *The Aryan Dynasts in Mesopotamia in the Fifteenth Century B.C.*

Aryan peoples first emerge from the gloom of prehistory on the northern borders of the Fertile Crescent of the Ancient East. The oldest Aryan names and words that have come down to us are inscribed upon cuneiform tablets from Babylonia, Egypt and Cappadocia. But these first historic Aryans appear as late intruders in a region illumined by the light of written documents from the end of the IVth millennium. In Mesopotamia and the adjoining countries they have invaded the domain hitherto occupied by peoples of different linguistic antecedents.¹

From the dawn of history two non-Aryan races inhabited the Tigris-Euphrates valley—Sumerians and Semites. The former, though concentrated in southern Mesopotamia from the earliest times, have left certain monuments of their presence as far north as Assur on the middle Tigris, while Sumerian art proæcus, if not Sumerians, penetrated even to Astrabad on the shores of the Caspian. Semites were inextricably mixed with the Sumerians in Babylonia, and occupied the western plains as far as the Syrian coast and Sinai. These two races jointly created the marvellous civilization of Mesopotamia, the monuments of which are known to us from the middle of the IVth millennium B.C. onwards. There they established great empires which diffused their culture throughout adjoining countries. Somewhere about 2700 B.C. the kings of Agade had extended their dominions to the shores of the Mediterranean and very probably to Cappadocia. In any case, soon after 2500 B.C. a substantial Semitic colony in close political and commercial relations with Assyria and Babylonia was established in the Halys valley in command of the trade routes that led to the Black Sea on the one hand and to the Aegean on the other.

¹ On this see Moret, *From Tribe to Empire*, part ii, chap. iii, and part iii, chap. i, ii, and iii; Delaporte, *Mesopotamia*, esp. p. 43; *Cambridge Ancient History*, i, esp. pp. 552 ff., and ii, pp. 13 f.

The Mesopotamian records and pictorial monuments also reveal to us other peoples inhabiting the adjacent highlands, none of whom seem to be Aryan in the IIIrd millennium. To the east lived the Elamites ¹ speaking an agglutinative or incorporating tongue and possessed of a high civilization of their own. The highlands north of Irak were perhaps already occupied by Armenoid peoples, whose Asianic speech may be inferred from the later Hittite, Mitannian, and Vannic texts. Our sources give us no indication of the presence of Aryans within their purview down to 2000 B.C.²



FIG. 1. Naram-Sin, King of Agade, Semite.

But by the middle of the IIInd millennium we find Aryan princes installed within the Fertile Crescent, heirs of the civilization created by Sumerian and Semite. The circumstances of their coming escape us; Hammurabi's dynasty, which had finally unified

¹ The only decipherable monuments of the Elamite language (Anzanite) date from a much later epoch, but the kings' names allow us to infer that it was in use also in the IIIrd millennium B.C.

² For Dr. Christian's view that the peoples of Gutium and Subartu were ruled by Aryans in the IIIrd millennium (*M.A.G.W.*, iv, p. 189) there is not a scrap of evidence. The names from this area are specifically non-Indo-European (cf. *C.A.H.*, i, pp. 421 and 452).

Mesopotamia under the hegemony of Babylon, fell about 1900 B.C.¹ and after its fall comes a dark age for which written records largely fail us. The precursors of the Aryan invaders may be found among the Kassites, who established a dynasty at Babylon about 1760 B.C. This people originally dwelt east of the Zagros Mountains whence they had begun to filter into Babylonia already in the time of Hammurabi. But as a whole they were not Aryans. Though they adopted the Babylonian language and culture, the local scribes have recorded the Kassite names for god, star, heaven, wind, man, foot, etc. ; not one of these is in the least Indo-European. Moreover, the majority of the personal names of the period collected by Clay² suggest rather a kinship between the Kassites and the Asianic folk to the north-west. Yet in the names of their kings occur elements recalling Indo-Iranian deities—Šurīaš (Sun-god cf. Sans. *Surya*) Indāš (cf. Sans. *Indra*), Maruttaš (cf. Sans. *Marutaḥ*, storm-gods) and -bugaš (cf. Iran. *baga*, god). Moreover, these Kassites introduced the use of the horse for drawing chariots into the Ancient East and its later Babylonian name *susu* seems to be derived from the Indo-Iranian form **asua* (Sans. *aśva*). It is then highly probable that the Kassite invasion was due to the pressure of Aryan tribes on the highlands of Iran, and that its leaders were actually Aryan princes.

Three centuries later, when the diplomatic archives found at Tell el-Amarna cast such a flood of light on the affairs of Western Asia, we find a distinctively Aryan dynasty ruling among the Asianic Mitanni on the Upper Euphrates. These princes had good Aryan names—Šutarna, Dušratta, Artatama—and also worshipped Indo-Iranian deities. In 1907 Hugo Winckler³ startled the learned world by identifying the names of four gods, already familiar from the Indian Vēda, invoked as witnesses to a treaty signed in 1360 B.C. between the kings of Mitanni and the Hittites. The divine beings who are named together with other gods—ten Babylonian and four native Mitannian—are Indra (*in-da-ra*), Varuna (*u-ru-v-na* or *a-ru-na*), Mitra, and the Nāsatyā twins (*na-sa-at-ti-i-ia*). Quite recently another document emanating from Mitanni has turned up among the Hittite archives from Boghaz Keui.⁴ It deals significantly enough with horse-breeding and contains a series of

¹ This date may have to be reduced by 100 years or more. See Delaporte, p. 18.

² *Yale Oriental Series*, 1.

³ *M.D.O.G.*, xxv, p. 51.

⁴ *Z.D.M.G.*, lxxvi, pp. 250 ff. (Forrer).

Aryan numerals—*aika* (1), *teras* (3), *panza* (5), *satta* (7), and *nāv* (9)—in expressions like *aikavartanna vasannasaya* (? “one round of the stadium”). Finally we know that there existed among the Mitanni at this time a class of warriors styled *marianna* which has suggested comparison with the Sanskrit *māryā*, young men, heroes.¹

So it is clear enough that the dynasts installed on the Upper Euphrates by 1400 B.C. were Aryans, closely akin to those we meet in the Indus valley and later in Media and Persia. But their subjects were non-Aryan Asianics, and the rulers had adopted the native language and the Babylonian script for their official correspondence, and apparently acknowledged local gods besides their own. And the movement which had brought them to the Euphrates did not stop there. During the same period the Tell-el-Amarna tablets mention Aryan princes in Syria and Palestine too—Biridašwa of Yenoam, Šuwardata of Keilah, Yašdata of Taanach, Artamanya of Zir-Bashan and others.² These too were probably mere dynasts ruling over non-Aryan Semitic subjects.

These numerals and divine and personal names are the oldest actual specimens of any Aryan speech which we possess. The forms deserve special attention. They are already quite distinctly *satem* forms; in fact, they are very nearly pure Indic. Certainly they are much more nearly akin to Sanskrit than to any of the Iranian dialects that later constituted the western wing of the Indo-Iranian family. Thus among the deities *Nāsatiya* is the Sanskrit form as opposed to the Zend *Naonhaitiya* and all the four gods are prominent in the oldest Veda, while in the Iranian Avesta they have been degraded to secondary rank (Mithra), converted into demons (Indra) or renamed (Varuna=Ahura Mazda). The numerals are distinctively Indic not Iranian; *aika* is identical with the Sanskrit *eka*, while ‘one’ in Zend is *aeva*. So the *s* is preserved in *satta*, where it becomes *h* in Iranian (*hapta*) and the exact form is found, not indeed in Sanskrit, but in the Prakrits which were supposed to be post-Vedic.

Even the personal names look Indic rather than Iranian. Thus *Biridašwa* has been plausibly compared with the Sanskrit *Bṛhadaśva* (owning a great horse). If this be right the second element, *-ašwa*, horse, is in contrast to the Iranian form *aspa* seen in Old Persian and Zend (cf. *Jāmāspa* and *Vištāspa* = Hystaspes). On the other hand, the element *Arta-* in Mitannian and Palestinian

¹ Moret, *op. cit.*, p. 241.

² *C.A.H.*, ii, p. 331.

names has many parallels in the later Iranian onomasticon; the concept of divine order, *Ṛta*, embodied in it was indeed known to the Vedic poets, but it is rarely used as a component of personal names in India.

When we seek to define precisely to which branch of the Aryan stock these Mitanni princes belonged there is room for divergence of opinion. When the Mitanni deities' names were first published, Jacobi,¹ whom Pargiter² and Konow³ still follow, definitely accepted them as Indian and ascribed their introduction into Mesopotamia to a body of Sanskrit-speaking peoples from the Punjab. To this Eduard Meyer⁴ replied that philologists had long ago recognized that Indians and Iranians had lived together as one body and had worshipped these very deities in common before the Indians had occupied the Indus Valley. The Indian divine names and numerals would then belong to a branch of this Indo-Iranian people at a period before their differentiation, i.e. before the sound shifts distinctive of Iranian, *s* → *h*, *śv* → *sp*, etc., had become operative. Finally, Hüsing⁵ agrees that the dynasts were Indians, but Indians on their way to India; for he holds that the scene of the Indo-Iranian period must be laid north of the Caucasus.

The decision between these three views must await a discussion of the later history of Indians and Iranians respectively. Two highly significant facts are secure: firstly, the cleavage into *centum* and *satem* languages goes back to the middle of the IInd millennium B.C.; secondly, that peoples later known to us only east of the Tigris at that date extended much further west.

2. *The Problem of the Hittites*

But not only were there Aryans of the *satem* branch in the Ancient East by the XVth century B.C.; the presence in the vicinity of peoples of the *centum* division is attested by cuneiform documents of the same epoch. If the discovery of Indic names in North Syria created astonishment in 1907, the revelation of a *centum* Indo-European element in the Hittite speech of Cappadocia ten years later provoked incredulity.

The Hittites had been long known from Egyptian and Babylonian

¹ *J.R.A.S.*, 1909, pp. 721 f.

² *Ancient Indian Historical Tradition.*

³ *The Indian Gods of the Mitanni*, Publications of the Christiania Indian Institute, No. 1.

⁴ *Sitzb. K. Preuss. Akad. der Wiss.*, 1908.

⁵ *M.A.G.W.*, xlvi, *Völkerschichten in allem Iran*, p. 210.

records, from Biblical traditions, and from their own enigmatic monuments. Before the war no one would have thought of connecting them with Aryans. Yet this was precisely the result to which the decipherment of the first substantial body of Hittite texts written in an intelligible script (cuneiform) led Professor Hrozný.¹ Rumours of his discoveries leapt political frontiers and even amid the din of battle aroused lively controversy. His conclusions were at first received with scepticism and it now appears that the solution of the problem is by no means so simple as he thought.

In the first place the material at our disposal, the tablets from the State archives of the monarchs of Boghaz-Keui, only refers to the Hittites of Cappadocia and justifies no conclusions with regard to other "Hittites", for instance, those of Carchemish in North Syria. And then it is now clear that even in Cappadocia a large number of languages were current simultaneously.² Some of these—Professor Forrer's Balaic, Harric (Mitannian), and Proto-Hattic, which last has the best claim to be called by us, as it was by the native scribes themselves, "Hittite"—are quite definitely un-Aryan. It is otherwise with the dialect in which the majority of the texts are written, the language called by Forrer Kanesian, by the scribes *Našili*, "our language." It seems certainly to exhibit Indo-European influence.

At the moment we are on slippery ground; the number of texts published is not very large, the decipherment of the local cuneiform script offers many pitfalls, any judgment must be provisional. Yet some points have won fairly general assent. In the inflection of nouns, pronouns, and verbs *Našili* betrays most striking similarities to Indo-European.³ Of the six cases in the nominal declension four

¹ *Die Sprache der Hettiter*, 1917.

² See Forrer, *M.D.O.G.*, lxi, and *Z.D.M.G.*, lxxvi; Sayce in *Anatolian Studies* presented to Sir William Ramsay, pp. 390 ff.; *J.A.O.S.*, 1921.

³ To illustrate the point I quote the following forms given by Friedrich and Forrer in *Z.D.M.G.*, loc. cit. :—

	Neuter noun.	2nd Pers. pronoun.	Verb in -nu.	h conjugation.
Nom.	<i>uatar</i>	<i>zig</i>	Sing. 1st <i>vahnum</i> ²	— <i>ahhi</i>
Acc.	<i>uatar</i>	<i>tug, tuḫça</i>	2nd <i>vahnusi</i>	— <i>i</i>
Gen.	<i>uatenas</i>	<i>tuel</i>	3rd <i>vahnuzi</i>	— <i>i</i>
Dat. L.	<i>uateni</i>	—	Plur. 1st <i>vahnuoeni</i>	
Abl.	<i>uatenaz</i>	—	2nd <i>vahnuteni</i>	
Ins.	<i>uatenit</i>	—	3rd <i>vahnuanzi</i>	
Plurals.		2nd Pers. pronoun.	Verb <i>da-</i> to set	
Nom. (masc. -es		<i>sumes</i>	Sing. 1st <i>dahhi</i> (Pres.)	<i>dahhun</i>
Acc. no 1) -us		<i>sumās</i>	2nd <i>datti</i>	(Imperf.)
Gen.		<i>sumel</i>	3rd <i>dai</i>	<i>dās</i>
D.-L.		—	1st —	—
Abl.		<i>sunedaz</i>	3rd <i>danzi</i>	<i>dair</i>

admit of a plausible explanation from Aryan paradigms. With the pronouns the proportion is rather less. In one conjugation five out of six forms in the present and three in the past look Indo-European; to these may be added the middle endings in *-tari* and *-antari* and imperatives in *-du* and *-andu*. Some forms such as the pronouns *kuis*, *kuit* (cf. *quis*, *quid*), the verb *ešmi*, I am (cf. Sans. *asmi*), or again the formation of present stems in *-numi* (Greek *-νυμι*, Sans. *-nomi*) look extraordinarily Aryan.

But the most surprising thing about them is that the Indo-European resemblances lie not at all with Indo-Iranian, but with the *centum* languages, especially Phrygian, Greek and Latin. The phonetic system would connect Našili exclusively with the latter group. In inflection some forms have peculiarly clear western affinities: the accusative singular in *-n*, as in Greek and Phrygian, instead of *-m*, *sumes*, you like the Greek *ἑμέλς*, the adverb *kattā*, and the change of *-ti* to *-zi* in the 3rd sing. of verbs. Only the rather dubious imperatives in *-du* and *-andu* and the 2nd Person Plurals in *-teni* have distinctively Indo-Iranian parallels. If there be an Indo-European element in Našili, it cannot be derived from their neighbours in Mitanni.¹

However, Našili cannot be accepted without qualification as Aryan. The deviations in the inflection are puzzlingly numerous. Professor Sayce tells me that the very Indo-European looking endings of the verbal stem are not quite strictly "personal", but seem sometimes to be used indifferently to denote the first or third person, the singular or plural. And as he has pointed out several of the supposedly Indo-European verbal terminations, have parallels in non-Aryan languages, Vannic, and even Sumerian.² Again the number of Indo-European words and stems identified in the vocabulary is but small.³ Finally, the syntax remains essentially un-Aryan, for the structure is "incorporating" as in the Asianic tongues.⁴

Now if these documents dated from the XIVth century A.D. few would hesitate to declare that they were written in an Indo-European language and explain the discrepancies as due to the familiar phenomena of decay, assimilation of forms, and foreign borrowing. But the texts from Boghaz-Keui are many centuries older than the

¹ Nor from Iranian Medes (Manda), as Giles suggests, *C.A.H.*, ii, p. 15.

² *J.R.A.S.*, 1920, p. 58.

³ Many derivations have been proposed which, while plausible in themselves, taken together assume mutually incompatible phonetic laws.

⁴ *Ramsay Studies*, p. 392.

earliest written memorials of Sanskrit or Greek. Yet their language diverges from the hypothetical original Aryan tongue far more than Greek and Sanskrit differ from the parent speech or one another. It is in fact impossible to believe that a truly Indo-European language would look so odd in the XIVth century before our era. Professor Forrer has suggested the possibility that Našili might be a branch of some very archaic tongue from which the parent Aryan speech was also sprung. I believe rather that the clue lies in recognizing with Professor Sayce that Našili was an artificial literary language elaborated by court scribes and priests.¹ In such a composite Aryan elements, words and terminations might be borrowed to express concepts and relations unknown to the more primitive Asianic dialects which constitute the substratum of the language. In the same way a whole mass of Babylonian terms have been incorporated. In a like manner the scribe of the Elamite version of the inscription of Darius at Behistun has adopted the Old Persian imperative *aštu* ² since the substantive verb was missing in Anzanite.

If we then admit the real presence of an Indo-European element in the language of Cappadocia, we have still to ask whence it came. The usual answer is that the Aryan element, there as in Mitanni, was just the ruling aristocracy who had imposed themselves on an older Asianic substratum. However, the names of the Hittite kings—Hattusil, Dudhalia, Mursil, Mutallu—do not look in the least Aryan. Again, no Hittite deities have Aryan names, though Professor Sayce has pointed out that in the Hittite version of the Babylonian myth of Bél and the dragon, the monster has an Indo-European name—Illuyankas.³ What a contrast to the Mitanni princes who kept their Aryan names and gods! Again the dynastic lists are said to take the dynasty with the same non-Aryan names back to 1900 B.C. if not earlier. It looks as if the kings of Boghaz-Keui belonged rather to an Asianic stock.

Moreover, this Asianic element can be traced back to the middle of the IIIrd millennium B.C. in Cappadocia. At that time colonies of Semites were established in the Halys valley, and it was doubtless from them that the Babylonian elements in Hittite culture and in the Našili language were borrowed. The correspondence of these

¹ Cf. Luckenbill in *J.R.A.S. Centenary Volume*, p. 58, who adduces interesting parallels from America.

² Col. iii, l. 65, as an equivalent of the subjunctive *ahatiy* in the Persian text, col. iv, l. 39.

³ *J.R.A.S.*, 1922, p. 185: *illu* = Babylonian *ilu*, god, but *yankas* = *𒂗𒌆* = *anguis* = Sans. *ahi*.

merchants, the so-called Cappadocian tablets, reveals the presence of people with Asianic names like those of the Hittite kings, Dudhālia, Buzua, Aḥukar, etc., and contains references to Buruṣ Ḥatim, 'the Hittite fortress' before 2000 B.C.¹ A "Cappadocian" seal of about the same date is said further to bear a legend in Hittite hieroglyphics.² But no Aryan names occur so early. Whatever element in the population inspired the Aryanization of Našili, then, and wherever it dwelt, it looks as if it had only begun to influence the Halys region after 2000 B.C., perhaps long after. The only certain result that has emerged as yet is that there was a *centum* element somewhere within the Hittite realm just after 1500 B.C. About that date the Taurus ranges seem to have represented in a sense a frontier between *satem* and *centum* Indo-European speech.

3. *Archæological Pointers*

Whence then came these two groups of Aryan peoples appearing on either side of the Taurus? That they were intruders may be inferred from the silence of the documents of the IIIrd millennium. They are first definitely revealed to us at the end of a dark age. The darkness is itself significant; for it reflects the consequences of social convulsions provoked by the movement of peoples. Fresh ethnic elements had broken their way into Hither Asia. With their intrusion we may connect the invasion of Egypt by the Hyksos or Shepherd Kings. The documents of the XVth century allow us to infer the catastrophe and reveal the new alignment of political forces it created. But only archæology is likely to disclose the direction of the antecedent racial movements.

At the moment, unhappily, its contribution is small. The earlier phases of the Kassite period in Babylonia, before the invaders had completely assimilated the culture of their adopted country, are little known. It is nevertheless of interest to note that under Ammizaduga, just before the Kassite conquest, white slaves from Subartu and Gutium, regions to the north-east, were being sold at Babylon. About the same time the importation of jade from Chinese Turkestan seems to have been interrupted.³

¹ Sidney Smith, *Cappadocian Tablets in the British Museum*, Sayce in *J.H.S.*, xliii, pp. 44 f.

² Sayce in *J.R.A.S.*, 1922, p. 266.

³ Kennedy, *J.R.A.S.*, 1909, pp. 1113 ff.

The Mitannians are even less known. Only one site in their territory has yet been explored—Tell el-Halaf on the Habur.¹ Here Baron von Oppenheim has excavated the ruins of an ancient city, and some of his finds are now in the British Museum. The rude bas-reliefs, in Hittite style, and seemingly depicting Hittite racial types, belong to the first millennium before our era, and so

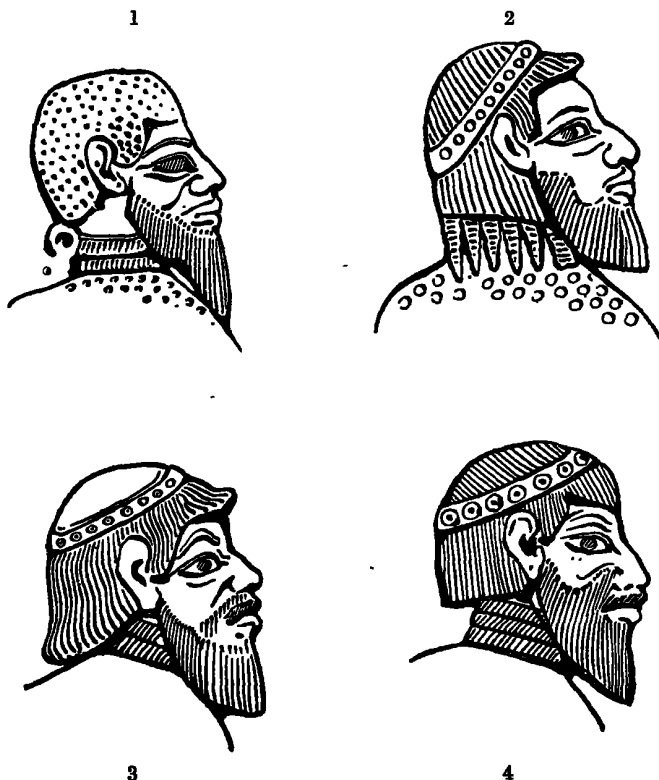


FIG. 2. Asiatic enemies depicted on the chariot of Thothmes IV: 1, Naharina; 2, Sangari; 3, Shasu (Beduin); 4, Kadshi.

throw no light on our immediate problem. The small objects, including painted pottery, from the lower strata, may prove more enlightening when they are published. Nor have we any certain portraits of Mitannians. Yet the Aryan dynasty was in constant

¹ Cf. Oppenheim, *Der Tel Halaf, Der alte Orient*, x, 1908.

relations with the Pharaohs and no less than three Mitannian princesses became queens of Egypt. Of these, Mutemua, the wife of Thothmes IV, looks thoroughly Egyptian on her portrait statues¹; that might be court convention. No portrait of the other two princesses, Gilukhipa and Tadukhipa, who entered the harem of Amenhotep III have come down to us. But earlier in the XVIIIth Dynasty the Pharaohs had been at war with these Aryans of North Syria. They have left us a regular portrait gallery of the races they had subdued in the course of their northern expeditions. The majority of these are certainly Semites—Amorites, Beduins, and so on—but the man from “Naharina” on the chariot of Thothmes IV,² Fig 2, 1, seems to stand out from among the rest and recalls Iranian types from the Persian monuments a thousand years later. He may be one of the *marrianna* since Naharina adjoins the Mitanni territory and Mitanni were actually met there by the conquering Pharaoh. It is also interesting that on Egyptian monuments of the XVIIIth and subsequent Dynasties the Amorites are often depicted as tall, relatively fair, blue-eyed, and brown-haired.³ In view of the considerable Aryan infusion in the area inhabited by them it is just possible that this was not a native characteristic but was due to admixture with the intruders. A systematic exploration of the Mitannian territory and of the towns in Syria and Palestine where Aryan princes were installed should throw much further light on these problems. Pending such work I can only draw attention to certain phenomena which seem to mark innovations at the period of Aryan intrusion on the chance that they may serve as pointers.

Eduard Meyer⁴ has called attention to a curious chariot, now in Florence, found in an XVIIIth Dynasty grave in Egypt. It is of a foreign type, and the axle is bound with birch-bark. Meyer says that that tree does not grow nearer than the Caucasus and accordingly suggests that the Aryans entered Hither Asia across those mountains like the Cimmerians and Scythians a thousand years later. Of course, the attribution of this particular chariot

¹ One in the British Museum; cf. Petrie, *History of Egypt*, ii, p. 173, fig. 111. Her Mitannian origin has been denied by several Egyptologists, most recently by Pridek in *Acta et Comment. Univ. Dorpatensis*, V.B.; cf. Moret, p. 291.

² Carter and Newberry, *Cairo Museum Catalogue, Tomb of Thutmōsis IV*.

³ Clay, *The Empire of the Amorites*, p. 5b. On the other hand, Prof. Sayce holds that the Amorites as such were a fair and blue-eyed stock related to the blonde “Libyans” and the Celts (*J.R.A.S.*, 1924, p. 115). Sir Flinders Petrie seems to favour a similar view.

⁴ *M.D.O.G.*, lvii, p. 16.

to the Aryans is sheer speculation, though we have seen reason to believe that they did introduce the use of horse-drawn vehicles into the Ancient East. Be that as it may, there are other evidences of intercourse with the Caucasus region at about the same epoch.

The oldest cist-graves from the Carchemish region in North Syria contain objects paralleled in South Russia. These are eyelet-pins which look like an elaboration of types found in Copper Age barrows on the Kuban River, curious poker-butted spear-heads which also recur north of the Caucasus and penannular bracelets with flattened recoiled ends widely diffused in South Russia, Hungary, Upper Italy and Bohemia.¹ Of course, we have no sure grounds for regarding these European objects as older than their Syrian parallels nor yet for connecting the latter with Aryans whether "Hittitic" or Indo-Iranic. Still they may be pointers and point across the Caucasus.

On the other hand proofs of influence from Upper Asia may only be lacking because that region is still unexplored. As a matter of fact we do find traces of connection with Turkestan somewhere about this period, though they seem to be from the west and not *vice versa* (see page 40 below).

Passing to the Hittite area in Cappadocia we are slightly better documented.² Hittites are portrayed by their own sculptors and by Egyptian painters. The representations of these people from 3,000 years ago would serve as portraits of the Armenians who inhabit the same region to-day. They reveal a short-headed, high-skulled race, with a large nose and retreating forehead (Pl. I), which had then, as now, a wide extension in the highlands of Western Asia. Indeed, von Luschan³ could call the modern Persians "Hittites". That does not, however, prove that this Armenoid race was the original Aryan stock either in Cappadocia or Iran; the Aryan Darius with his high-forehead and fine nose is quite different and is evidently Mediterranean or Nordic. The best eastern parallels to the Cappadocian Armenoids are to be found in figures of the Elamite goddess Anahita just as non-Aryan Kassite names find echoes in the Hittite territory. It looks therefore as if the typical Armenoid Hittite represents a pre-Aryan Alpine stock.

¹ See *L.A.A.A.*, vi, Woolley, *The Graves of the Hittites*; and Childe, *Dawn*, p. 146, and figs. 62 and 91, 11-12. Cf. *Syria*, vi, pp. 16 ff. (Byblos).

² Cf. Moret, *op. cit.*, p. 237; Carstang, *The Land of the Hittites*; Cowley, *The Hittites*; and Ed. Meyer, *Reich und Kultur der Hethiter*.

³ *J.R.A.I.*, xli, pp. 242 f.

Even the Egyptian drawings of Hittite troops show other less Asianic types.

The typical articles of Hittite costume were the high boots with upturned toes and the peaked cap. The latter meets us again among the nomads of the steppes in both Persian and Greco-Scythian art (Pl. II, 2), and is still worn by the Mongols of Upper Asia. The pigtails worn by the Hittites again look Mongolian to Garstang but perhaps have analogies also in Syrian and Minoan coiffures. None of these peculiarities can on other grounds be regarded as specifically Aryan.

In culture the Hittites of Boghaz-Keui were of course indebted to Babylonia, but they were no slavish imitators. They did not, for instance, like the Assyrians after 2400 B.C., virtually abandon the use of stone in their buildings for the Babylonian brick architecture. The walls of Boghaz-Keui¹ indeed in the use of Cyclopean masonry recall the prehistoric acropolises of the Aegean. The megalithic orthostatae of the gates again have parallels at Troy, Tiryns, and Mycenae. But the gates themselves preserve the double straight Babylonian type and lack the flanking bastion introduced further west already during the habitation of Troy II. Even the plan of the palaces or temples within these walls with their system of cell-like basements built round a central court has been compared to the palace of Knossos in Crete.² But we cannot tell by inspection how far these Aegean parallels in Cappadocia are not a common "Asianic" heritage of the two regions.

It is moreover evident that contact between the Aegean and Cappadocia goes back to the IIIrd millennium. From Kara Euyuk, not far from Boghaz-Keui, come spouted vases of typical Early Minoan form and clay stamps with exact analogues in Troy II and Bulgaria. But similar vases are known from Persia and, accompanied by clay stamps of the Cappadocian pattern and spiral-headed pins of Aegean type, in the third settlement of Anau in Turkestan.³ All this suggests tradē, rather than migration; its direction is still dubious, and its antiquity would seem to connect it with the pre-Aryan period in Cappadocia.

For the epoch and area for which alone we are warranted in speaking of an Aryan element among the Hittites we have only the

¹ Puchstein, *Boghazköi, Die Bauwerke* (*Wiss. Veröffentl. D.O.G.*, 46).

² But early houses in Sumer were similarly laid out. Delaporte, *Mesopotamie*, p. 111.

³ Childe, *op. cit.*, pp. 26, 45. *Vide infra*, p. 111.

carved monuments to guide us pending the publication of the small finds from Boghaz-Keui. The most characteristic weapon is the battle-axe borne by the god Teshub ; actual specimens are known from Elam and Transcaucasia,¹ but the type is only an elaboration of a very ancient Mesopotamian weapon. On the other hand, the same deity carries on his left side a sword which is neither a Babylonian nor Egyptian weapon (Pl. I). It must be half a metre long and the blade looks so wide that it may be a slashing weapon and not, like all earlier oriental swords, designed only for thrusting. East of the Aegean these are certainly the longest weapons known from the IInd millennium. However, the hilt, which leaves a well-marked semicircular indent where it meets the blade, recalls Central European rather than Aegean types. It is therefore worth noting that a sword with a similar hilt and unmistakable Scandinavian

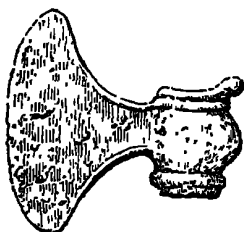


FIG. 3. Axe from Susa.

and Danubian affinities has been found at Mouçı Yeri in Armenia.² Moreover the girdle worn by the "Amazon" from Boghaz-Keui is strikingly similar in form to bronze girdles found in graves on both sides of the Caucasus, as Cowley remarks.³

Another Hittite weapon with a curving point has parallels as far west as Troy. The Hittite shield again resembles a diminutive version of the Mycenaean figure 8 type. Like the Kassites and Mitannians, the Hittites fought from chariots drawn by horses. This animal appears very early on Cappadocian seals. It should also be noted that the Hittites were ahead of all their neighbours in the industrial use of iron in the XIVth century.

The unambiguous links that shall bind the Aryan element in Cappadocia and North Syria during the IInd millennium indissolubly

¹ de Morgan, *Prehistoric Man*, fig. 54, 1 ; *P.Z.*, iv, p. 32, fig. 3 ; Fig. 3 here.

² de Morgan, *op. cit.*, pls. 66, 7 ; *Figs.* 25, 7 here.

³ *The Hittites*, fig. 10.

to some other area, be it the Caucasus, the Aegean, or Central Asia, are not yet forthcoming. The Cappadocian Aryans, like those of Mitanni, therefore remain for the moment isolated intruders who might have come from almost any quarter save the south. We have next to see if we can trace their later history in the hope that thence we may derive some light on the problems of origins.

✓ *The Aryan Invasion of India*

In Palestine the Aryan names have totally disappeared by 1000 B.C., and even in the Mitanni region they leave scarcely a vestige behind them. Here at least Aryan speech succumbed to Semitic and Asianic dialects, and the small Aryan aristocracies were absorbed by the native population. Further east on the tablelands of Iran and in India the Aryan languages survived and survive to-day. But here written evidence still fails us 'till the VIth century B.C. Our oldest sources are the metrical compositions of the Hindus and the Iranians themselves, handed down for many centuries by oral tradition.

The Indians' language approximates most closely to that of the Mitanni documents and has been preserved from a remote date in the hymns of the Rigveda. This priceless document also furnishes precious historical data. The oldest Veda is a collection of metrical chants, always spirited, sometimes truly poetic, more rarely solemn and exalted. Their interest is naturally mainly religious. The powers of nature, sky and sun-gods, the lords of the storm and the wind, the dawn maiden and the heavenly twins, the sacred fire and the ritual intoxicant Soma are invoked in many a stanza. Dearest of all is the rollicking war-god Indra, the thunderer, made in the image of an Aryan chieftain of the heroic age. Exhilarated by Soma drafts, he slays the dragon Vṛtra or Ahi, releases the stolen kine of light or rain, and rescues the imprisoned Dawn. Only incidentally do we see the earthly princes whom Indra copies—generous to bards, bold to smite the dark-skinned Dasyus (aborigines), lovers of strong drink, dicing and horse-racing—in a word, with all the characters of a Teutonic hero in the Norse epic. Their wealth was in kine and horses, their vehicle the horse-drawn chariot, their weapons the bow, the mace and the spear. Axes of copper are mentioned, but as tools not weapons.¹ Temples or cities are not

¹ *paraśuh svayasi*. Macdonnell takes *ayas* to mean iron, but copper is intrinsically more likely and accords better with similes such as *ayodamstra*, "with teeth of *ayas*," applied to the fire-god. Cf. Zimmer, *Altindisches Leben*.

described, though strong places (*purah*) are referred to. The dead are generally cremated, the ashes interred under a barrow.

This seems the picture of a young and vigorous race fresh from the mountains taking possession of the torrid plains of northern India. On the orthodox view they are still in the Punjab, whither they have but recently descended from Afghanistan. Rivers west of the Indus¹ and the district of Gandhara are still within the ken of the singers. The Jumna (Yamunā) is named but thrice, the Ganges twice, in seemingly late verses, but the oft mentioned Sarayu may be the River of Oudh (now Sarju). South India is quite unknown. It is accordingly believed that the centre of Aryan India in Vedic times lay in the Punjab. The eastward expansion would then belong to the later period of the Brahmanas. These are liturgical and exegetical texts composed largely in prose and shown by their altered language, social ideas and religious outlook, to be separated from the Rigveda by a considerable interval of time. They stand to the Veda rather in the same relation as Hesiod to Homer. Yet even they are very distinctly pre-Buddhist and antedate the conquest of southern India. The Rigveda is therefore dated somewhere after 1400 B.C., and the Aryan invasion is assigned to a like antiquity.

This orthodox view has recently been challenged from two sides. Mr. Pargiter² holds that the Aryanization of India was long prior to the composition of the Vedic hymns. He complains that the usual European view has relied too implicitly on the traditions of the Brahman caste. But there exists another tradition, that of the kingly or *kṣatriya* class. To this Mr. Pargiter appeals, though he admits that the existing redactions thereof are late.³ A study of the royal genealogies leads our author to the conclusion that the Aryans, identified by him with the Aila or Lunar race, entered India nearer the beginning than the end of the second millennium and over the Central Himalayas, not across the Hindu Kush. Their oldest centre was, on this view, on the Upper Jumna and the Ganges; the occupation of the Punjab and the Rigveda belong to a later age of westward expansion. Then, following Jacobi's interpretation of the Mitanni names, Mr. Pargiter assumes that the same wave spread still further west—into Mesopotamia.

If this account of the Aryanization of India be accepted, the whole

¹ The Kabul (*Kubhā*), Kurrum (*Kṛumu*), and Gomal (*Gomati*).

² *Ancient Indian Historical Tradition*, Oxford, 1922.

³ See a good critique in *J.A.O.S.*, 1923, pp. 123 ff.

problem of this book will assume a new aspect. But geographically the transit of the Himalayas offers severe obstacles and other difficulties are entailed in the Iranian connections. And the *ksatriya* tradition on which the whole theory is based is hardly an unpolluted source of history. The orthodox view is not really based on the priestly tradition, as embodied in exegetical works, but rather on the internal evidence of the Veda itself. The latter carries conviction precisely because the historical and geographical references in the hymns are introduced only incidentally and in a thoroughly ingenuous manner; for instance, there is no caste in the Rigveda, and the priest is obviously dependent upon the generosity of his kingly patron. The same cannot be said of the *ksatriya* tradition, which in its recorded form dates from an age (perhaps as late as 200 A.D.) when myth-making had had many centuries to work in, and which might serve dynastic ends. It needs even more cautious handling than the tales of Homeric heroes in late logographers and Roman poets. So the traditional view is still perhaps the more convincing.

The latter has however been challenged from the contrary standpoint in recent years. Brunnhofer¹ and others have argued that the scene of the Rigveda is laid, not in the Punjab, but in Afghanistan or Iran, and this view has lately been espoused by Hüsing.² In that case the occupation of India would be much later than is usually assumed. Now Brunnhofer relies mainly on the identification of peoples mentioned in the Veda, with tribes located in Afghanistan, in the inscriptions of Darius, or in later Greek authors.³ But his heretical views have not received much support among Indianists. Some of his identifications are indeed phonetically preposterous, but there is a residue which demands explanation; the mention of *Parthāva* in the Veda is an old crux owing to the formal identity of the word with the Old Persian form of Parthian and the occurrence of *Parsu* with, or as an adjective of, such an Iranian sounding name as Tirindira (in *R.V.*, viii, 6, 46) makes the translation "Persian" very tempting. Moreover, there is not the least doubt about the phonetic equation of the Vedic Sarasvati with the Persian Hara'uytiš and the Rāsā with the Zend Rañha.

¹ *Arische Urzeit*, 1910.

² *M.A.G.W.*, xlv.

³ Thus Pañi = Παῖνοι, Sṛñjaya = Σάραγγαι, Mṛdha = Μῦρδοι, Ānava = Ἀναβων, χῶρα (part of Ἀπεια), Śiva = Σίβοι, etc.

In fact, it is beyond dispute that some transference of river names between Iran and India has taken place. But most of the other streams named in the Rigveda are Indian rivers which bore the same names in historical times.¹ To suppose with Brunnhofer that all these names had been transferred from the miserable streamlets of Seistan to India involves a far greater dislocation of topographical nomenclature than is required on the orthodox theses. This admits the nominal identity of Sarasvati and Hara'uvatiš, but supposes that the Vedic Hindus applied the name of a stream once known to them in company with the Iranians west of the Hindu Kush to the chief river of their new home, the Indus (*Sindhu*=the River), or to the modern Sarasvati, a small stream east of the Sutlej which now loses itself in sand.

The element of truth underlying the second heresy would then be the reality of the Indo-Iranian period which we have postulated on other grounds (page 7) and which adequately explains the phenomena just noted. But the same truth powerfully reinforces the orthodox theory against Mr. Pargiter too. He might indeed accept the curious view of Darmsteter² to this extent and regard the Vedic gods and rites known to the authors of the Avesta as borrowed from Indians who on his view overflowed from the Punjab in the XVth century B.C. Would he also ascribe the Aryanization of Iran to the same migrants? In that case he would have to assume a numerically large band. But we have few, if any, examples of such a large scale emigration out of India; the movement of peoples in historic times has generally been into that land. At the date in question the Aryans had still all southern India to colonize. Why then should they climb the passes of Afghanistan to wander on the bleak tablelands of Iran? Moreover, the common myth of the dragon fight—Indra and Ahi in the Veda and Atar and Azi in the Avesta—seems at home in Mesopotamia. The coexistence of Indians and Iranians somewhere within the sphere of Babylonian influence would make its appearance in an Aryanized version on both sides of the Hindu Kush intelligible.

The weight of evidence then compels us to regard the coexistence of Indians and Iranians as pre-Vedic and to locate its scene west of the Hindu Kush. That implies an invasion from the west such as we have sketched on page 31. *

¹ Kubhā = Kabul, Krumū = Kurrum, Gomati = Gomal, Śutudri = Sutlej, Vipāś = Biyas, Paruṣṇī = Ravi, Aśikni = 'Ακεσίτης, etc.

² *Sacred Books of the East, The Zand-Avesta*, vol. i, introduction. This author's date for Zoroaster is quite untenable.

Archaeological documents illustrating this invasion would be of quite exceptional value. But till 1924 scarcely any pre-Buddhist remains were known in northern India ; in the south, indeed, and in Assam stone circles and megalithic tombs containing cremated remains and iron objects have long been known, but these districts were only brought under Aryan rule at a late date and are still essentially un-Aryan. The material there revealed therefore has no bearing on our question. But last year traces of an entirely new culture going back to a chalcolithic epoch came to light in the Indus valley, in Sindh near Larkana, and in the Montgomery District of the Punjab just north of the Sutlej (Śutudri). These astounding discoveries are at present only known from summary reports,¹ but they do reveal unmistakable evidence of connection one way or the other with the west and that at a very remote epoch.

The civilization here laid bare undoubtedly lasted a long time, as several strata of ruins have been discovered. Some of the material, presumably the oldest, evinces obvious parallelism to early Mesopotamian remains ; the use of brick for building, the interments of contracted bodies in brick cist graves, the shell inlays, the mace-heads and pestles all have the most exact analogues in early Sumerian levels in the Tigris-Euphrates valley. The beautiful stamp-seals engraved with figures of *Bos primigenius* and (?) unicorns and the curious symbols of their legends likewise have good Sumerian counterparts, and so, to a less striking degree, have the clay models of rams and the female figurines. Finally the painted pottery from the Indus sites is connected through Baluchistan with Elam and Southern Mesopotamia and more vaguely with Seistan and Transcaspia.

Here we have for the first time positive evidence of intercourse between India and Western Asia before the first millennium—and these connections were evidently very ancient, presumably anterior to the general adoption of the cylinder seal in Mesopotamia about 2800 B.C. But at a later period in the history of the ruins a significant change took place in the civilization of the Punjab ; inhumation gave place to cremation.

The data available seem susceptible of three interpretations : either the whole civilization of the Punjab is Aryan, or the Aryan element enters at some date within the long ages represented by the accumulated debris—perhaps with the introduction of cremation —or finally the Aryans were just the destroyers of the newly

¹ *Illustrated London News*, 20th September, 1924. Cf. Pl. VI here.

discovered culture. We shall return to the first possibility in a later chapter, but here some preliminary points must be noted. The connections with Sumer and Elam in themselves suggest that the authors of this civilization were not Aryans but connected with one of the pre-Aryan races of Mesopotamia. Indeed, Dr. Hall¹ pointed out ten years ago that the Dravidians of India resemble in anthropological type the Sumerians of Mesopotamia and suggested that the mysterious Sumerians came from India. More recently Dr. Hüsing has drawn attention to a likeness between figures on early Buddhist carvings and those on Sumerian works of art. Whichever way the races drifted, an ethnic element common to India and Mesopotamia seems clear and to it might be ascribed the inter-related cultures.

Were it Sumerian, it could not be Aryan, but the simple equation is not yet established. The historical Sumerians did not use painted pottery, but seem rather to have displaced or conquered an older people who did; for instance, at Ur graves contemporary with the First (Sumerian) Dynasty have disturbed older interments accompanied by painted vases. But even if the culture common to the Indus and the Euphrates valleys belong to a "pre-Sumerian" stratum, it is still unlikely to be Aryan. Christian² distinguished in the Sumerians' monuments two racial types and in their language two components, neither of which is Aryan but one of which may well belong to the vase-painters. To this extent the attribution of the new finds to Aryans seems unlikely. The female figurines again do not seem proper to Indo-Europeans and the same types are found in South India as well as in the Punjab. On the other hand it should be recalled that a grave under a barrow near Belliah, Bengal, contained, besides apparently cremated bones and remains of a wooden pillar, female images impressed on gold leaf. The excavator would see in these the goddess Prithivi (Earth) to whom the Vedic Funeral Hymn (X, 18) commends the remains of the departed.³ A final pronouncement must, of course, await the measurement of the new skeletal material and the decipherment of the script-signs on the seals and copper bars found in the Punjab.

The second possibility can only be judged when an examination of the new remains in their stratigraphical order determines whether a real break in culture is detectable when cremation first comes

¹ *Anc. Hist. of the Near East*, 1913, p. 173; cf. *Man*, xxv, 1.

² *M.A.G.W.*, liv.

³ *Arch. Survey of India*, 1906-7, pp. 122 f.

in or at some other point. The last alternative might seem to be supported by the apparent discontinuity between the art, script, and other products of the prehistoric civilization and the creations of Aryan India. But there again the verdict must be suspended till further researches shall reveal whether the cleavage is absolute or whether the upper strata on the Indus sites may not serve to bridge the gulf. In any case it is in this area that the key to more than one of the riddles of human civilization lies hid and a bountiful reward awaits the excavations which alone can find it. Till then India offers but a tantalizing vista and its invasion by Aryans remains a fact to be inferred from linguistic data still disconnected from material remains.)

5. *The Iranians in the First Millennium B.C.*

(West of the Indians in the first millennium before our era dwelt the Iranians. Are the ascertained facts of their early history compatible with the account we have given of the Aryanization of India? The oldest monuments of Iranian literature, the hymns or *gāthās* ascribed to Zoroaster (Zarathuštra), stand in a sense as a dividing line in space between the Indo-Iranians in Mitanni and the Vedic Indians in the Punjab. In the Avesta many of the Vedic and Mitannian deities have become devils while the name of Zoroaster's god, *Ahura*, is tending to mean 'demon' in the Veda. In this inversion we detect the hand of the prophet Zoroaster himself, who was perhaps the first great religious reformer. He took the old god, Varuna, who in the Veda is waning before the war-god Indra, raised him to a position of supremacy, stripped him of all material trappings and invested him with a sublime majesty as the guardian of the Cosmic Order (*Aša* or *Ṛta*). Some of the other popular gods of the Indo-Iranian period, such as Mithra, were retained in an attenuated form and subordinate position as personifications of abstract virtue. Others such as Naonhaitya (*Nāsatyā*) and (?) Indra were relegated to the armies of evil with whom the righteous man must fight on the side of Ahura Mazda but again as abstractions personified. Thus did Zoroaster convert the old Indo-Iranian polytheism into a spiritual monotheism which was no longer a mere tribal or national creed but a gospel to which all men were summoned.)

(The contrast between the Vedic-Mitannian religion on the one hand and the Avestan on the other is thus explained as the work

of a dominant personality ; it has even been suggested that the separation of Indians and Iranians was the result of a religious schism. In any case, spatial contiguity between Iranians and Indians seems implied, and that presumably after the Aryan conquest of Mitanni in the XVth century. Beyond this neither the age in which the prophet lived nor the scene of his labours are precisely determinable. His home is generally located in Sogdiana, Bactria or Arrachosia (Hara'uvatiš) and his reforms certainly antedate the accession of Darius I. Hall ¹ and Jackson ² would recognize in his patron, Vištaspā, Hystaspes the father of Darius. Eduard Meyer ³ on the other hand finds evidence in Median names such as Mazdaka, occurring in the Assyrian records as early as the VIIIth century, that Zoroastrianism was already established by that date. The prominence of the concept of Aša already in the XVth century B.C. as attested by the names of Mitannian and Syrian princes, would seem to favour the higher date. The people among whom the prophet worked must at all events be regarded as the eastern branch of the Iranian stock.)

The West Iranian kinsmen of the Avestan Airyas begin to figure in historical documents about the VIIIth century. The first certain reference to the Medes ⁴ dates from that epoch when the Assyrians met them as far west as Lake Urmia. But the first regular monarchy under a line of kings with good Iranian names (Fravartiš, 'Uvakhšathriya, etc.) had its capital further east at Ecbatana. (Then in the VIIth century the Persians under Teispes (Cišpiš) had established a dynasty among the Elamite Anshanites east of Susa to advance thence westward under Cyrus a hundred years later.) In these peoples it is natural to see the western outposts of the Iranian population. (Their appearance in history first in the region of Lake Urmia would be merely an accident resulting from the direction of Assyrian conquest and consequently of Assyrian geographical knowledge. And during the earlier part of the period covered by the Assyrian annals the more western parts of the highland north of Mesopotamia were certainly occupied

¹ *Ancient History of the Near East*, p. 555.

² *Persia Past and Present*.

³ Article "Persia" in *Encyclopædia Britannica*, 11th ed. Darmsteter denies that Darius or any of the Achemenids was a Zoroastrian. The name *Aššara Mazda* occurs in an inscription of Ashurbanipal (669-626 B.C.). *P.S.B.A.*, 1899, p. 132.

⁴ The identification of the *Manda* mentioned by the Hittite kings about 1300 as living in western Armenia with the historic Medes seems questionable though it is accepted by Giles, *C.A.H.*, ii, p. 15.

by non-Aryan Asianic peoples akin to the bulk of the Mitannians of the Amarna age (page 19) while Iran proper does not yet figure in the cuneiform records. The monuments of these non-Aryan population are linguistically the "Vannic" inscriptions from Armenia, racially the Armenoid or Hittite types depicted on the bas-reliefs of Tell el-Halaf.

Nevertheless Hüsing, who localizes the Avestan *Airyanam vaéjant* (Aryan homeland) in Armenia, contends that the Iranians entered Iran only during the first millennium B.C. while they had dwelt together with the Indians north of the Caucasus. The real answer to this contention seems to be supplied by the position of the earliest parts of the Avesta as contrasted with the Mitannian documents; the identity in difference is most readily intelligible on the assumption of a continuous population from Lake Urmia to the Punjab whose beliefs formed the material and background for Zarathuštra's reforms. This continuity should have been still subsisting at the time of the prophet and not broken off as Hüsing assumes somewhere in the middle of the second millennium when the Indians would have crossed the Caucasus. Secondly, the Mitannian and Syrian names in *Arta-* have, as we have seen, a distinctly Iranian tinge already in the XVth century.

Against these grounds for the belief in the presence of Iranians south of the Caucasus by 1000 B.C. have we any evidence for Iranians north of the range at an early date? In the VIIIth century a people called by the Assyrians *Azguzai*, the Scythians of the Greeks, crossed the Caucasus to descend upon Mesopotamia. Many people hold that these Scyths were Iranian. The linguistic evidence, limited to a few proper names mostly of late date, is inconclusive. Archaeologically, however, our people are well known. Undoubtedly Scythian art is strongly influenced by the Iranian—but it is not any specific Iranian art, Persian for instance, but has its own unique individuality. Again, the Iranian on a gold plaque from the Oxus Treasure (Plate II, 2) is wearing Scythian dress. The Scythian burial customs are, however, decisive. They are utterly different from those of the Iranians or Indians or any other Aryan people whatsoever. At the tomb of the chief his women and his servants were slain, and round the sepulchral chamber many horses were impaled. These rites, attested by the descriptions of Herodotus and by the actual remains from many a barrow, are utterly un-Aryan. On the other hand they find exact parallels among the non-Aryan Mongol nomads of Upper

Asia throughout the ages as Minns¹ has amply demonstrated. This author treats the Scyths as Mongoloid forerunners of the Huns, Tartars, and Peschenegs, and that is no doubt right.

Professor Rostovtseff, who is the last to defend the Iranian hypothesis, has himself cut away the ground from under his feet. For he has convincingly distinguished the Sarmatians, who were demonstrably Iranian, from their predecessors the Scyths.² In their graves we find no more the horse hecatombs nor the heaps of slain women and retainers, but the simpler, albeit rich, funeral rites which would be appropriate to any other Aryan people. Tombs of the new type first appear in East Russia, in the Orenburg region in the Vth century, and spread gradually westward in the rear of the Scyths—to the Crimea in the IIInd century and the Danube by 50 A.D. With this clear separation of Sarmatian from Scythian, the real ground for dubbing the latter Iranian—the Iranian names found in Scythia in Roman times and the language of the modern Ossetes—disappears.)

At the same time Hüsing's attempt to treat the Scyths as European is misplaced. Scythian burials are found first in the east of Russia between the Kuban and the Dniepr. In the VIIIth–Vth centuries B.C. the material found west of the last-named river is quite different from the Scythian and is connected with the Central European Hallstatt-Lausitz series. It is only in the VIth century that the oriental rites and objects begin to intrude into West Russia and become established there two centuries later. There is indeed archaeological evidence for incursions of Scyths into Bulgaria, Hungary, and Eastern Germany, but only as invaders coming from the east.

But if the Scyths seem thus happily disposed of, there still remain the Cimmerians³ to put in a claim for Iranian nationality. In Homer's time these people were presumably living somewhere to the north of the Black Sea and their name survived there in the Cimmerian Bosphorus into classical times. But the narrative of Herodotus combined with the data from Assyrian records shows that the Scyths drove some Cimmerians in a south-easterly direction across the Caucasus, where they appear as the *Gimiri*, north of Van (Urartu), while another band of them, mixed with Thracian Treres, fell upon Asia Minor from the West. Thus to split up the

¹ Minns, *Scythians and Greeks* (Cambridge, 1911), pp. 88 ff.

² *The Iranians and Greeks in South Russia* (Oxford, 1922), pp. 122 f.

³ Minns, *op. cit.*, p. 52; Rostovtseff, p. 40.

tribes of South Russia the Mongolian invaders must have been as far north as the Orenburg region where the Sarmatians first emerge, but need have been no further west. Now the claim of these South Russian Cimmericians to Iranian nationality rests upon the name of their chief, Sandakhšathra. This is certainly Iranian though the prince's father, Tugdammī, the Lygdamis of Strabo, has not even an Aryan appellation. But this one name appearing only after the Cimmericians had already been in Armenia for some time is but slender evidence for Iranians north of the Black Sea at an earlier date. I prefer Rostovtseff's view that the Cimmericians were an Aryan people indeed but akin to the Thracians.

(Hence the evidence for Iranians in Europe before 600 B.C. has yet to be produced. The Scyths turn out to be Mongols, the Cimmericians Thracians. The first Iranians we can trace in our own continent are the Sarmatians, who come from the east, thus revealing how far the Iranian language and culture had spread already in the first half of the first millennium B.C. in Central Asia. And in Asia the Iranians appear in the Assyrian annals first on the north-eastern frontiers of the realm but under circumstances which allow us to infer a great hinterland of Iranians, not to the north but to the east. So the belief that this branch of the Aryan family was in occupation of the highlands of Iran before 1000 B.C. seems justified as a working hypothesis.)

Archaeologically the earlier creations of the Iranian peoples cannot yet be disentangled from the general complex of Assyrian and Babylonian culture. Scientific exploration of early Median and Persian sites such as Ecbatana or Rhagae might have very important results. Already we can detect vestiges of connection between Iran and the West as early as the third millennium. They are represented by a beaked jug of Early Minoan type from Persia now in the Louvre. A rather similar jug is known from Anau in Turkestan a little further north and the same site has yielded spiral-headed pins and clay stamps which have their best parallels at Troy on the Hellespont. But we cannot yet say how much these phenomena are due to direct contact, how much to common reflections of the same Sumerian culture; a sickle from the same level at Anau to which a Trojan counterpart was long known has been shown by the recent excavations at Kish to be a Mesopotamian type.

(In historical times the Medes and Persians rode on horseback ;

the Vedic Indians normally harnessed their steeds to chariots and only exceptionally mounted on their backs. So the Iranians wore trousers, the Vedic Indians did not. These changes of fashion must then be posterior to the separation of the Indians and Iranians. As to burial rites, after the reforms of Zoroaster the dead were exposed on "Towers of Silence" as they are among the Parsis to this day; to avoid contamination of the sacred Earth or Fire inhumation and cremation were alike forbidden. But the Achaemenid kings were buried in rock-cut tombs and express prohibitions against cremation in the Avesta prove that that rite was also practised in Ancient Iran.)

The racial type of the ancient Persians as represented by portraits of the Achaemenid kings is easily distinguished from that of Hittites, Semites, or Elamites by its lofty brow and delicate nose (Pl. II, 1). Only actual skulls can show whether we have here a Nordic or an Eurafrian type. The principal long-headed stocks in Iran to-day belong to the latter race. But the survival of blondes among the Kurds and around Persepolis to-day is a notable fact. And Chinese annalists speak of blue-eyed peoples in Eastern Turkestan about 100 B.C. (The Iranians seem in fact to have reached the Tarim basin before the beginning of our era. Such an enormous range would suggest that they were partly nomadic. Yet in the *gāthās* of Zoroaster, although pastoral imagery abounds, the Aryan virtues are those of the husbandman, and the nomad is cursed as a Turanian robber. It must of course be remembered that the political empire of the Achaemenids and service in the Persian army resulted in the Aryanization of a multitude of heterogeneous peoples scattered far and wide throughout the vast domain.

We may now conclude that the Indo-Iranian peoples who appear on the north-eastern frontier of Mesopotamia with the Kassites about 1900 B.C. were but the advance guard of the great mass of the same stock. The western wing of these then reached Mitanni before 1500 B.C., while the eastern wing was descending into India not much later. The highlands between may be supposed to have been occupied by the people who a thousand years later enter the stage of history as Iranians, differentiating on the plateau from the original Indo-Iranian stock through admixture with non-Aryan Asiatic and Turanian tribes. How the great mass of Indo-Iranian Aryans entered this region and whence they came cannot yet be decided; for the indications of direction viewed from this side are still too ambiguous. That question must await the inductive part of our inquiry.)

CHAPTER III

THE ARYANIZATION OF THE MEDITERRANEAN

1. *Hellenes and Aegeans*

In the Mediterranean basin, the next area of the world's surface to be illumined by the light of history, there is again evidence of a non-Aryan population in lands that by classical times were Aryan. Place-names, a couple of inscriptions, a few traditions justify the belief in the presence of a pre-Indo-European stock on the southern coasts of Europe. But in this region history begins but late. On the other hand, the wealth of archaeological data is almost embarrassing.

In the Aegean the prehistoric past is illustrated by exceptionally rich and plentiful finds. But there is a gap in the archaeological record. We know on the one hand the historic Hellenic civilization beginning with the Early Iron Age or "Geometric" period. Behind this lies a dark age illumined by little or no archaeological material, and on the further side of this chasm stands the prehistoric Mycenaean civilization which flourished between 1600 and 1200 B.C. and the many roots of which can be traced back to the fourth millennium on the one side in Crete, on the other through a series of distinct local cultures on the Mainland. Now the evidence of place-names abundantly demonstrates the presence of non-Aryan peoples on these shores.¹ For us the crucial question is: Did the Aryan element, let us call it the Hellenes, only intrude during the Dark Age or were there Hellenes also in Mycenaean and pre-Mycenaean Greece? I cannot pretend here to set forth in full nor to examine in detail the multifarious answers which have been suggested; space permits only of a most summary sketch.

If we interrogate Greek tradition, we find that the Hellenes preserved the memory of considerable movements in the population. Dryopes descended from Central Greece into the Argolid; Petthaloi advanced from the Epirus "to inhabit the Aeolian land"

¹ Kretschmer, *Einleitung in die Geschichte der griechischen Sprache*; Fick, *Vorgriechische Ortsnamen*.

of Thessaly; Eleans swooped down from Aetolia into the western Peloponnese; above all the famous Dorians from the Pindus ranges or Macedonia occupied Boeotia, Laconia, the Argolid and Crete. But on the one hand these peoples are not represented as coming from outside the South Balkan peninsular; Macedonia is the furthest point to which tradition takes us. At the same time the Greeks regarded the peoples whom these migrants conquered as already Hellenic; the pre-Dorian population was not only Aryan, it is often called autochthonous. Save for a vague phrase about "the sons of Hellen being called to help the States" no reminiscence of a Hellenization but only one of a Dorianization survived in historical times. The other Hellenes might have been in their classical seats *ab origine*.

The evidence of language is partly concordant with the tradition in this form; it at least reveals two strata of Hellenic speech in Greece. The Hellenic dialects fall into four main divisions—Aeolic, Attic-Ionic, Cypro-Arcadian and West Greek. All these dialects are cast in the same mould. If not certainly sprung from a single Hellenic language, as Meillet¹ supposes, they are so intimately related that they must have been differentiated in strict contiguity, in a linguistic continuum. It seems for instance inconceivable to say Doric should have developed somewhere in the Danube valley while Ionic had been spoken in Attica a thousand years earlier. Be that as it may, the distribution of the dialects shows an intrusion of West Greek speech into an area previously occupied by other dialects. Arcadian has been left like an island in the Peloponnese cut off by a sea of West Greek dialects from its sister tongue in Cyprus. In West Thessaly West Greek elements obviously overlies an older Aeolic stratum. In Central Greece the West Greek dialects of Achaëa, Phocis and Locris may have broken an older continuity between the Aeolic of Boeotia and East Thessaly, though the Aeolism of the former region is perhaps rather due to the invaders from Arne in Thessaly driven out by the West Greek Petthaloi.²

The most popular hypothesis is to connect this intrusion of West Greek speech into the east of the peninsula with the Dorian migration associating the movements of the Dryopes and Petthaloi

¹ "Tous les parlars grecs connus reposent sur une langue commune, déjà très différent de l'indo-européen, à savoir le grec commun dont ils sont tous des transformations diverses."—*Aperçu d'une histoire de la langue grecque*, p. 18.

² Hdt., vii, 176, cf. Thug., i, 12, 3.

closely therewith. But the reality may well be more complex. R. Meister proposes to recognize as the marks of Dorian speech not the general phenomena common to all West Greek dialects but certain peculiarities which were singled out for mention by the Attic comic poets.¹ If Meister's theory be accepted, it will follow that the West Greek invasion which isolated Arcadian was pre-Dorian; for our author regards even the non-Dorian perioeci of Laconia as West Greek. So we should have to reckon with a double migration of West Greek tribes. In any case, there are obvious difficulties in compressing into the Dark Age first the Hellenization of Cyprus and Arcadia, Attica, Boeotia and East Thessaly and then the conquest or isolation of these territories by a further invasion from West Greece.

Can we penetrate beyond the Dorian invasion? Behind it lies the Heroic Age, disclosed in the Homeric poems and later legends with an almost fabulous glamour and radiance about it. Yet recent researches have done much to establish Homer's credit as a source of historical information and to substantiate the golden age of tradition. The excavator's spade has exhumed the splendours of the epic citadels; T. W. Allen² has proved that the Homeric Catalogue of Ships describes a political grouping that could serve no ambitions of classical States, has no counterpart in "historic" times, but accurately reflects a real situation existing in a pre-Dorian epoch; and as the Egyptian and Hittite records begin to speak, the peoples and characters of heroic myth become historical.

But the interpretation of these sources and their co-ordination with archaeological results are still highly controversial matters. Homer describes a Greece in which the ruling dynasts in most States were "Achaean". The first question is: Were these Achaeans who led the expedition against Troy Hellenes? The Greeks themselves certainly thought so; Homer and later tradition depict them as worshipping the undoubtedly Aryan god, Zeus. Their outlook on life corresponds closely to that of an Indian

¹ "Dorer und Achäer," *Abhandl., d. phil.-hist. Klasse d.k. sächsischen Gesellsch. d. Wissen.*, xxiv, 3. His "Dorian shibboleths" are (i) the replacement of secondary intervocalic σ by h ($M\omega h\alpha$ for $M\omega\sigma\alpha$), (ii) the change of θ to σ ($\sigma\acute{\upsilon}\mu\alpha$ for $\theta\acute{\upsilon}\mu\alpha$), (iii) the assimilation of ζ to $\delta\delta$, and (iv) the pronunciation of ϵ before o -vowels as ι ($\sigma\iota\omega$ for $\theta\acute{\epsilon}\omega$). All these peculiarities are detectable at Sparta and many of them also in Crete and the Argolid where Meister supposes the Dorians to have been but a small aristocracy. However, it is to be noted that (i) is also observed in Cyprus which is not usually classed as Dorian in any sense.

² *The Homeric Catalogue of Ships*, Oxford, 1921.

prince in the Veda or a Teutonic chief in the Norse epics. Yet many of their names—Odysseus, Achilles, Pelops—can only with the utmost difficulty and by torturing phonetics be explained as Indo-European. Later tradition brought the Pelopids, the Danaids and others with singular unanimity from Asia Minor and called them Phrygians, Lydians, or Lycians.¹ In other cases their affinities seem to lie in the South, in Minoan Crete, where a great civilization of seemingly Mediterranean type can be traced back uninterruptedly to the fourth millennium.

Sir Arthur Evans² long ago suggested the idea of a Minoan epic, written perhaps in the Minoan script and presumably in a non-Hellenic tongue. To explain the Minoan traits in the Greek epics he suggested that Homer might have incorporated episodes from the Minoan poem in his Hellenic rhapsodies. The recent discovery of scenes from heroic myth on Minoan-Mycenaean signet rings³ may be interpreted in support of this view. And now Mr. Allen⁴ comes forward with the theory of a Heroic Chronicle episodes of which were elaborated by his Chian Homer and another version of which survives in Dictys of Crete. It too might have been composed in the Minoan speech and written in the Minoan script. It is not inconceivable that the first Hellenic invaders should have appropriated pre-Hellenic national heroes and adopted as an ethnic title the tribal and local appellations given to the lands they occupied by earlier dynasts. It is equally possible that a pre-existing Hellenic population should have accepted and, in later tradition, Hellenized non-Hellenic culture heroes coming from Asia or Crete. Between 1600 and 1450 civilization was spreading from South to North and great royal tombs mark the establishment of kingly houses, whose ancestry would seem to lie in Minoan Crete, among more backward people on the Mainland.

To the solution of this question the Hittite records seem likely to give material help. If Tavagalavas, king of Ahhiyava about 1325 B.C., be really Eteokles (*Ἐτεφοκλεφης*), there will be no doubt about the presence of Indo-European Hellenes in or near the Aegean area in the XIVth century; for this name is good Indo-European. And about a century later we read of an Alakšandu who seems to be an Alexander and so certainly Hellenic.

¹ See Weill in *Syria*, ii, pp. 135 ff.

² *The Minoan and Mycenaean Element in Hellenic Life*, *J.H.S.*, xxxii (1912), esp. p. 293.

³ *J.H.S.*, xlv, pp. 27-41.

⁴ *Homer: The Origins and Transmission*, Oxford, 1924.

But admitting that Homer's Achaioi are indeed Hellenes, there is a further question. Did they speak an East Greek dialect—Cypro-Arcadian, Ionic, or Aeolic or some more primitive tongue from which these three have developed—or was their language West Greek? In the former case they may well be the first Hellenes; in the latter it will be they who isolated Arcadian and an older Hellenic stratum will have to be assumed to account for Arcadian, Attic and Aeolic and some theory such as Meister's must be invoked to distinguish the later Dorians. The first view is of course the most economical. Moreover, Cypro-Arcadian elements are detectable in many regions where Homer or the Hittite records reveal Achaeans—Crete and Pamphylia for instance¹—and where West Greek elements are lacking. Again, Cypro-Arcadian words in "Epic Greek" are noticeable, e.g., *κοίπavos*.

On the other hand Chadwick² has pointed out that the dialects of both the Achaeas were essentially West Greek and the inhabitants of these regions have a good claim to be regarded as descendants of the Homeric Achaioi since no tradition of the Dorianization of the areas survives. Moreover, parts of the Achaean realm—the Argolid, Messenia, Kos, Kalymna Rhodes—also spoke more or less West Greek dialects in historic times and cannot in all cases be regarded as Dorianized. The balance of probability seems to lie with Chadwick's view which has recently received the weighty support of Dr. Penrose Harland.³

Finally, were these Achaeans natives or intruders? As far as their dynasties are concerned, they are clearly newcomers; after four generations their lineage is lost; they "go up to a god", as Herodotus puts it. Moreover, they are described as having recently ascended the throne which they have in many cases won by marriage with the old king's daughter. Chadwick⁴ has very aptly compared these and other phenomena of the Greek Heroic Age with the formation of Teutonic dynasties on the ruins of the Roman Empire. Contact with Roman civilization had broken down the bonds of barbaric society and permitted the emergence of personal war-chiefs endowed with a status and mentality very like that of

¹ E.g. *oi, is, iv, πeδa, ios* in Crete. Cf. Thumb, *Handbuch der griech. Dialekte*, § 41. Bechtel, vol. ii, §§ 809-20, emphasizes the Cretan affinities of Pamphylian, but West Greek elements are also detectable.

² *The Heroic Age*, pp. 280 ff.

³ *The Peloponnesos in the Bronze Age, Harvard Studies in Classical Philology*, xxxiv, 1923.

⁴ *Op. cit.*, pp. 353 ff.

Agamemnon or Achilles. At the same time service in the legions had educated the barbarians till they could usurp the domains of their former masters almost without a blow. A less probable explanation would be to regard the Achaeans as culture heroes, divine kings practising exogamy as Sir James Frazer ¹ suggests, and therefore obliged ever to be seeking new kingdoms.

But though so obviously newcomers, the origin of the Achaean princes is obscure. Some as we saw come in the last resort from Asia; others, most notably Achilles' father, Peleus, the king of Phthia, come from the south, in this case Aegina; Diomedes of Argos had Aetolian antecedents; Atreus came to Mycenae immediately from Pisatis on the West coast; the Aeolid princes of Pylos in Triphylia hail from Thessaly.

New evidence has recently been announced from an unexpected quarter, but it rather complicates than elucidates the problem of the Achaeans. The Hittite king, Myrsilos, makes mention of a certain *Antaravas* who is described as king of *Aḥḫiyava* (Achaea) and *La.az.ba* (? Lesbos). Another king of *Aḥḫiyava*, perhaps the son of the foregoing, is named Tavagalavas, and bears the epithet *Ayavalaas* (? Aeolian, *Αἰολος*). Dr. Forrer ² identifies these two fourteenth century kings with Andreus and Eteokles, the reputed founders of the Minyan dynasty of Orchomenos. Nearly a century later one *Attaraššiyas*, king of *Aḥḫiyava*, plunders the coasts of Caria and Cyprus, and becomes an ally of the Hittite king. He and a helper receive the title *Kurivaniēs* (*κοῖρανοι*). In this prince the German decipherer would recognize Atreus, Agamemnon's father. *Alakšandus* of *Uitusa* is mentioned by Muttallis a little earlier (1310-1290 B.C.).³ The name of the Achaeans had of course been identified many years previously by Dr. H. R. Hall among the Sea Peoples who attacked Egypt under Merneptah about 1230 B.C., and more recently Autran ⁴ has suggested that it lies hid in the Biblical Hivites.

Now it is to be noted that all these peoples and the kings mentioned in the Hittite records are only certainly located in Asia Minor. From the standpoint of the lords of Boghaz-Keui the domain of the Achaeans seems to have lain in Pamphylia.

¹ *Lectures on the Early History of the Kingship*, p. 240.

² *MDOG.* lxiii (1924). Garstang and Mayer, *Index of Hittite Names*, B.S.J. Suppl., identify *Aḥḫiyava* with *Ἀρχιάλη*.

³ *Glossa*, xiii, p. 205.

⁴ *Syria*, iii, p. 39.

Dr. Forrer, however, points out that their kings are important figures—peers of Pharaoh and the Assyrian and Babylonian monarchs—and concludes that Pamphylia was only the eastern corner of a kingdom the heart of which lay in Greece. Professor Sayce is dubious about this inference and sceptical as to the identifications of Andrus, Eteokles and Atreus, though he accepts "Achaea" and "Aeolian". It is therefore possible to argue that these Achaeans were an Asiatic people either preparing to conquer Greece or come thence expelled perhaps by the Dorians. Even on Dr. Forrer's own view the appearance of an Aeolid king of Achaea over a century before the Trojan War is distinctly puzzling. Still, despite such doubts and perplexities, these startling discoveries on the whole strengthen the belief that Hellenic dynasts were ruling in Greece by the thirteenth century and that they were pre-Dorian. Provisionally we shall adopt that position.

Such in their barest outlines and greatly simplified are the contradictory historical and literary data by which the archaeological material has to be interpreted. Let us begin with the Dorians as the most substantial figures of Greek tradition.

Despite the catastrophic effects of their descent, they have left singularly little unambiguous evidence of their inroad. Notwithstanding the Dark Age which intervened and the very obvious contrast between the Mycenaean culture and the Geometric, a closer study of the remains reveals an even larger number of Mycenaean survivals in archaic and classical Greece. Moreover, the phenomena of the Iron Age in Hellas have many parallels in Asia (Cyprus, North Syria and Palestine), and must in part be explained from that quarter (see page 53 below). But tradition is sufficiently definite to justify us in looking to the north for objects to be associated with the Dorians. Now at Sparta, the centre of Dorian life in classical times, Mr. Casson¹ has called attention to certain objects which do point unambiguously in that direction. These are brooches or fibulae in the shape of double spirals, conventionally termed spectacle-fibulae (Fig. 8, 9) with which are associated curious horses and birds of bronze or clay. In the light of these brooches Mr. Casson can trace his Dorians along precisely the routes indicated by classical authors into Macedonia.

In the Vardar Valley and further west on Lake Ostrovo the same author has identified an Early Iron Age culture, the exact dating

¹ S. Casson in *Ant. J.*, i, pp. 200 ff.; *B.S.A.*, xxiv.

of which is not yet altogether clear,¹ associated with fibulae and bronzes of the types just described and painted "geometric" pottery. Mr. Casson is indeed too orthodox to see in these new-found strata the proto-Dorians; for them he looks further north—to the Hallstatt or proto-Hallstatt civilizations of Illyria and the Danube valley. And certainly the spectacle brooches may be derived from that area and some of the Macedonian pottery has Illyrian analogies as far as the vase-handles are concerned. Nevertheless an invasion from Central Europe does not seem a necessary postulate though it remains a possibility to be kept in mind.

Neither in Macedonia nor further south do we find anything like a bodily transplantation of the Illyrian or Danubian cultures

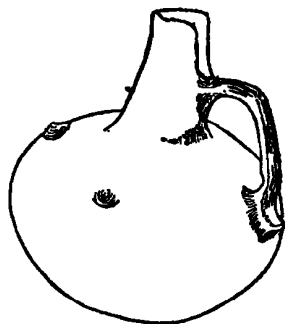


FIG. 4. Early Iron Age Jug.

of the Hallstatt or immediately preceding epochs. The Iron Age pottery from the Vardar valley is not Hallstatt or any other Central European pottery; it is on the contrary deeply rooted in a Balkanic tradition, which once was indeed observed in a wide circle through the Danube valley, Illyria, and even Upper Italy, but was already assuming a local character in the south-west Balkans by 2000 B.C. The forms of the vases, jugs with cut-away necks (cf. Fig. 4) and goblets with high handles, and even the fantastic handle-types which suggest Illyria can trace their lineage in Thessaly back to the end of the third millennium (in the third "pre-Mycenaean" period contemporary with Early Helladic, below, page 59). The painting, which is quite distinct from that of the Hallstatt school,

¹ It begins to appear on the Vardar immediately after the fall of a settlement containing the latest style of Mycenaean ware current in the XIII-XIIth centuries. Heurtley, *L.A.A.A.*, xii, p. 35.

is intimately related to that of "sub-Mycenaean" wares in Thessaly (Fig. 6, 5) which it would seem also reached the Vardar itself. A cultural contact would suffice to explain the bronzes.

I would therefore be inclined to regard the Early Iron Age culture of Macedonia as a native development of a much older South Balkan stock which had borrowed certain elements from its Central European neighbours. The Dorians were among the authors of this civilization and carried its traditions with them to the South, driven out perhaps by the pressure of Illyrian and Celtic tribes to the north and west.

The Achaean problem is yet more intricate. Its solution still depends upon our attitude to the Homeric poems. On the one hand the political geography and the civilization of the Achaean period as depicted in Homer correspond most closely with those of the Mycenaean age. The homes of the heroes are sites which possessed in the Mycenaean period an importance they never subsequently enjoyed. The glories of Mycenae and Nestor's Pylos described by Homer were realities in the sixteenth and fifteenth centuries. And Mycenaean civilization spread northward just as some Achaean princes did. Not only so, at Mycenae we may distinguish two dynasties—an older line of kings who lay buried in the celebrated Shaft Graves, and a later house whose scions built stately beehive tombs and whose accession coincides with the greatest expansion and wealth of the Mycenaean world.¹ Just so tradition tells of two dynasties at Mycenae—Perseids and Pelopids! Thus the legendary figures of the Heroic Age seem to become flesh and blood as culture-heroes who civilized a barbarous Hellas. Can we wonder that T. W. Allen wrote: "The 'nameless' Mycenaean were the Achaeans" ?²

On the other hand, the contrasts between the "Achaean" age and the Mycenaean are notorious and are growing more, not less, glaring. The expansion of the Mycenaean civilization reached its culmination by 1400 B.C.; the earliest mention of Achaeans dates from the end of the fourteenth century, and, if Forrer be right, Atreus reigned a century later still. Nor does the distribution of Mycenaean remains and the centres of Mycenaean life coincide so perfectly as has been suggested with the Achaean sites in the Homeric Catalogue. Let me take but one instance, Allen's crucial

¹ See the account of the latest excavations by Mr. Wace in *B.S.A.*, xxv, p. 120. Sir Arthur Evans, however, maintains that the beehives like the Shaft Graves go back to period M.M.III. *J.H.S.*, xlv, pp. 45 and 75.

² *C.R.*, xxv, p. 234.

example of the spread of culture northward. In the kingdom of the Aeginetan Peleus in the Spercheios valley, where alone "Achaeans" and "Hellenes" are used as tribal appellations by Homer, not a single Mycenaean tomb has been found.

Finally, however closely the civilization pictured by Homer corresponds to the Mycenaean, the familiar discrepancies remain! The Mycenaeans normally used huge shields covering the whole body, shaped some "like a tower", some like a figure 8, but no

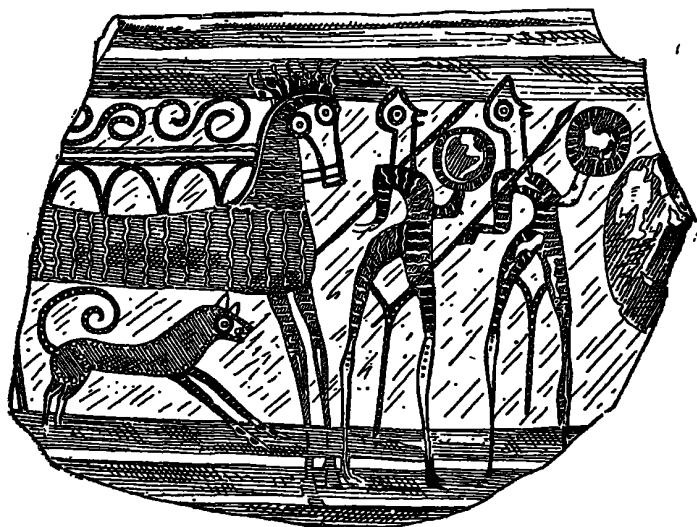


FIG. 5. Sherd of Achaean (Late Mycenaean B) ware from Tiryns.

body armour (Pl. III, 2); some of Homer's Achaeans, instead of these large shields, carried a round targe and wore breastplates. The true Mycenaean swords were all designed exclusively for thrusting (Fig. 25, 1 and 2); Homer describes a certain number of undeniable sword strokes implying a slashing weapon. In the Mycenaean age iron was only used for ornaments; the Homeric age was a bronze age, too, but passages in the poems mention iron tools and cannot be explained away. And lastly the Mycenaeans were always interred in corbelled vaults or rock-cut chamber tombs; the Achaeans in Homer practised cremation.

Hence some authorities, Sir William Ridgeway,¹ Dr. Mackenzie,² and Professor Chadwick,³ have sought to find, after the pure Mycenaean age of the sixteenth-fifteenth centuries, a transitional period which while preserving the essential outlines of the Mycenaean shall yet exhibit those innovations which distinguish the Achaean world. And as a matter of fact we do find in very late Mycenaean deposits illustrations of breastplates and round shields (Fig. 5 and Plate III, 1), cutting swords (Fig. 25, 3-4), and occasional cremations. With these are often associated foreign objects such as brooches or fibulae of very simple type (Fig. 8, 1-4). At the same time a change is observable in the style of the ceramic decoration from the free style with naturalistic motives taken from marine or plant life of the Mycenaean to a metopic arrangement which in its striving after symmetry and balance seems to foreshadow the distinctive features of classical vase-painting and in which the introduction of human figures betokens a new interest in man.⁴ Moreover, the forms of the metope style vases are in some cases strange to the pure Mycenaean repertoire. And a recently found "treasure" of this epoch contained a Hittite cylinder⁵ suggesting just that sort of contact by raids which the Hittite records attest (see note at end of chapter).

It must be admitted that this period, which we shall provisionally term "Achaean", is still vague and that its aspect still only partially coincides with the picture given by Homer. To the wealth of the epic kings we find in it no parallel; it is a period which gives every sign of exhaustion, poverty and decline. The burial rites are far from Homeric; inhumation was still the rule, and in the rare cases of cremation the ashes were laid in urns in the old-fashioned chamber tombs. Only at the very end of the period do we find at Halos in Thessaly⁶ pyres surmounted by barrows which do correspond exactly to the rites described by Homer, but here the weapons were of iron, which is un-Homeric. Still the assumption of an Achaean period as thus defined seems the most hopeful way of escape from our dilemma.

¹ *The Early Age of Greece.*

² *B.S.A.*, xiii.

³ *The Heroic Age*, pp. 185 ff.

⁴ Dr. Penrose Harland has failed to notice the very real change in the pottery that characterizes the latest Mycenaean epoch and so falls into the error of assigning fibulae to the Mycenaean period without qualification. All the examples found in a definite context are "Achaean".

⁵ *Arch. Δελτ.*, 1916, παραρτήμα, pp. 13 ff.

⁶ *B.S.A.*, xviii.

Whence then came the innovations? To this question no single answer can be given. It is in fact certain that the "Achaean" period begins in Greece with no sudden break in culture; no catastrophe disturbed the old sites. Still less was the Mycenaean civilization superseded bodily by another; the change is quite gradual, the new elements came from different quarters. The industrial use of iron is now proved by the cuneiform documents to have begun in Asia Minor and presumably our Achaeans got their iron from that quarter. In this respect Homer was a good archaeologist; for he makes iron common only among the Trojans or among the Achaeans after they had been plundering Asiatic towns. It is possible that the rite of cremation came from Asia too. It was indeed the practice in Central Europe by the Middle Bronze Age (from about 1450 B.C.). But the earliest Aegean cases come from Caria or insular regions in close touch with Asia—Crete and Salamis; the very late Mycenaean tombs with Achaean ware and fibulae in Cephallenia, Achaea (Patras) and Boeotia (Thebes) contain, so far as we know, only unburnt bodies. In later days too the rite was most regularly practised within the sphere of Asiatic influence, e.g. in Thera and Crete; early Geometric cemeteries in the Peloponnese at Argos, Asine and Tiryns show no cremations. On Aegina and at the Dipylon near Athens cremation was rarer than inhumation. In any case, as we shall see in Chapter VI, Ridgeway and Rohde tend to exaggerate the significance of the rite.

Finally the new tendency in ceramic decoration—the division of the surface into panels or the metope style—has very ancient precursors in Hither Asia (cf. Fig. 15) and was most richly developed on the Philistine pottery of Palestine (Fig. 6, 3-4) and on contemporary Syrian wares.

Nevertheless the Oriental influence should not be over-estimated nor the scope of the Asiatic parallels exaggerated. The iron and the Hittite cylinder betray contact between Greece and Anatolia just as do the cuneiform records. That does not mean an Oriental invasion. The metope pottery in Palestine is usually regarded as a foreign fabric introduced from the Aegean by the Philistines,¹ and if M. Autran's suggestion as to the Hivites be correct, they too may have been colonists who assisted in the propagation of the

¹ See Pythian-Adams in *B.S.J.*, iii. Saussey contests this view, arguing that the "Philistine" painting and motives are rooted in an ancient Asiatic school exemplified, e.g. at Susa; *Syria*, v, p. 184.

strange ware. In Greece itself the metope style may go back to the pre-Mycenaean period. It is in any case certain that the innovating vase-forms that characterize the Achaean epoch have their history in pre-Mycenaean Hellas; the most notable Achaean shape, a bell-shaped crater (Pl. III, 1 and Fig. 6), may be traced back

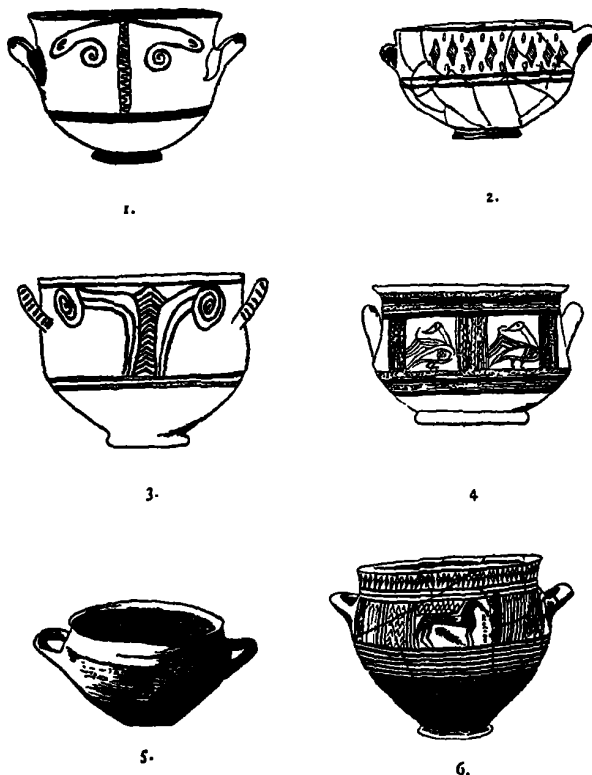


FIG. 6. Bell-shaped craters: 1-2, Greece (Achaean); 3-4, Palestine (Philistine); 5, Halos (Proto-Geometric); 6, Asine (Geometric) (after Pythian-Adams).

on the Mainland to that same South Balkan culture, the persistence of which we have detected in Iron Age Macedonia. The same is still more obviously true of the jugs with cut-away necks that appear in pre-Dorian Thes.aly as they do in proto-Dorian Macedonia.

On the other hand, two of the phenomena of the Achaean period point unmistakably to the north or north-west. These are the

fibulae and the slashing swords which were undeniably invented in the Danube valley or further north.¹ I do not, however, think that the intrusive weapons necessarily betoken a wave of conquerors coming from Bosnia or Hungary as Ridgeway and Peake² imagine. That is indeed a possibility, but we should then expect to find many more objects of Central European type in Hellas; by 1350 B.C. Danubian civilization¹ was characterized by very distinctive pottery and splendid bronzes. Achaean pottery is no more Danubian than proto-Dorian pottery was Hallstatt and the continental bronze types, apart from the fibulae and slashing swords, are even more conspicuously absent from the Aegean. I repeat, the Achaean period does not reveal the older culture as abruptly superseded by any other. As in the case of the Macedonian Iron Age a culture contact with the north and a tribal movement within the Balkans will account for the innovations of the period.

At the same time we have seen that the phenomena of the Heroic Age presuppose contact between its authors, the relatively barbaric Achaeans, and the higher civilization of Mycenae. And that contact most probably took place in the Balkan peninsula itself on the fringe of the Mycenaean civilization. We might perhaps recognize in a serving man who is painted white among the red "Mediterranean" Mycenaean on a Tiryns fresco,³ a precursor of the Achaean conquerors in just that position occupied by the Teutons during the epoch of their education by Rome. The habitat of the Achaeans in their period of tutelage would on a *priori* grounds be located in north-west Greece—Epirus, Aetolia, Acarnania and Levkas. The dialect evidence on Chadwick's view points that way, and it is on the Adriatic coasts, traversed since 1600 B.C. by the ships bringing amber from the north, that the use of slashing swords and brooches could most easily be learned.

This area is still inadequately explored. It does not seem to have been Mycenaeanized, but it looks rather as if a backward culture akin to that of the Iron Age in Macedonia and rooted in the same pre-Mycenaean culture which appeared in Thessaly shortly before 2000 B.C., had embraced all north-west Greece, while stray Mycenaean imports there, e.g., a sword from Dodona, illustrate the requisite contact with the higher civilization

¹ Childe, *Dawn of European Civilization*, pp. 198 and 216.

² *The Bronze Age and the Celtic World*, p. 112.

³ *Tiryns*, ii, p. 118 and pl. xi, 6. This interpretation was first suggested by Sir Arthur Evans.

of the Peloponnese. It is interesting to note that a curious culture with geometric painted pottery did in fact intrude into the Spercheios valley, the home of Hellenes and Achaioi in Homer, coming apparently from the west across Tymphrestos. We may then regard the Achaeans of the XVth century and earlier as among the authors of the West Greek cultures vaguely known at Levkas and Lianokladhi on the Spercheios and others as yet undiscovered. Then they will be a southern wing of a long series of West Greek tribes of which our proto-Dorians in Macedonia will represent the northern flank. The close kinship between Doric and the West Greek Achaean dialects will then be explained.

If this view be correct, the Achaeans were not the first Hellenes in Hellas; for they turn out to be West Greek. There must have been Hellenes in the Peloponnese already before the Achaean dynasts usurped the thrones of Mycenae, Tiryns and Lacedaemon. We have then still to find the Arcadians, Ionians and Aeolians.

Our Achaeans were the heirs of the Mycenaean civilization. The latter occupied the whole of the Greek Mainland except the Spercheios valley, inner Thessaly and north-west Greece during the XVth century, overlying older local cultures. Materially the Mycenaean civilization proper is just the Minoan civilization of Crete transplanted. Minoan art, religion and writing¹ were imposed upon the native "Helladic" cultures in such a way that an actual conquest and colonization by Cretans seems implied. Survivals of an indigenous culture are indeed everywhere observable during the Mycenaean age. There is moreover a residuum of phenomena in the period which cannot as yet be explained from Crete (the beards and sculptured stelae of the Shaft-Grave epoch, the beehive tombs of the next phase and the so-called megaron house of L.H. III). These native survivals and unexplained peculiarities are, however, insignificant in comparison with the Minoan elements. The religious symbolism from the tombs and palaces reproduces to the smallest detail the ancient Cretan cults. The art of the pottery, gems and gold-work is purely Minoan. The frescoes of the Mainland palaces must have been painted by artists from the island.

¹ Dr. Harland entirely fails to appreciate the significance of these phenomena and has altogether missed the Minoan inscriptions; only a few of the latter have been published but there are plentiful examples in the museums of Navplia and Thebes: see also *J.H.S.*, xliv, p. 275; *Scripta Minoa*, i, p. 57. On the pottery see Forsdyke, *B.M. Catalogue of Vases*, i, p. xxxix.

They depict women in Minoan costume, and the men are the red Mediterraneans familiar from the walls of Knossos. The ancient Minoan script, or a dialectic variety thereof, was used for inscriptions on locally manufactured vases at Tiryns, Mycenae, Thebes and Orchomenos. And these manifestations of a new inspiration appear in the palaces and great tombs which evidently belong to new dynasties.

All this is best understood as the result of the establishment of Minoan princes on the Mainland and a real colonization of Hellas by Cretans who need not, however, have been very numerous. The question therefore arises were these Minoan colonists and dynasts, *quā* Minoan, Indo-European? The Minoan civilization

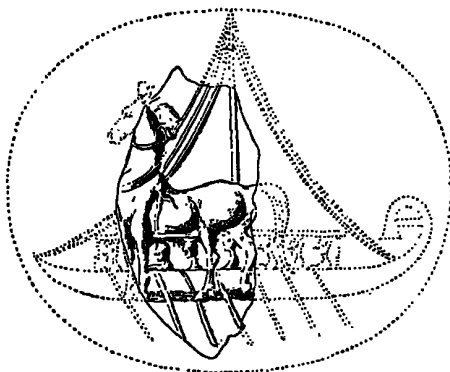


FIG. 7. Introduction of the horse into Crete.

in Crete evolved continuously from the IVth millennium, and was in its essence Mediterranean. From first to last it looked un-Aryan. Only the decipherment of the Minoan texts can really decide that point, but, if we may judge by the adaptation of it in the Cypriote syllabary, the script had not been devised to express an Indo-European language. Minoan religion again with its predominant Mother Goddess does not recall the Aryan pantheon modelled on a patriarchal earthly society. The survival in Crete of languages and cults strange to the rest of Greece supports the same view. Finally the horse, which we shall see reason to regard as a specifically Aryan animal, was only a late importation into the island (Fig. 7).

Of course, Crete was subject to periodical intrusions from various quarters. During the period known as Early Minoan, 3300-2200 B.C.,

a brachycephalic element, possibly of Anatolian extraction, steadily increased in numbers and some of the later Minoan princes belong to the Anatolian type; at the close of the Early Minoan age there is evidence of a strong current of influence from more northerly islands in the Aegean. Finally at the end of Middle Minoan II the Cretan palaces were destroyed, perhaps sacked, only to rise again in the succeeding epoch. At any of these points a new dynastic element and with it a new language might have been introduced. Nevertheless, the development of culture was essentially continuous till Achaean ware came in about 1250 B.C. The non-Aryan characters affect Minoan culture as a whole. Hence with all due reserve we do not regard it as the work of Aryans. Consequently the Minoan princes and colonists who established themselves in Hellas between 1600 and 1400 B.C. cannot have been Aryans by birth. They may be responsible for those non-Hellenic place-names which Fick terms Hattid and Eteo-Cretan. But being few in numbers the invaders may in the end have adopted the speech of the pre-existing population along with the continental type of house.

The same sort of argument as applies to Crete allows us to eliminate from among the claimants to Hellenism the ancient population that created the Cycladic culture on the Aegean islands. And classical writers knew that those islands had been inhabited by non-Hellenic barbarians such as Lelegians and Carians. This verdict also disposes of one pre-Mycenaeans stratum of people on the Greek Mainland. The maritime Early Helladic people who occupied the Peloponnese, Central Greece and Levkas between 2500 and 1900 B.C. were virtually identical with the islanders. To these maritime intruders may be ascribed the pre-Hellenic topographical names of the Mainland and the Western isles which Fick calls Lelegian on account of their Cycladic-Anatolian parallels. So neither the Mycenaeans of the XVI-XVth centuries nor the Helladic folk of the IIIrd millennium are likely to have been the Hellenizers of Greece.

But the Mycenaeans found the Helladic colonists already overlaid by a different racial and cultural stratum and the former had themselves to conquer older inhabitants of Hellas. Can either of these layers be identified as Aryan?

The archaological record on the Greek Mainland begins in the IIIrd, or at the end of the IVth, millennium with a population of peasants living in Thessaly, Central Greece and Arcadia whose

most conspicuous industrial achievement was a magnificent painted pottery. Nothing in Greece itself proves that the neolithic population was continuous with the Hellenes, but in a later chapter we shall have occasion to ask whether these and other peoples who painted their vases were Aryans. In parts of Greece in any case these peasants were succeeded by a new band of vase-painters coming from beyond the Balkans who introduced the spiral motive and a new type of house, the *megaron*, which henceforth survived in Greece to become the plan of the classical temple *in antis*. It is undeniable that this new intrusive folk may represent the Hellenic element in the population of classical Greece. It is not, however, certain that their culture is effectively continuous with that which we have assigned to the Dorians and Achaeans. Their wider affinities will occupy us more closely in Chapter V. Here we must note that Fick recognizes a Thracian element in Greek topographical nomenclature. Now the second band of vase-painters came to Thessaly from Thrace and had relatives in Bulgaria. It is therefore tempting to attribute the Thracian names to them (we shall see that "Thracian" does not necessarily mean Aryan).

About 2300 B.C., or soon after the Early Helladic invaders had reached the Peloponnese, a third change is noticeable in Thessaly. Painted pottery went out of fashion and new types of vessel—high-handled cups and jugs with cut-away necks—came into use, and a tendency to fantastic elaboration of the handles made itself felt. At the same time the first perforated stone axe-heads and mace-heads made their appearance. This culture in a general way forms part of a huge province extending right across the Balkan peninsula from the Dardanelles to the Adriatic with ramifications in the Danube valley, Upper Italy and even Apulia. On the other hand the ceramic forms show this culture in Thessaly to be continuous with the proto-Dorian culture of Macedonia, and the Achaean material in Levkas, while locally it survived throughout the Mycenaean age to form the basis for the Early Iron Age of Thessaly itself in the Achaean period. It was in fact the substratum from which all three developed.

It had extended its sway at some time not yet precisely determined to West Greece where its types seem to succeed the Early Helladic forms in Levkas while cognate shapes are known from Cephallenia and the acropolis of Nestor's Pylos. Not only so, the third Thessalian culture was one of the parents of the so-called "Minyan" or Middle Helladic culture of Central Greece. The

authors of the latter ousted the Early Helladic settlers from Orchomenos about 1900 B.C. and dominated the whole region till the advent of Minoans in the XVIth century. The same people laid violent hands on part at least of the Peloponnese—Korakou and other villages near Corinth, Argos, Mycenae, Tiryns—and on Attica and Aegina. Without, however, annihilating the Early Helladic culture in the south, these “Minyans” were the ruling caste till the first Minoan conquerors seized Mycenae about 1600 B.C., and continued to play an important part in remoter sites like Korakou even into the Achaean period. Thus soon after 2000 B.C. the Balkan peninsula possessed a degree of cultural unity not hitherto attained and not repeated after 1500 B.C. This cultural unity may reflect the linguistic continuum from which the Hellenic dialects of historic times were differentiated.

It is in any case certain that many of the ceramic forms that distinguish the later cultures which we have already identified as Hellenic can be traced back to this epoch of uniformity; for instance, the bell-shaped crater which was so characteristic of the Achaean period is a common form in the “Minyan” ware of Central Greece and recurs in an allied fabric in Aetolia. The proto-Dorian jugs with cut-away necks and the fantastic handles of Macedonia have already been noted. Thus the Achaean and proto-Dorian cultures belong to the same people as made the culture of the third period in Thessaly. The continuations of the same culture throughout the Mycenaean period and the products of “Minyan” stragglers in Thessaly itself may then represent the activities of ancestors of the Aeolians. Finally the southward extensions of “Minyan” civilization to Attica and the Peloponnese will have Hellenized the Early Helladic folk and produced the ancestors of Ionians and Arcadians.¹ The Minoan conquerors did not, I assume, destroy the language of their subjects and may have ended by adopting it. In any case, it seems as if the colonists of Cyprus, who must have been Mycenaean rather than Minoan in the strict sense, took with them the Cypro-Arcadian dialect and that at a time when the Minoan script was still in use.

¹ My conclusions are here in harmony with those of Dr. Harland. But I do not suppose that the “Minyans” entered the Peloponnese speaking Arcadian as such; the differentiation of the three “East Greek” dialect groups would have taken place between 1800 and 1400 B.C. as a result of admixture with various non-Hellenic elements. Nor can I admit that the pre-Achaean Hellenes in the Peloponnese worshipped Poseidon to the exclusion of Zeus, since the latter was an Aryan god. Many hold that Poseidon was pre-Hellenic—Minoan or at least Aegean.

On the view here advanced then the first demonstrably Hellenic people were those who created the third culture of Thessaly.¹ In that case the proto-Hellenes as such emerge about 2300 B.C.

2. *The Thracians and the Phrygians*

North of the Hellenes dwelt from Homer's days various tribes somewhat loosely described by the classical authors as Thracian. Of their language we possess but a few late glosses and proper names. This scanty material is held to prove the presence of an Aryan element in the population. From the curious social customs and religious practices reported by classical writers it may be legitimate to infer that the Indo-Europeans in Thrace were much mixed with extraneous elements.

The culture of Thrace in the chalcolithic epoch, as it is called, is well known. Its basis was the same as the second culture with painted pottery that intruded into Thessaly about 2600 B.C. But it was very much mixed with other elements, some derived from the Danube valley, others such as phallos worship from Anatolia, others again such as stone battle-axes from the north and east. This mixed civilization of barbaric peasants persisted in those secluded valleys for many centuries. It may even have lingered on into classical times. As its authors, like the Thracians of history, painted their persons, they may well have been in some sense Thracians themselves. That they were yet Aryan does not, however, follow automatically. Still the chalcolithic civilization² is all that is known in Thrace till the end of the IInd millennium B.C.; a true Bronze Age is as yet undiscoverable.

The first evidence of a distinctly intrusive culture belongs to the full Iron Age. Then the presence of newcomers is denoted by graves containing spectacle-brooches and other objects such as the "Glasinac" fibulae of Fig. 8, 7, more or less reminiscent of the Central European Hallstatt civilization.³ Stray bronzes of the same general affinity, such as socketed celts and "antennae" swords

¹ This view is provisional only. I am conscious of difficulties which I have not raised here. The possibility that all the Hellenes came in during the Dark Age still remains. Reservations have also to be made in respect of the claims of Asia; Macedonia, and western Asia Minor, which are key-areas, have only been scratched by scientific exploration and may yield unexpected results. Even more significant should be a proper study of the virgin soil of Epirus and Albania. Pending these researches I offer the above in all due humility as the most consistent synthesis of literary and historical data possible.

² The chalcolithic material is described in Childe, *Dawn*, ch. xi.

³ *Izv. Bulgar. Arch. Instit.*, i, pp. 32 ff.

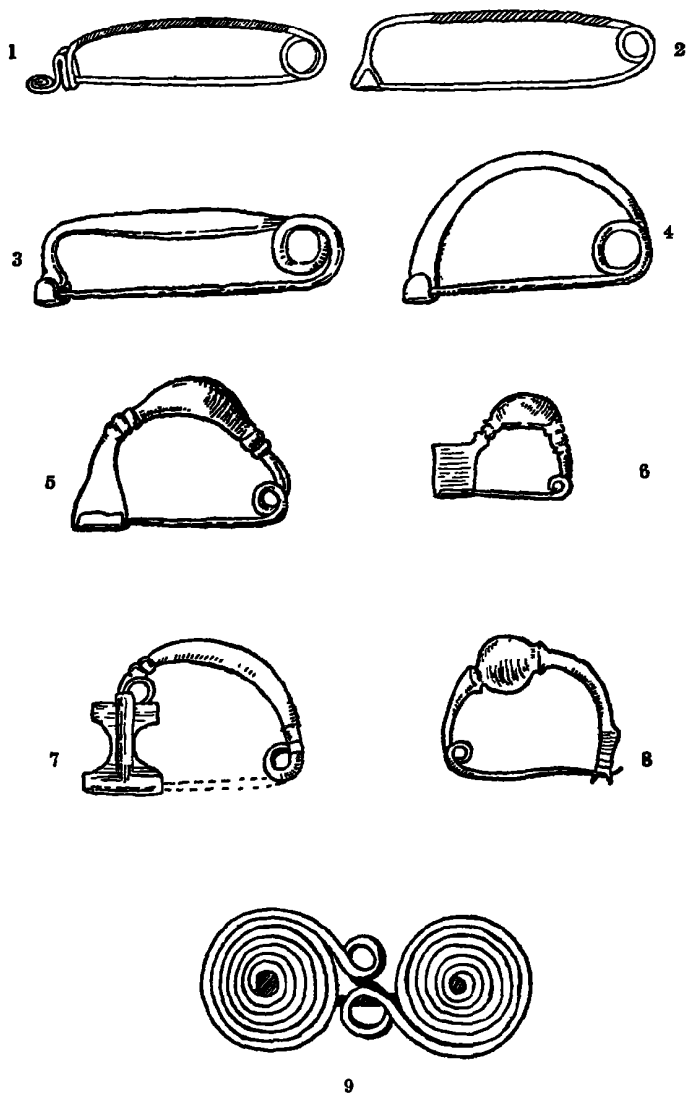


FIG. 8. Brooches: 1-2, Italy (XVth-XIIIth century), 3-5, Crete (Vrokastro chamber-tombs); 6, Crete (Vrokastro bone enclosures); 7-8, Bulgaria; 9, Macedonia. For the distribution in Greece see p 77.

(like Fig. 25, 6) found in Bulgaria, would allow of a much stronger case being made out for an invasion of Thrace from Central Europe than is possible in the case of Greece. But, even so, we look in vain for the Thracian swords which were renowned in Homer's time. To decide whether the Aryan element in Thrace is represented in the chalcolithic culture or one of its constituent elements or whether it only came in with the Iron Age must await later chapters. At present those are the possible alternatives.

Across the Straits in the north-west corner of Asia Minor we find, besides the coastal Greeks, a group of Aryan tribes who seem to stand out against an apparently Asianic background and who are connected by tradition and the evidence of names with Thrace. The most important of these were the Phrygians, who under Midas ruled an extensive empire in the VIIIth century B.C. Enough remains of the Phrygian language ¹ to show that it was an Indo-European tongue. It exhibits in some respects close affinities to Greek and even made use of Greek words, but at the same time Slavonic parallels have been noted and certain features would connect Phrygian with Hittite Našili. The Phrygians, moreover, worshipped Aryan deities: their chief god, *Bagaios*, as well as the Moon-god, *Mēn*, has a good Indo-European name. On the other hand the great prominence of the mother goddess in their pantheon and references to matriarchy among their social institutions are quite un-Aryan features. Dr. Hall's conclusion ² seems to be well-founded: "We may conceive of the Phrygians as a people compounded of an Aryan aristocracy ruling over and gradually mixing with the Anatolian peasants."

Now tradition consistently maintained that the Phrygians had come from Thrace, and there was in fact a tribe in the latter region whose name *Briges* seems just a deaspirated form of *Phryges* (**Bhruges*). But this migration must have taken place before the end of the IIInd millennium, since in the Homeric Catalogue the Phrygians are mentioned among Priam's allies in his war with the Achaeans (about 1200 B.C.) and in such a way that they must have come from the classical Phrygia. At the same time Homer's account of the ethnology of the Troad is confirmed in a satisfactory way by a list of the Hittite allies encountered by Rameses II in his Syrian campaign of 1287 B.C.³ Pharaoh boasts of having

¹ Hirt, p. 598; Ramsay in *J.R.A.S.*, 1883.

² Hall, *Anc. History of the Near East*, p. 476.

³ See Pythian-Adams, in *B.S.J.*, i; some readings are very doubtful.

defeated the ? *Iliunna* (or *Ariunna*), *Derden*, *Luka*, *Pedes*, *Kelckesh*, *Mesa*, and ? *Mawunna*. These contingents in the Hittite army correspond very well to the Troes of *Ilium*, the *Dardanoi*, the *Lukoi*, the Leleges of *Pedassos*, the *Kilikies* of Thebes, the *Musoi* and the *Maiones* mentioned in the *Iliad*. Hence the Egyptian evidence provides one more proof of the value of Homeric data for the political groupings existing in the IInd millennium. We may therefore admit that there were Phrygians in Asia Minor about 1200 B.C.

But the Homeric geography of the Troad raises other problems. In the first place the relative compactness and solidarity of the population of this corner of Asia Minor over against the rest of Anatolia deserves note. It is in harmony with the silence of the Hittite archives and the absence of Hittite monuments which show that this region had escaped the domination of the lords of Boghaz-Keui. Secondly the discrepancies between the heroic and the classical geographies of the Troad suggest a displacement of peoples southward; Strabo¹ preserves some memory thereof. The causes of the dislocation are to be found not only in the convulsions consequent upon the victory of the Achæan assailants, but also in the inroad of the Treres from Thrace (p. 39 above). Finally the question arises: were other members of Priam's confederacy besides the Phrygians, Aryan or led by Aryans? In the case of some of the tribes mentioned, Leleges, Pelasgians, Cilicians, a negative answer seems inevitable. On the other hand, Homer gives heroes on the Trojan side good Hellenic names, more Greek in fact than those borne by many Achæans. It may, of course, be that the Greek poet gave these personages Greek names much as Shakespeare gives some of his characters English names, Quince, Dogberry and so on, though they be Athenians or Sicilians. However, it is curious that the names in question belong very largely to a particular group of Hellenic appellations, namely those current principally in North Greece, Thessaly, Epirus, and above all Macedonia.² It really looks as if, besides the Asianic stocks, such as Leleges, and the Aryan Phrygians, there was another Aryan element in the ruling classes of north-west Asia Minor, and as if it was Hellenic or closely akin to the Hellenes. That is by no means inconsistent with the traditions connecting Mysians, Dardanians and Bithynians with North Balkan peoples when we recall the northerly

¹ See Leaf's edition, *Strabo on the Troad*, pp. 250 f. and 303 f.

² *J.H.S.*, xxxix, pp. 62 ff.

extension and Troadic connections of the culture which we call proto-Hellenic.

What then has archaeology to say on this topic and especially on the western connections? In the architectural monuments of classical Phrygia certain Mycenaean reminiscences may be detected: the heraldically opposed lions recall the Lion Gate of Mycenae. But these might be survivals of a very ancient tradition common to both sides of the Aegean. In the Phrygian barrows of the VIIIth or VIIth centuries excavated near Gordion,¹ the capital of Midas, fibulae or brooches were the most westerly objects discovered. But these are not derived from the Early Iron Age types worn in Thrace, but represent developments of the older pattern with a simple bow like Fig. 8, 4, which appeared in Hellas during the sub-Mycenaean period and is also known from the Caucasus, but is strange to Thrace. On the other hand, among the vases from the Phrygian barrows occur types such as jugs with cut-away necks, which we have already met in Thessaly and Macedonia. These again may be but continuations of much older local patterns, as is certainly the case with another curious vessel found with them—a beaked jug with a strainer in the neck used for decanting the national beverage, beer. The pedigree of this class of vase certainly goes back locally to early in the IIrd millennium. Thus the most native elements in Phrygian culture betoken a persistence of an ancient local civilization, not an Iron Age intrusion from Thrace.

Of an invasion from Europe we have indeed unambiguous evidence from Troy itself. But it is to be ascribed to the Treres; a band of barbarians settled on the ruins of Homeric Troy and introduced to the Troad a new mode of decorating the local pottery—by the application of big horn-like knobs—a style that was evolved in the Late Bronze and Early Iron Ages in Silesia and the adjacent lands and is best represented in the Lausitz pottery. That culture spread far into Russia, and the new settlers of Troy may have become acquainted with it there. In that case their identification with the Treres would be quite simple.

It is satisfactory to have found the Treres whom we met in the last chapter, but for the evidence of the western intercourse to which our traditions point we must evidently probe deeper into the mound of Troy. Phrygians were in Anatolia by the time of the Trojan War, but our Treres' village is built upon the ruins of the

• ¹ Körte, *Gordion*.

Mycenaean Troy which the Achaeans had sacked. In the Mycenaean town itself we find, of course, rare Mycenaean and Minoan vases ranging in date from the XVIth to the XIVth centuries, but such imports need not denote any colonization from the West; the bulk of the pottery is most closely allied to the Minyan of Greece. This may be due to a movement parallel to that which brought the same fabric to Hellas, but most authorities hold that its history is to be found in the five older towns upon the accumulated debris of which Homeric Troy was reared. It is in these deeper strata that the particular links between Asia Minor and Europe that concern us here must primarily be sought. And abundant evidence for cultural contacts with the West is indeed forthcoming¹ in the lower levels, especially in the important town "known as Troy II."² At the same time the pottery from this city is identical with that found in a small mound, Boz Euyuk,² in Phrygia proper, where the prototypes of the Phrygian vases from Gordion are also to be met.

Nevertheless there is some ambiguity in the links which unite Europe and north-west Asia Minor at this epoch. Several ceramic types are common to Troy II, Macedonia and Thessaly in the period of our proto-Hellenic culture. Other groups of objects, stone phalli, clay stamps used for painting the person, and certain types of stone and horn axes, recur both at Troy and in the Copper Age stations of Thrace described above. On the other hand the civilization of Troy is composite and the Asiatic inspiration is the most powerful. The truly Thracian painted pottery never crossed the Straits, and the most peculiarly European objects at Hissarlik are stone battle-axes.

Hence it must be confessed that the evidence for an invasion of the Troad from Europe is incomplete. We can only say that a cultural community subsisted between both sides of the Dardanelles somewhere about 2000 B.C. At a later date we should seek in vain for the same degree of unity. The complete absence from both sides of the Straits of types corresponding to the Middle Bronze Age of Central Europe and the rarity of the correlative Early Iron Age forms are negative facts of capital importance; if the traditional connections between north-western Asia Minor and the Balkan lands are to be upheld by archaeological means we must rely on evidence from an earlier period. It is striking that the context

¹ For Troy II, see Childe, *Dawn*, chap. iv.

² *A.M.*, xxiv, pp. 6 ff.

in which such evidence is forthcoming is the same as that in which the roots of Hellenic culture were detected further west. The reader can now see that the suggestion that the Trojans were Greeks of a sort actually gives support to our theory of the origin of the Hellenes.

3. *Ligurians and Italic*

As in other Mediterranean lands, non-Indo-European peoples have left memorials of their presence in the form of place-names in the Apennine peninsula. To them may be attributed the cultures¹ both of South and North Italy created by men of Mediterranean race—Siculi in the South, Ligures in the North. Moreover, Aryan Illyrians were in historical times settled in South Italy. It is not impossible that some of the Copper or Bronze Age material of Apulia which exhibits a certain parallelism to the culture identified in the eastern Balkans about 2300 B.C. as proto-Hellenic may belong to Illyrians. That, however, is a very debatable question which cannot be discussed here. We are concerned with the ancestors of the Umbrians, Oscans and Romans who, thanks to the tenacious conservatism of the latter, may be identified with some degree of certainty.

The Italic dialects² of historic times fall into two groups distinguished by the treatment of the Indo-European labio-velar sound *kʷ*. The Latins and Faliscans in Central Italy preserved this sound as *qu* and are therefore termed Q-Italic, the Oscans to the south and east and the Umbrians further north labialized *kʷ* representing it by *p* and are known as P-Italic for this reason. Apart from this phonetic cleavage the Italic dialects are united into a single linguistic family by many deep-seated bonds of kinship although they share many phonetic and grammatical peculiarities with Celtic. Moreover, several social, political and religious institutions, common to Latins, Oscans and Umbrians, may well be relics of their coexistence as a single people in prehistoric times.

These tribes do not become truly historical before the fifth century B.C. But thanks to Roman conservatism their ancestors are traceable by archaeological evidence nearly a thousand years earlier. In the XVth century B.C. a new people made their appearance in the Po valley among the old Mediterraneans of Upper Italy. Unlike their Ligurian predecessors and neighbours, the

¹ For these see my *Dawn*, chaps. vi and xvii.

² Conway, *The Italic Dialects*.

intruders cremated ¹ their dead, depositing the ashes in cinerary urns which were laid out, closely packed together, in two cemeteries near each village. The villages themselves were pile-structures on the dry land and are known to archaeologists as *terremare*. They were always laid out in accordance with a deliberate plan. The latter reproduces to the smallest detail the Roman camp of historical times: the settlement was surrounded with a moat (corresponding to the *fossa* in the Roman *castra*), and a rampart (the *vallum*) was traversed by two main roads intersecting at right angles (the *cardo* and *decumanus*), while in the south-east quarter a low mound (the *arx*) itself girt with a moat, was heaped up, within which a sacrificial trench and pits were dug. The exact correspondence in plan between these structures and the Roman *castra* has led most serious students of Italian prehistory to identify their builders with the Italic and the ancestors of the later Romans.² And like the Romans the *terramaricoli* (to use a convenient Italian name for the inhabitants of the *terremare*) are revealed as well organized, rigidly disciplined, pious and industrious husbandmen, pastoralists and metallurgists, and at the same time well equipped both for offence and defence with the javelin and the dirk and possessed of domestic horses.

The *terramaricoli* must have spread all over Italy during the XVth–XIVth centuries B.C., though the Mediterraneans were nowhere exterminated. A true *terramara* identical in plan with those of the Po valley was planted as far south as Taranto some time before the close of the Mycenaean period in Greece, and the pottery and bronzes exhumed from its ruins belong to North Italian types.³ In the Late Bronze Age (roughly the XIIth century) fields of cinerary urns similar to those deposited in the northern cemeteries and containing bronze pins and other objects derived from *terremare* types were laid out at Timmari near Taranto and at Pianello in the Marche. The material from the latter site leads on to that revealed by Early Iron Age cemeteries on the Alban Hills, a region hallowed by Roman tradition.⁴ And the Alban material

¹ Ridgeway's statement that the *terramaricoli* inhumed is in flat contradiction with a very large mass of evidence for early cremations. On this see Peet, *The Stone and Bronze Ages in Italy and Sicily*.

² So Helbig (*Die Italici in der Poebene*), Modestov (*Introduction à l'histoire romaine*), Pigorini and Colini (summarized by Peet), Peet himself, *op. cit.*, and von Duhn, *Italische Grabeskunde*. Among the dissentients may be mentioned Brizio, de Michelis, Ridgeway (*Companion to Latin Studies*), and Randall MacIver.

³ *Dawn*, fig. 49.

⁴ *B.P.*, xxxv–xxxvi. Cf. Randall MacIver, *Villanovans and Early Etruscans*, pls. xvi–xix.

may find its continuation in the early graves from the Roman Forum itself.¹ This chain of cemeteries, taken in conjunction with the historical survivals alluded to above, makes the demonstration that the Romans were descended from the *terramaricoli* as perfect as any purely archaeological argument can well be.

But were the *terramaricoli* the ancestors of the Umbrians and Oscans, the P-Italic, too? Were they, that is, truly the proto-Italic or only the proto-Latini? That is more debatable. Helbig, Pigorini, Colini and Peet give an affirmative answer. In the Early Iron Age, Reggio Emilia and Tuscany were occupied by a people who cremated their dead and who are conveniently designated by the term Villanovans. It is practically certain that they were the Umbrians. Dr. Randall MacIver has recently shown that in Tuscany the cremation graves of the Villanovans were superseded after a time by inhumation interments, which he ascribes to the Etruscans. Now Pliny tells us that the Etruscans took three hundred cities from the Umbrians. The Villanovans whom the Etruscans displaced must then be the Umbrians. At the same time Peet and the Italian authorities just cited consider that the culture of the Villanovans, like that of the people buried in the Alban necropoles, was derived immediately from that of the *terramaricoli* and therefore that the Villanovans were the descendants of the Italic of the Po valley. As links they adduce two Late Bronze Age cremation necropoles at Bismantova and Fontanella respectively in North Italy.

Modestov, Randall MacIver and others contend on the contrary that the Villanovan civilization was due to a fresh wave of invaders coming from Central Europe. They have not indeed been able to put their fingers upon a prototype of the Villanova culture in Hungary or anywhere else. Yet I may inform them that a possible prototype for the characteristic Villanovan cinerary urn does exist in the Middle Bronze Age pottery of Hungary.² Mr. Harold Peake³ has also drawn attention to the distribution of a certain type of leaf-shaped slashing sword which he holds was introduced into Italy by the P-Italic. Nevertheless I do not find the archaeological evidence decisive on this point; the issue between one or two invasions from Central Europe must depend

¹ But on the whole the Forum graves seem strictly contemporary with the Alban.

² *Dawn*, fig. 94.

³ *Bronze Age*, p. 122.

partly upon our view of the time needed for the differentiation of proto-Italic into its Q and P branches.

Now, if the culture which Modestov regards as intrusive—that of the Villanovans—could be shown to belong to the P-Italic as a whole, his view would certainly be the most acceptable. But this is not the case. Peet¹ has admirably shown that the Early Iron Age civilizations of the Oscan regions—Picenum and Campania—are not derived from the Villanovan culture as such, not even from its earlier phases. Moreover, in these regions the funeral rite was not cremation but inhumation. If then the contemporary civilization of the Oscans was so different from that of their kindred the Umbrians, the difficulty of regarding the latter as fresh arrivals in the Early Iron Age becomes insurmountable.

However, the practice of inhumation among the inhabitants of Oscan territories raises fresh perplexities. To explain it von Duhn² has formulated the theory that both Oscans and Umbrians were a fresh wave of invaders who buried their dead and only reached Italy after the Villanovan culture had attained its apogee. Now, as we have seen, inhumation did in fact begin to take the place of cremation in part of the area occupied by the Villanovan culture proper. But we have agreed with Randall MacIver that these inhumations were due to the Etruscans. We cannot therefore accept von Duhn's hypothesis and must look elsewhere for the explanation of the Oscan burial rites.

I would suggest that the inhuming people of southern Italy were in the main descendants of the old Mediterranean stock who had inhumed their dead from neolithic times. For the conversion of the Picenes and Campanians into Oscans I would appeal to the Bronze Age invasion by Italic as attested by Taranto, Timmari and Pianello which as we have just seen are the sites of settlements by the *terramaricoli*. At least in the sphere of metallurgy it is certain that the culture of the invaders from the north with their brooches and winged celts superseded the older culture which had previously been orientated to the south-east (the Early Iron Age cultures may be regarded as derived from this Middle and Late Bronze Age civilization). It may well have been the same with language. Yet the newcomers need not have constituted more than a conquering minority and may have become assimilated

¹ *B.S.R.*, iv.

² von Duhn, *Italische Gräberkunde*; he admits that the Romans and the Villanovans were descended from the *terramaricoli*. Both would be Q-Italic.

in racial type and burial rites to the subject population which was far less barbarous than the Ligures of Upper Italy.¹

If this analysis be correct, if, that is, the civilizations of Umbria, Latium, Campania and the Picene coasts were all distinct by the beginning of the Iron Age, and can only be connected colaterally through a Bronze Age culture from which all were developed (on the hypothesis here adopted), it follows that the unity of the Italic language must be referred to the earlier date when a cultural unity also subsisted. Now that cultural unity was a reality in the Middle and Late Bronze Age when representatives of a single culture were scattered from one end of Italy to the other. But this common culture was that of the *terramaricoli*. Hence I would incline to see in the *terremare* of the Po valley the memorials of the undivided Italic, in the *terramara* of Taranto and the necropolis of Timmari some of the proto-Oscans, in the cemeteries of Pianello and the Alban Hills proto-Latins, in those of Fontanello and Bismantova proto-Umbrians. To the latter I would ascribe not only the Villanova culture of Etruria and Umbria but also the oldest graves at Este; the Illyrian Veneti would then be responsible only for the second phase of the Iron Age at the latter site.

Having then identified the proto-Italic in the Po valley, can we trace them further back into the past? The structure of the *terremare* suggests very forcibly that their builders were akin to the people who built pile-dwellings on the Alpine lakes in the late Stone Age. And there were lake-dwellings on the Italian lakes by the Copper Age and all through the Bronze Age. But the material from the *terremare* cannot be derived from this group nor yet from the Swiss. It points rather to Carniola, Croatia or Bosnia. In the latter region some lake-dwellings of the latest Bronze Age have yielded pottery almost exactly like that of the Italian *terremare*. On chronological grounds the Bosnian material cannot indeed be looked upon as the parent of the Italian but rather as a parallel development of one common stock. In some sense this common stock is in turn related to that Balkan culture which we were able to recognize as early as 2200 B.C., and very specially to the Early Iron Age civilization of Macedonia. On

¹ This view is quite in harmony with the results of W. R. Bryan's valuable study of the Early Iron Age in Latium, *Italic Hut Urns and Hut Urn Cemeteries (Papers of the American Academy at Rome, vol. vi, 1925), esp. pp. 159-67.*

the other hand there are threads which might serve to attach the *terremare* civilization more especially to Bavaria or again to Moravia and Galicia. From this side it would be vain to attempt to unravel the tangled skein. For that we must invoke the aid of another ally.

4. *The Peoples of the Sea and of the North in the Egyptian Records*

It is impossible to leave the question of the Aryanization of the Mediterranean without making some reference to the foreign invaders coming from the North who are mentioned and depicted upon Egyptian monuments between the XVth and XIIIth centuries.¹ The Pharaohs of the XIXth and XXth Dynasties had to repel from the shores and frontiers of their empire fierce invasions. The assailants betoken the intervention of a new racial element in the Mediterranean world. Their facial types are strange to the older monuments, and they brought with them a new armament. There is no doubt that the appearance of these invaders on the Egyptian coasts was due to disturbances on the northern shores of the Mediterranean; the later Pharaohs expressly state that Peoples of the Isles were restless. It is highly probable that this restlessness was the reflex of the intrusion of Indo-Europeans or fresh bands thereof from more continental regions. Yet the exact relation of these events to our problem is still obscure and the experts themselves are much divided over the interpretation of the Egyptian references.

The first of the "Northerners" to appear are the *Shardana* mentioned under the form *Shirdana*, in the Tell el-Amarna letters (about 1400 B.C.). In the same documents the name *Danuna* occurs, which recalls the Greek Danaeans but seems here to designate a tribe dwelling in Canaan, while *Sheklal* mentioned about the same time may be the same as the later *Shakalasha*. Early in the XIIIth century the *Shardana* again figure in the records, this time serving as mercenaries in the army of Rameses II. This contingent had been formed out of prisoners of war taken by Pharaoh on the western frontiers of the Delta in a previous campaign. They acted as Rameses' body-guard in the Syrian expedition of 1287 B.C., when the band of peoples from the Troad described on p. 64 were overthrown. Then in 1229 B.C.

¹ See Hall, *Oldest Civilization of Greece*, pp. 172 ff., and *C.A.H.*, ii, pp. 281-3. Moret, pp. 336-44.

fresh bands of Shardana, now allied with *Shakalasha*, *Thwirsha*, *Akaiuasha*, *Lukki* and Libyans, were defeated by Merneptah on the western frontier of Egypt. Finally in 1192 B.C., Rameses III routed a coalition of invaders coming both by land and sea consisting of the *Pulesatha*, *Uashasha*, *Takru*, and *Danauna*.

The exact identification of these peoples and the localization of their home-lands are much disputed. The last group are the



FIG. 9. An Attack by Peoples of the Sea repulsed by the Egyptians (Medinet Habu, 1192 B.C.).

least debatable. The *Pulesatha* are Cretans, as the Egyptian representations show clearly enough, Fig. 10. They ultimately settled as the Philistines in Palestine, whither they brought that metopic pottery already described. The *Danauna* again are here Danaeans, Greeks. Perhaps they represent scattered bands from Agamemnon's host returning from Troy, since the *Odyssey* speaks of piratical raids on Egypt as commonplace events of that period.

The Takroi and Uashasha are less certain. The former have been identified with Teucrians from the Troad. But Dr. Hall and others prefer to see in them another Cretan tribe perhaps the inhabitants of what is to-day Zakro. Their headdress is certainly the same as that of the Philistines, Plate VII. And the name Teukroi does not occur in Greek literature before Callinos, who further tells us that they came to the Troad from Crete. Finally the Uashasha have been regarded as the Oscans of Italy or as the Axians of Crete.

Our view of the latter will depend upon the origin assigned to the invaders repulsed by Merneptah. These are admitted to be the Achaeans, Tyrrhenians (Etruscans), Sardinians, Sicilians and Lycians. The point in dispute is whether the Etruscans,



FIG. 10. Head of a Philistine.

Sardinians and Sicilians reached Egypt from their seats in the west or were still on their way thither. On the one hand it is striking that they attacked Egypt from the west. It is, moreover, clear that the well-known bronze statuettes found in Sardinia, one of which is reproduced on Plate V, depict the same people as the antagonists and mercenaries of the Pharaohs. On the other hand, the best traditions connect the Etruscans with Anatolia. The Shardana might then be Sardians¹ from Lydia, the Shakalasha, men of Sagalassos in Pisidia. In that case we might imagine that these three tribes travelled by sea to attack Egypt, and that, thwarted in their designs by Merneptah, they then went on to occupy and give their names to Etruria, Sardinia and Sicily. That issue will be decided when the chronological context of the Sardinian bronzes is accurately determined. At the moment it is only

¹ But the native name of Sardis was Sard.

possible to say that these statuettes belong to a late phase of the local Bronze Age civilization of the island. But many of the roots of that civilization go back to the end of the IIIrd millennium, a time when Minoan inspiration certainly did reach Sardinia.¹ We may add that the Shardana's swords as represented on the Egyptian monuments and our bronze statuette and by actual specimens from Palestine (Fig. 11) were not designed for slashing like the weapons employed in Greece by the XIIIth century and in continental Europe even earlier. They might on the other hand be regarded as a development of the West European daggers, like Fig. 12, 3, common in the Sardinian Copper Age, under the influence of XVIth century Minoan rapiers.

If the hypothesis of a western origin for the Shardana and their allies be adopted the exodus of the tribes from Italy and the adjacent isles might be ascribed to the pressure of Italic tribes marching southward; we have seen that the latter overran the whole peninsula in the XIVth century. Then the identification of the Uashasha with the Oscans might be accepted. We have already remarked that the ancestors of the Oscans had reached Taranto by about 1400 B.C. and some sort of intercourse with the eastern Mediterranean is suggested by the remains from their settlement.

In no case can it be said with certainty that any of the invaders (except perhaps the Achaeans²) enumerated above were Aryans. Indeed the leaders of Merneptah's



FIG. 11.
Sword of Shardana
Type from Palestine
(British Museum).

¹ *Dawn*, pp. 107 f. Cf. also R. Forrer in *Bull. de la Soc. Préhist. Française*, 1924.

² Sir Flinders Petrie does not agree that the *Akaiusha* are Achaeans, but sees in them a tribe of the Syrtes region whose name may be recognized in Agbia, inland from Carthage, *History of Egypt*, iii, p. 112.

opponents had good Libyan names¹ and may be related to the modern Berbers. At the same time the type of the western assailants is depicted as blonde on the Egyptian monuments. The possibility that restless Aryans had mingled with the North African tribes is certainly one to be reckoned with.² Just the same remark applies to the Philistines. Though their Cretan origin is generally admitted and their faces are Minoan, the oldest examples of their feathered headdress (apart from those on the Phaestos disc of uncertain provenance) come from Mycenae. Professor Ridgeway long ago pointed out how the story of the "giant" Goliath might arise from the impression produced on the Hebrews by a tall European. If we are right in our dating of the Achaean invasion and in our views of the associations of the metope-style pottery a Hellenic infusion in these invaders of Palestine is not unlikely. And if the Hivites be in truth Achaeans the presence of some Aryans among the colonizers would be established.

The phenomena which we have just passed in review once more point to Central and Northern Europe. But it would be futile to plunge forthwith into the jungle of prehistoric cultures there distinguished by the archaeologists unless our path be lighted by the results of a kindred discipline.

APPENDIX TO CHAPTER III

THE ACHAEAN PERIOD

Only the most summary indications can be given here of the evidence on which our view of the "Achaean period" is based. Archaeologically the epoch may be said to begin with the interruption of the regular commercial intercourse marked by the importation of Mycenaean vases into Egypt and the substitution of more warlike relations, such as those described in the Homeric Poems, indicated by stray slashing swords like Fig. 25, 3-4 (*B.S.A.*, xviii, pp. 282 ff.)

¹ On these see Bates, *The Eastern Libyans*.

² Dr. Christian holds that the blonde Libyans were Nordics who had come by way of Spain and introduced the "dolmens" into North Africa. He supposes that the same people proceeded eastward into Syria-Palestine, where they would emerge as Amorites and dolmen-builders. With the same racial drift he would connect the "predynastic" culture of Egypt which, contrary to the unanimous opinion of Egyptologists, he proposes to place *after* Dynasty VI (*M.A.G.W.*, iv, pp. 221 f.). The last proposition seems preposterous, and despite the undeniable similarity of the blondes depicted on XIIIth Dynasty monuments and much earlier representations, the first coloured figures belong to this late epoch. Cf. p. 102 below.

The turning point is dated by Mr. Forsdyke (*B.M. Cat. Vases*, I, i, p. xli) about 1250 B.C. Thereafter the pottery and the fibulae reveal a continuous evolution down to the full geometric period; with Mr. Forsdyke we may distinguish the following phases, which, of course, overlap:—

A. Late Mycenaean B pottery; fibulae as in Fig. 8, 1-4; bronze swords as Fig. 25, 3-4; iron rare; burials in chamber tombs, possible cremation at Muliana in Crete (*B.S.A.*, xiii); Mycenae and other citadels still occupied. Fibulae of types 1-2 are found at Mycenae, of type 3 at Mycenae, Kephallenia (Kavvadias, *Προϊστορικὴ Ἀρχαιολογία*, p. 367), Delphi (Homolle, *Fouilles de Delphes*, i, p. 7), Thebes (*Ἀρχ. Δελφ.*, 1917, pp. 151 ff.), and Vardino in Macedonia (*L.A.A.A.*, xii, p. 29), and of type 4 at Mouliana in Crete.

B. Sub-Mycenaean pottery (still including false-necked jars and stemmed goblets); fibulae like Fig. 8, 3-5; bronze and iron weapons; burials and cremations in chamber tombs—Vrokastro in Crete (*U. of Penns. Anthropol. Pubs.*, iii, 3), Salamis (*A.M.*, 1910, pp. 17 ff.), Assarlik in Caria (*J.H.S.*, viii, pp. 68 ff.), etc. The Tiryns hoard (p. 52) was probably put together during this phase. Pottery of this style, Wace's granary class, was in use during the last days of the citadel of Mycenae (*B.S.A.*, xxv, p. 40).

C. Proto-Geometric pottery without distinctively Mycenaean types. In North Greece partly contemporary with B in cist graves and chamber tombs containing also fibulae of types 4-5, iron ornaments and unburnt corpses (Wace and Thompson, *Prehistoric Thessaly*, pp. 209-15—Theotoku, Marmariani and Skyros); definitely later in the "pyres" of Halos in Phthia (Thessaly) and in the "bone-enclosure" at Vrokastro in Crete, containing fibulae such as Fig. 8, 6, iron swords and cremated bones.

We regard phase A as distinctively Achaeae, and its pottery as the ultimate result of modifying native Mycenaean ware to suit the taste of the new ruling class whose accession to power, e.g., at Orchomenos, might have been anterior to the final establishment of the new style. The sub-Mycenaean pottery is essentially a continuation of the foregoing, and may be the product of the same society exhausted and disrupted by the Trojan War. Philistine pottery seems a parallel product (cf. Fig. 6). In southern Greece the proto-Geometric style is so closely allied to the above that an ethnic break cannot be asserted, though the local geometric styles that arose therefrom belong to the period of stabilization after the Dorian migration. In North Greece, as in Macedonia, proto-Geometric wares are older local fabrics modified by the influence of Mycenaean technique. Only in Crete, i.e., in the bone-enclosures of Vrokastro, does the appearance of a mature variety of this pottery mark such a clear break that we may connect it with the advent of the Dorians.

CHAPTER IV

PRIMITIVE ARYAN CULTURE RECONSTRUCTED BY LINGUISTIC PALAEOLOGY

In the last two chapters we beheld Aryan peoples emerging from the darkness of prehistory. In Hither Asia we believed that we could catch the first faint echoes of Indo-European speech on the tablelands of Iran by the beginning of the second millennium B.C. By 1500 B.C. it was clear that the division into *satem* and *centum* languages was already established, and that an Indo-Iranian dialect not very far removed from Vedic Sanskrit was already being spoken. In Greece we thought that we could provisionally detect the Hellenes before the end of the third millennium, and in western Asia Minor we found it difficult to place the intrusion of the Phrygians very much later. Finally we recognized the Italic as a well-defined stock in Upper Italy by 1500 B.C. We must then conclude that the dispersion of the Aryans had begun by 2500 B.C.

But the Aryans we have identified appear as it were on the margin of history widely separated in space, their antecedents still shrouded in obscurity. In Hither Asia we have not succeeded in isolating any archaeological evidence beyond the introduction of the horse that went indubitably with Indo-European speech. In Europe, though specific cultures have been ascribed to the Hellenes and Italici, the roots of those cultures are manifold. The attempt to trace the Aryans inductively from their earliest stations in the arena of history leads us to a veritable labyrinth of complicated and intermingled cultures each with a long and intricate history of its own behind it. There is no single thread to guide us certainly out of the maze, but rather a multitude of strands intertwined and entangled and leading along divergent paths. To unravel the tangle we must have recourse to the deductive method, we must, that is, seek in the remoter and simpler phases of prehistoric civilization for a cultural group which may link up and gather together the loose ends of the skein!

In this quest the science of linguistic palaeontology offers to be our guide. This science claims to reconstruct the environment of

the still undivided Aryan people and to conjure up the image of their spiritual and material culture. The words and names which recur in a plurality of the separate Indo-European languages, duly transformed in accordance with the phonetic laws as described on page 10, constitute in their totality the surviving vocabulary of the original Aryans. The objects and concepts denoted by those words are therefore the objects and concepts familiar to the ancestors of the Indo-European peoples. The sum of such corresponding terms would then depict the culture of the primitive people.

Certain reservations are, of course, necessary. In the first place the sum of surviving equations can only give a fragmentary picture, a sort of limiting outline, of the complete life lived by the Aryans. Through migrations, intermingling with other races, commercial relations with alien civilizations and the autonomous local growth and specialization of arts and cults, many words have been lost and replaced by others. Allowance must also be made for changes in the meaning of the word itself. Finally even strict compliance with the appropriate phonetic laws is not an infallible test of descent from the parent speech. The possibility is always present that the word in question came into the several languages by borrowing after the separation of their speakers, but at a date so early that the sound-shifts had not yet become operative. That might happen with especial ease in the case of the languages of the European Aryans who seem to have occupied from remote times closely contiguous territories, and may in some cases have been the heirs of a common pre-Aryan culture. For this reason many philologists since Fick have only accepted as belonging to the parent speech words found in Indo-Iranian on the one hand and in an European language on the other; Schrader is content with words occurring in both *satem* and *centum* tongues. And, of course, the possibility of such borrowing infects especially the very cultural terms with which we are chiefly concerned.

The philological picture of Aryan civilization is then at best a minimum one. Attempts have been made to supplement and fill in its outlines by ethnographical methods. By comparing the customs, beliefs, institutions and industries of the several Indo-European peoples, it is hoped to isolate in the residuum common to all traits inherited from the period of coexistence. While useful in controlling linguistic data, I hold this attempt mistaken. The only Indo-European peoples of whom we have really early information, Indo-Iranians, Greeks and Romans, were as we know, intruders

into an area of older civilizations of which they were in a measure the heirs and by which they were profoundly affected. Celts, Teutons, Slavs and Lithuanians only appear to us after they had been exposed for centuries to commercial penetration from the Mediterranean and inextricably mixed with one another, and, at least in some cases, with pre-Aryan populations who formed a common substratum in several areas. In each case it is extremely hazardous to say what in their civilization is due to pre-existing peoples, what to cultural borrowing, what to inheritance.¹ As a matter of fact the common culture deduced by this comparative method cannot claim to be specifically Aryan in the sense that the common traits observed among all the Bantu-speaking tribes are distinctively Bantu. It is so attenuated in character that it might belong to almost any primitive tribe in aboriginal Siberia or pre-Columbian America.

To illustrate the last point we may begin our study of Indo-European culture with religion. In this domain a comparison of customs and beliefs will only lead us to a nebulous complex which cannot serve to characterize a distinct society. The various schools of sociology will find in the results of such comparison reasons for applying to the Aryans their own pet explicative hypothesis. For instance, that mystic magical might, the Melanesian *mana*, may be discerned specialized and vaguely personified in the departmental gods (Sondergötter) of the Romans and Lithuanians or appropriated by a deity in Varuna's *māyā* or Odin's spells. The animist again will find material for a background of ancestral spirits in the cult of the dead so elaborately traced by Schrader.² That magic powers and ghosts played their part in the conceptual world of the Aryans, as among other peoples, must be at once admitted. But all that does not reveal anything distinctive.

But philology discloses, besides the background of magic and animism thus guessed at, more imposing and distinctive figures—real gods. The Aryans must indeed have worshipped more or less personified and individualized celestial beings whom they designated by a native word, *daevas*, the Bright Ones (1).³ Among these there

¹ That is well illustrated by Frazer's argument for Aryan "matriarchy" from the usages of Mediterranean Aryans or Hirt's inference to a patriarchal monogamy which might at once be paralleled among the Babylonians or Assyrians.

² Article "Aryan Religion" in *Hastings' Enc. of Rel. and Ethics*. The cult was not conducted at the tombs, and that may imply that the spirit was not conceived as attached to the grave and the moral remains there enshrined as in Mediterranean religion.

³ Numbers refer to the list of equations at the end of the chapter.

was at least one who stood out in specifically human form, *Dyeus pater*, the Sky-Father (2). He must have been to some extent a tribal or even a national god. He retains this rôle among the Greeks and Romans; in the East his place has been usurped by Varuna even in pre-Vedic times just as in the Veda itself Varuna is losing ground to the warrior Indra and in the post-Vedic age Indra in turn is effaced by Vishnu and Rudra. Traces of other deities are less certain. Varuna may be related to *Oὐρανός*, and the inversion of the rôles of this deity and Dyeus as between India and Greece may indicate an ancient rival of the Sky-Father. Warlike Storm Gods (*Marutah* and *Mavors*) and a fair Lady of the Dawn (*Ušas* 'Hós) are at best attenuated and hypothetical figures. Heavenly Twins (*Ásvinai*, *Dioscouri*), connected at once with horsemanship and navigation, have such extraordinarily similar traits in Vedic psalms, in the Homeric Hymns, and in archaic Lithuanian verses that their cult in the primeval period seems to the writer a likely conjecture. On the other hand no Earth Goddess, spouse and counterpart of the Sky Father, is traceable in language.

The deities certainly disclosed are important enough. If there be any truth in the speculations of Durkheim, Frazer, Perry, and other sociologists, the personified Sky Father is the mark of a relatively advanced stage of intellectual development. Whether he was evolved out of a departmental spirit or the ghost of a deified ancestor or the worship of a culture hero or borrowed along with other elements of civilization from Mesopotamia, he remains an imposing and distinctive figure. And the results of sociology suggest that his sovereignty reflects some sort of political unity among the undivided Aryans who worshipped him.

As a matter of fact, the social structure of the Aryans likewise seems to betoken a certain cultural evolution. A very large number of sociologists contend that the system of reckoning descent through the female has everywhere and always preceded the more familiar patrilinear system. Of such uterine kinship the Indo-European languages reveal no trace; the Aryan names for kindred (3) are exceptionally widely diffused and preserve a remarkable uniformity of meaning in all the linguistic groups. They all without exception refer to agnatic relationships. We are then warranted in inferring that the Aryan family was patrilinear and patriarchal. Probably in the light of the expression for "brothers' wives" it was a large unit, an aggregate of several generations living together under the rule of the eldest male ancestor as "house-father" (4) either

under one roof, as in the communal household (*zadruga*) of the Balkan Slavs,¹ or as a movable group such as the Biblical patriarchs ruled.

For more comprehensive groupings we lack precise evidence. A set of words from the root **uik* "to enter" (5), varying in meaning from "clan" to "village" or "district", may indicate some sort of local organization, perhaps territorial clans grown out of the great family; while incompatible with pure nomadism, it is not obvious whether the tie attaching such a group to a district was agricultural settlement or just the possession of common pastures. Exactly what lies behind words like **sebh-* and **genos*—perhaps "sib" and "tribe"—is debatable. Nor is it certain that, above the patriarch of the agnatic family or clan, any tribal or national chief was recognized as the earthly counterpart of the tribal or national god. There was, however, a root **reg*, different derivatives of which came to denote "king" in Indian, Italic and Celtic (7). Thus Aryan religion and society correspond to a phase of development which may indeed be lowly in the scale but is not strictly primitive, as it presupposes a certain history behind it.

When we turn to material culture, these inferences receive confirmation and the field of our quest becomes further limited in time. It is at once clear that the Aryans had passed beyond the Old Stone Age or palaeolithic phase of culture. So it is unnecessary to pursue our inquiry into those remote ages which preceded the geological present. In the Old Stone Age, which covers the quaternary epoch and in Europe closed about the time when the glaciers had finally retreated from France and North Germany, men were just food-gatherers. Domesticated animals and agriculture appear first in the New Stone Age or neolithic phase.

Now it is certain that the Aryans possessed domestic animals. Not only are the names for dogs, cattle, sheep and horses and perhaps also goats, swine, ducks and geese common to very many Indo-European languages, but words for "gelding" and distinct terms for males and females indicate an acquaintance with the operations of cattle-breeding (8). There are also words for butter and perhaps for milking, but not, curiously enough, for milk (8b). It is moreover clear from comparative ethnography that cattle played a prominent part in Aryan economy. Among the Vedic Indians, the Iranians of the Avesta, the Homeric Greeks, the Romans, Celts, Teutons and Slavs cattle were the principal source of wealth.

¹ So Hirt, p. 70a.

Philology itself reveals the use of cattle as a standard of value among the Romans and Anglo-Saxons (*pecunia*, *feoh*) and among the early Hindus the word for "battle", *gaviṣṭi*, means literally "struggle for kine". And in Zoroaster's hymns the Spirit of the Kine personifies Aryan righteousness in the dialogue. The same sort of argument induces the belief that the Aryans had domesticated the horse, which they named "the swift one". The horse is indeed the Aryan animal par excellence in the early history of Mesopotamia, in the Veda and in Homer; in Iran Darius boasts of having made his land "rich in horses" (*uvāspa*) even before he mentions "rich in men" (*uvamartiya*). The words seem also to have had an Indo-European feminine (*āsvā*, *equa*, *aszvā*), and Feist notes how often Aryan personal names in India, Iran, Greece and Gaul contain "horse" as an element. On the other hand the domestication of the pig is denied by Schrader; the Indian and Iranian words in the older sources denote only the wild boar.

That brings us to the question of agriculture. In contrast to the developed pastoral terminology of all Indo-European languages agricultural equations common to the Asiatic and European branches are rare. There is a word for some sort of grain and perhaps for "plough" and "furrow", while a common root came in both areas to be specialized to denote the grinding or milling of grains (9). At the same time according to Schrader the Aryans only recognized three seasons—a cold period, winter, a spring and a hot summer—but had no name for the harvest time, autumn. As against the paucity of European-Asiatic equations, however, there is a rich terminology both for the operations of tillage and for varieties of cultivated plants shared by the European languages of both the *centum* and *satem* branches.

The interpretation of these phenomena is disputed. Partisans of an Asiatic or a South Russian cradle for the race consider that the undivided Aryans were semi-nomadic pastoralists who only occasionally stooped to cultivate the soil by rude and primitive methods (garden culture); the advance to regular agriculture would, they suppose, have been first made in the Ukraine or Central Europe after the Indo-Iranians had separated from the parent stem. It would also be possible, and, I think, better, to argue that in this case many of the agricultural terms were taken over by the first Aryan intruders from a race of peasants whom we shall find occupying the Balkans and all Central Europe as far north as Magdeburg in Saxony in the New Stone Age.

On the other hand it is now possible for the advocates of an European cradle to contend that among the primitive Aryans agriculture was as important as pastoralism. The old conception that a phase of nomad pastoralism intervened between the pure food-gathering stage of hunting and fishing and that of settled agricultural life is no longer tenable.¹ In some cases at least, judging from the results of the excavations at Anau in Turkestan, tillage preceded stock-raising. Some authorities, such as W. J. Perry, go so far as to say that pastoral nomadism is everywhere posterior to sedentary agriculture and was only adopted by cultivators under the pressure of adverse climatic conditions or political convulsions. It may then be argued that the Indo-Iranians, ejected from the agricultural regions of Europe and thrust on to the Eurasiatic steppe, had just lost the primitive Aryan agricultural terminology in a period of enforced nomadism. I do not personally believe that any one-sided priority of one regime over the other can be regarded as a historical fact nor that it is possible to deduce *a priori* whether the Aryans were primarily pastoralists or peasants. Some sort of cultivation of the soil must in any case be admitted; at the same time the wide distribution of Indo-European speech as well as the habits of some of its users implies at least a phase of nomadism, but not of the extreme type observed among the Mongols of Upper Asia. In my opinion the state of things observed among many of the cow-keeping tribes of the Sudan and other parts of Africa approximates most closely to the primitive Aryan economy.

Besides these sources of food supply which they themselves controlled and which mark them as already "neolithic", it may be assumed that the undivided Aryans still resorted to more primitive pursuits such as hunting. Yet there is no Indo-European terminology for the chase. And the absence of words for fish may well indicate that the Aryans did not supplement their diet from the denizens of seas or rivers; for fishing is never mentioned either in the Veda or the Avesta, and the repugnance felt by the Homeric Greeks for a fish diet is notorious. Nevertheless, one fish-name is common to Europe and Asia, for the Tocharian word for "fish", *lakš*, is the same as the Old High German *laks*—Lith. *laszisz*, "salmon." It is also curious that no word for salt is common

¹ Good accounts of agricultural and nomadic life will be found in J. L. Myres, *The Dawn of History*, and Dudley Buxton, *Primitive Labour*. Cf. also W. J. Perry, *The Growth of Civilization*.

to Indo-Iranian and the European languages. Yet the latter and Tocharian know a term for that substance, **sel*. Finally the Aryans enjoyed a drink, **medhu* (10), made from honey, though no word for "bee" has survived.

Not only does a regular food-producing economy stamp the Aryans as neolithic, but they had gone further and were acquainted with at least one metal. Copper is represented by two terms, **ayos* and **roudhos* (11), though, as both words are probably borrowings, Kossinna holds that their use does not go back to the period of co-existence. Feist believes that gold and silver were also known in the primeval period; in any case words derived from the same roots, **gher* or **ghel* "yellow" and **rej* "shining", were at a very early date used to denote the precious metals. But though the Aryans knew metal and no doubt metal implements, it was probably rare and not worked locally, but imported. On the one hand, there is no Indo-European terminology for metallurgy; on the other, the names of certain artifacts are proper to a period when stone was still used for tools and weapons. For instance, the Teutonic **sahsaz* "a cutting weapon" (preserved in O.H.G. *mezzirahs* "blade"), comes from the same root as the Latin *saxum* "stone". Again the meaning of **akmon* fluctuates between a metal and a stone weapon (Lith. *asmūo* "blade", Sans. *āśman* "stone", "bolt", Greek *ἄκμων* "anvil"). Thus the Aryans were still in a stage of transition from the use of stone to that of metal, what archaeologists call the chalcolithic phase, at the time of their separation. This is a most important point for the prehistorian even though the succession of Neolithic, Chalcolithic, Bronze and Iron Ages, cannot be regarded as an universally valid chronological sequence.

The Aryan names for tools and weapons (14), objects with which the prehistoric archaeologist is particularly concerned, confirm the foregoing conclusion. The best attested implements are the awl and the razor. The Aryan weapons were the club or mace, the sling, the bow, the spear or pike, the knife-dagger, and the axe. Two points only need special notice: the large number of equations peculiar to Greek and Indo-Iranian, and, secondly, the interchange of meaning between spear and sword in the case of one word **kamu*; the latter means that the Aryan sword was not originally a slashing but a thrusting weapon, very likely that particular type of pointed blade of stone or copper so common in the chalcolithic period which would serve equally well as a dagger

or a spear-head according to the length of the handle to which it was fastened.

That the Aryans made pottery vessels might be concluded from the above results even without the equations cited by Schrader,¹ but naturally no shapes can be inferred from the linguistic data. Wood, too, played a prominent rôle in their industry. Indeed, the only craft for which an Indo-European designation has survived is that of the carpenter (15). One of his products for which a detailed terminology is preserved was a wheeled vehicle (16). But, as far as philology is concerned, this may have been anything from the wagon-dwelling of the nomad to the horse-drawn war chariot associated with the earliest Aryans in Mesopotamia and so characteristic of the Vedic Indians and Homer's Achaeans. The carpenter must have been also called upon to build the boats named in a very large number of languages (17). But here again, though a word for oar survives, the meaning of **naus* may range from the dug-out canoe used on a river to regular sea-going craft.

Weaving may be denoted by a group of terms from the roots **vi*, **vebh*, since words for "wool", and also perhaps "spindle", are traceable (18).

The sort of house inhabited by the Aryans would be of great interest could it be reconstructed. Equations exist for door, door-frame or porch and pillar as well as the whole structure (19). They certainly suggest something more substantial than the nomads' tent—even perhaps a porched house like Plate VIII, 1, the prototype of the Achaean megaron—but nevertheless might be applicable to such an abode. From the series *sála*, *cella*, *höll*, Schrader infers some sort of pit-dwelling such as is common all over prehistoric Europe. Walls of wattle and daub seem to Feist to be indicated by a group of words derived from the root **digh* "to smear", but these may refer rather to defensive earthworks. Terms exist, if not for "village" or "city", at least for some sort of strong places or refuges defended by ramparts (20).

We have then to search for a people who were no longer just food-gatherers or even pure nomad herdsmen, but who had already made distinct progress in the arts as in political organization and religious belief. It would be a considerable help in our quest if it could be shown that their progress had been partly at least inspired by one of the great civilizations which arose in the Ancient

¹ *Reallexikon*, s.v., Gefäss.

East at a very remote date, and from which, according to a widely held belief, all higher culture emanated. This seems, indeed, to be possible. The names for metal give us one key. The word **ayos* may be derived from *Alasya*, the ancient name for the copper land of Cyprus.¹ In that case it indicates that the influence of the great prehistoric civilizations of the Aegean which have left a deep mark on the culture of the whole of Europe had reached the undivided Aryans. But their indebtedness to the civilizations of Mesopotamia was much greater; not only is the other Indo-European word for copper **roudhos* derived from the Sumerian *urud(u)*,² but the Indo-European words for "ox",² "steer",³ "star",² and "axe",² seem all to be of Sumero-Akkadian origin. Of course, in the case of such loan words the possibility of borrowing after the separation of the peoples must be kept especially in view; in the light of the distinctively Mesopotamian culture recently disclosed in India it may be that Hindus and Hellenes each borrowed independently such a word as *pilakku* on reaching the Indus and the Aegean respectively. However, I feel that the concordances are too numerous and too deep-seated to be thus explained away. I believe that the Aryans received their initiation into stock-breeding and metallurgy and perhaps some elements of their celestial religion directly or indirectly from the bearers of that great civilization which was flourishing in Mesopotamia by the IVth millennium before our era. If true, this is a very important point both for the identification of Aryan remains and also for the delimitation of the Aryan cradleland; Mesopotamian influence, while dominant throughout Asia, cannot be distinctly traced in continental Europe further west than Russia. Conversely, it is crossed by Aegean influence only in the latter area and Anatolia.

Having drawn our all too vague picture of primitive Aryan culture, we shall now proceed to try to narrow down in space, as we

¹ Pokorny in *K.Z.*, xlix, p. 128. But it is now held that *Alasya* does not denote Cyprus but rather some part of the adjoining mainland.

² Ipsen, *Sumero-akkadische Lehnwörter in Indogermanischen in I.F.*, xli, p. 417. I-E. **roudhos* = Sum. *urud*; I-E. **gyou* = Sum. *gu(d)*; I-E. **ēster* = S-A. *ištar*; I-E. **peleku* = Ass. *pilakku*. This author tries to show that the modification in the pronunciation of Sumero-Akkadian *i*, presupposed in the above equations, was only realized under the First Dynasty of Babylon, and therefore that Aryan unity lasted till about 2000 B.C. However, the reading of early cuneiform does not seem sufficiently precise to warrant such a conclusion.

³ Feist (p. 411) would connect the equation I-E. **staurus* = Ass. *sūru* with the ancient Mediterranean steer-cult, but it seems more natural to regard this as another instance of direct Mesopotamian influence. And, of course, the Mediterranean cult itself came from Mesopotamia.

have in time, our field of investigation by circumscribing the area where the material remains of the Aryans must be sought. The guides are the fauna, flora, climate and physiographical features of the cradle deducible from the extant Indo-European vocabulary.

The fauna of the cradle included, besides the domestic animals enumerated above, the wolf, the bear, the otter, the pole-cat, the mouse, the hare, the beaver, the quail, some bird of prey, and the snake, since the names of all these animals recur both in Indo-Iranian and European tongues. They do not tell us much. The horse indeed would seem to limit the possible regions to countries lying north of the Eurasiatic mountain axis; south of that the horse was a late comer, as we have seen, while the typical draft animal was the ass, for which there is no Indo-European name. Again, as the Aryan horse was "swift" (cf. *ásva*, *ἵππος equus*, and *dśu*, *ᾠkus*, *acer* "swift"), it seems more likely to have been either the steppe horse of Przybalski or the desert horse of Anau (*Equus caballus Pumpellyi*) than the stout German forest horse (*Equus cab. Nehringi* Duerst)¹ which would tend to move the cradle eastward. On the other hand, if the Aryans really came from Central Asia, they should have known the camel, since the American excavations in Turkestan disclosed remains of that animal in a quite early settlement. The absence of a word for lion (the name of that beast was borrowed by the Greeks from a Semitic people and transmitted by them to other European languages) is as unfavourable to Asia Minor as to Mesopotamia or Africa. Some animals require a wooded environment, others water, but the majority of the rest have such a wide range as to be useless for our purpose.

If the names for tortoise, salmon and eel, found only in European languages, be accepted as evidence of the Aryan fauna, important consequences would follow. Schrader used the tortoise (*χέλυς* = O.Sl. *zely*) to prove that the cradle must lie east of longitude 46°, but Professor Kossinna has pointed out that a tortoise shell has been found at Svaedborg, a very early prehistoric site in Denmark. On the other hand, the eel probably and the salmon certainly are not found in rivers flowing into the Black Sea.

As for the flora admired by the Aryans in their cradle, the data are still more exiguous. They had a name for tree, but, except perhaps for the pine, no special species of tree is designated by a

¹ See Duerst in Pumpelly, *Explorations in Turkestan* (Carnegie Publications, No. 73), ii, p. 431.

word common to the European and Asiatic groups. The former, however, agree in terms for beech, pine, willow, alder, ash, hazel, elm and maple. Of these the beech has played a prominent rôle in the history of the quest of the Aryan cradle; it does not grow to-day east of an imaginary line running from Königsburg to the Crimea and extending thence to the Caucasus. Hence it has been inferred that the Indo-Europeans must have lived together west of that line. But apart from the general reservation made in respect of words only found in Europe, it remains a little uncertain when this frontier was established; for the post-glacial forests of Europe seem to have advanced in several waves in a westerly direction. The same uncertainty attaches to the silver birch invoked by Professor Bender¹ to fix the cradle between the Vistula and the Niemen.

The climate of the cradle was severe, snow as well as rain being familiar phenomena, while the summer was hot. In a word the climate was continental. Such a climate reigns almost anywhere in the Eurasiatic continent north of the mountain axis and east of the Alps.

Finally the physiographical features of the cradle were not well marked. Rivers and streams were indeed common, as the fauna alone would tell. They seem in fact to have presented the chief obstacles to locomotion, for the variation in meaning of the word **pont-* from "path" to "ford" or "bridge" implies that the vital points on the routes frequented by the Aryans were river crossings. However, there is no certain word for sea common to Europe and Asia. Only in the former area is a term denoting sea or mere to be found in a plurality of languages. Nor, though the Aryans had a name for boat, are there general verbs for navigation. The root **per* "to cross" is frequently used in this connection, and Schrader adduces this circumstance to demonstrate that the Indo-European boat was only used for crossing streams. The same author denies that the Aryans had any mountains before their eyes and holds that *giri* (Sans. *giri*=O.Sl. *gore*) meant forest.

Finally we may note that early contact between the Finnic and Aryan peoples is an established fact. Some philologists, including Isaac Taylor and Kossinna, in fact believe that the Indo-European and Ugro-Finnish linguistic families are sprung from a common agglutinating stock. It is in any case certain that the Finno-Ugrians borrowed many words from Indo-European

¹ J. Bender, *The Home of the Indo-Europeans*, 1922, p. 33.

languages, beginning possibly (but not probably) with primitive Aryan and then assimilating Indo-Iranian, Slavonic and Teutonic vocables. Indo-European borrowings from Finnish, of which **medhu* has been cited as an example, are unproven. Since the Finnic cradle is even more hard to locate than the Aryan, the fact of early contact between the two peoples is of little practical use at the moment.

The scene of the undivided Aryans' life—a continental region traversed by rivers, sufficiently wooded to afford shelter to bears and beavers but open enough to nourish hares and swift horses and to permit of the unimpeded progress of vehicles—might be located almost anywhere in Eurasia save in the Mediterranean basin, the lowlands of Hither Asia or western Europe. None of the sites generally selected by philologists are excluded by our picture. These include Central Asia, Bactria, Armenia, Anatolia, South Russia, the Danube Valley, Lithuania, Germany, and Scandinavia. Yet all are open to certain more or less grave objections.

In Central Asia the camel was early known to man, while it is said that the honey bee is absent. If the Aryans had originated in Asia Minor we should expect to find some traces of them in cuneiform tablets of the IIIrd millennium, and they should have had a name for the lion. The pure pastoralism on which Schrader mainly bases his advocacy of the South Russian steppes appears exaggerated. At the same time he is probably mistaken in reading into prehistoric Russia the conditions of the present. In the IIIrd millennium the river valleys at least must have been quite sufficiently wooded to meet the requirements laid down for the cradle. But the absence of salmon is a real difficulty. The same objection applies to the Danube valley. Poland and Lithuania, in prehistoric times marshy or densely wooded, are much less attractive when viewed in the light of archaeological data than they appear from a study of modern geographical handbooks. Scandinavia on the other hand looks much less unlikely in the same light. Still the North European forest horse was slow and heavy, and life in those regions was very largely based on fishing and maritime enterprise. Above all, as de Morgan ¹ points out, these lands are the sources of amber, while the Aryans had no name for that precious gum.

¹ *Prehistoric Man*, p. 272.

Objections may therefore be taken to all the proposed identifications. We will therefore proceed to survey each region in turn in the hopes of finding in one of them a culture resembling that sketched above, and a people whose diffusion to the appropriate regions of Europe and Asia can be traced by archaeological methods.

APPENDIX TO CHAPTER IV

The more important equations relied upon for establishing the primitive culture of the Aryans are summarized below, the numbers corresponding to the references in the text. As in the rest of this chapter I rely principally on O. Schrader, *Prehistoric Antiquities of the Aryan Peoples*, and *Reallexikon der indogermanischen Altertumskunde*, 1st ed., 1902, 2nd in progress.

	Sanskrit.	Greek.	Latin.	Celtic.	Teuton.	Lithuan.	Tochar.	Armen.
(1) god	<i>devá</i>	—	<i>deus</i>	<i>dia</i>	O.N. <i>tivar</i>	<i>dīswas</i>	—	—
(2)	<i>Dyaús</i>	<i>Zeús</i>	<i>Jupiter</i>	—	<i>Tiu</i>	—	—	—
(3) father	<i>pitár</i>	<i>πατήρ</i>	<i>pater</i>	<i>athir</i>	<i>fadar</i>	—	<i>pātár</i>	<i>hair</i>
mother	<i>mātár</i>	<i>μήτηρ</i>	<i>mater</i>	<i>mathir</i>	O.H.G. <i>muotar</i>	O.Sl. <i>mati</i>	<i>mātar</i>	<i>mair</i>
son	<i>sūnú</i>	<i>víos</i>	—	—	<i>sunus</i>	<i>sunūs</i>	<i>soyá</i>	—
daughter	<i>duhitár</i>	<i>θυγάτηρ</i>	—	—	<i>dauhtar</i>	<i>duhtē</i>	<i>tkacer</i>	<i>dustr</i>
brother	<i>bhrátar</i>	—	<i>frater</i>	<i>brathir</i>	<i>broþar</i>	O.Sl. <i>bratrū</i>	<i>procer</i>	<i>bair</i>
sister	<i>svásar</i>	—	<i>soror</i>	<i>siur</i>	<i>svistar</i>	O.Sl. <i>seatra</i>	—	<i>kóir</i>
father's brother	<i>pitṛvya</i>	<i>πάτριος</i>	<i>patruus</i>	—	A.S. <i>faedera</i>	—	—	—
grandson or nephew *	<i>nápāt</i>	<i>νεπώδες</i>	<i>nepot-</i>	<i>nia</i>	A.S. <i>nefa</i>	O.Sl. <i>netiji</i>	—	—
son-in-law	<i>śdmātar</i>	—	—	—	—	<i>zéntas</i>	—	—
daughter-in-law	<i>śmūśā</i>	<i>νυός</i>	<i>nurus</i>	—	O.H.G. <i>snura</i>	O.Sl. <i>snūcha</i>	—	<i>nu</i>
father-in-law	<i>śvāśura</i>	<i>έκυρός</i>	<i>socer</i>	Corn. <i>hveger</i>	<i>svaihra</i>	<i>szászuras</i>	—	<i>skesair</i>
mother-in-law	<i>śvaśrū</i>	<i>έκυρά</i>	<i>socrus</i>	Corn. <i>hwigeren</i>	<i>svaihro</i>	O.Sl. <i>svelkry</i>	—	<i>skesur</i>
husband's brother	<i>devár</i>	<i>δαήρ</i>	<i>levir</i>	—	A.S. <i>tacor</i>	<i>dēveris</i>	—	<i>taigr</i>
husband's brother's wives	<i>yātaras</i>	<i>ειváρες</i>	<i>janitrices</i>	—	—	Lett. <i>jentere</i>	—	—
husband	<i>pátī</i>	<i>πόσις</i>	—	—	-fa]s	<i>pats</i>	—	—
woman	<i>śnā</i>	<i>γυνή</i>	—	<i>ben</i>	<i>qino</i>	O.Sl. <i>žena</i>	—	—
widow	<i>vidhāvā</i>	—	<i>vidua</i>	<i>fedb</i>	* <i>viduvo</i>	<i>vidova</i>	—	—

	Sanskrit.	Greek.	Latin.	Celtic.	Teuton.	Lithuan.	Tochar.	Arme
(4) house-father	<i>dānpati</i>	? <i>δεσπότης</i>	—	—	—	—	—	—
(5) clan, village	<i>vis</i>	<i>Ῥικ*</i>	<i>vicus</i>	<i>fic</i>	<i>veih</i>	O.Sl. <i>vīaž</i>	—	—
headman	<i>viśpati</i>	—	—	—	—	<i>višzpati</i>	—	—
(6) ? sib	<i>sabhā</i>	—	—	—	<i>sibja</i>	—	—	—
? tribe, clan	<i>jānas</i>	<i>γένος</i>	<i>genus</i>	—	O.H.G. <i>chunni</i>	—	—	—
(7) king	<i>rājan</i>	—	<i>rex</i>	<i>ri</i>	—	—	—	—
(8) dog	<i>śvā(n)</i>	<i>κύων</i>	<i>canis</i>	<i>cú</i>	<i>hunds</i>	<i>szū</i>	—	<i>sun</i>
ox	<i>gó</i>	<i>βοῦς</i>	<i>bos</i>	<i>bó</i>	O.H.G. <i>chuo</i>	O.Sl. <i>goveđo</i>	—	<i>kou</i>
sheep	<i>ávis</i>	<i>ῶις</i>	<i>ovis</i>	<i>ói</i>	O.H.G. <i>auwi</i>	<i>avis</i>	—	—
goat	<i>ajá</i>	<i>αἴξ</i>	—	—	—	<i>ozys</i>	—	<i>aic</i>
horse	<i>áśva</i>	<i>ἵππος</i>	<i>equus</i>	<i>ech</i>	A.S. <i>ehu</i>	<i>aszwa</i>	<i>yakwe</i>	—
pig	<i>sūkara</i>	<i>ὕς</i>	<i>sus</i>	—	O.H.G. <i>su</i>	O.Sl. <i>sviniija</i>	—	—
ox	<i>ukṣān</i>	—	—	Cym. <i>ych</i>	<i>auhsu</i>	—	—	—
steer	Z. <i>staura</i>	<i>ταῦρος</i>	<i>taurus</i>	—	<i>staur</i>	O.Sl. <i>туру</i>	—	—
cow	<i>vaśá</i>	—	<i>vacca</i>	—	—	—	—	—
cow	<i>dhenu</i>	—	—	<i>dini</i>	—	—	—	—
gelding	<i>vádhri</i>	<i>ἔθρις</i>	—	—	—	—	—	—
cattle	<i>paśú</i>	—	<i>pecus</i>	—	<i>faihu</i>	—	—	—
(8b) cheese	Z. <i>tuirya</i>	<i>τυρός</i>	—	—	—	—	—	—
fat	<i>ajya</i>	—	<i>unguentum imb</i>	—	O.H.G. <i>ancho</i>	O.Prus. <i>anctan</i>	(butter)	—
butter	<i>sarpiś</i>	<i>ἔλπος</i>	—	—	A.S. <i>sealf</i>	—	<i>žalyjä</i>	—
(9) grain	<i>yáva</i>	<i>ζέα</i>	—	—	—	<i>javai</i>	—	—
grain, bread	<i>dhānā</i>	—	—	—	—	<i>džina</i>	—	—
furrow	<i>karśú</i>	<i>τέλοον</i>	—	—	—	—	—	—
plough	<i>vṛka</i>	<i>εὐλάκα</i>	—	—	—	—	—	—
(10) mead	<i>mádhu</i>	<i>μέθυ</i>	—	<i>mid</i>	O.H.G. <i>metu</i>	O.Sl. <i>medi</i>	—	—
(11) copper	<i>śyága</i>	—	<i>aes</i>	—	<i>aiz</i>	—	—	—
	<i>lohá</i>	—	<i>raudus</i>	—	O.N. <i>raudí</i>	O.Sl. <i>ruda</i>	—	<i>avoir</i>
(12) gold	<i>hiraṅyam</i>	—	<i>aurum</i>	<i>gull</i>	<i>gull</i>	O.Sl. <i>zlato</i>	<i>vās</i>	—
(13) silver	<i>rájata</i>	<i>ἄργυρος</i>	<i>argentum</i>	<i>argat</i>	—	—	<i>ärkyant</i>	—
(14) razor	<i>keurát</i>	<i>ξυρόν</i>	—	—	—	—	—	—
awl	<i>drā</i>	—	—	—	O.H.G. <i>ala</i>	<i>yla</i>	—	—
sling-stone	<i>áśan</i>	<i>ἄκων</i>	—	—	—	—	—	—
bow-string	<i>śyá</i>	<i>βιός</i>	—	—	—	—	—	—
arrow	<i>śu</i>	<i>ίός</i>	—	—	—	—	—	—
javelin	<i>śastrám</i>	<i>κίστρος</i>	—	—	—	—	—	—
spear	<i>śáru</i>	—	—	—	<i>hairus</i>	—	—	—
					(sword)			
sword	<i>asi</i>	—	<i>ensis</i>	—	—	—	—	—
axe	<i>paraśú</i>	<i>πέλεκυς</i>	—	—	—	—	—	—
(15) carpenter	<i>tákṣan</i>	<i>τέκτων</i>	—	—	—	—	—	—
(16) chariot, wheel	<i>rátha</i>	—	<i>rota</i>	<i>rotā</i>	O.H.G. <i>rad</i>	<i>rāsa</i>	—	—

	Sanskrit.	Greek.	Latin.	Celtic.	Teuton.	Lithuan.	Tochar.	Armen.
wheel	<i>cakráta</i>	<i>κύκλος</i>	—	—	A.S. <i>hweol</i>	O.Sl. <i>kolo</i>	—	—
axle	<i>ákṣa</i>	<i>ἄξων</i>	<i>axis</i>	—	O.H.G. <i>ahsa</i>	<i>aszis</i>	—	—
nave	<i>ndbhi</i>	—	—	—	A.S. <i>nafu</i>	O.Pruss. <i>nabis</i>	—	—
yoke	<i>yugám</i>	<i>ζυγόν</i>	<i>iugum</i>	C. <i>iou</i>	A.S. <i>yuk</i>	<i>jungas</i>	—	—
(17) ship	<i>naús</i>	<i>ναῦς</i>	<i>navis</i>	<i>noi</i>	M.H.G. <i>naue</i>	—	—	<i>nav</i>
oar	<i>arítvam</i>	<i>ἑρεμῶς</i>	—	—	O.H.G. <i>ruodar</i>	—	—	—
(19) house	<i>damá</i>	<i>δῶμος</i>	<i>domus</i>	—	—	O.Sl. <i>domü</i>	—	—
	<i>śālā</i>	<i>καλιά</i>	<i>cella</i>	—	O.H.G. <i>holl</i>	—	—	—
door-frame	<i>dā</i>	—	<i>apiae</i>	—	O.Icel. <i>oph</i> (poroh)	—	—	—
door	<i>dvar</i>	—	<i>fores</i>	—	<i>daur</i>	<i>dāvys</i>	—	<i>durn</i>
pillar	<i>stūpā</i>	<i>σταλλα</i>	—	—	—	—	—	—
(20) earth walls	<i>dēhī</i>	<i>τείχος</i>	Osc. <i>feihusa</i>	—	—	—	—	γ

CHAPTER V

THE CASE FOR AN ASIATIC CRADLE OF THE ARYANS

(The hypothesis of an Asiatic origin for the Aryan peoples is the most venerable but the least well documented. Indeed it belongs in part to that realm of anthropological mythology the roots of which go back to the Biblical story of the Tower of Babel. In that world of prescientific speculation all races were derived from Asia which was regarded as a vast reservoir of peoples, and it was assumed that all migrations followed the sun from East to West.) To this extent the doctrine of an Asiatic cradle of the Aryans is only one of the unfounded generalizations which anthropology and archaeology have been combating for the last seventy years. We now know that the relations between Europe and Asia have not been so one-sided as our ancestors believed, and that culture and population flowed in both directions.

But the theory of an Asiatic cradle did not rest exclusively on prejudice. The supposed high antiquity of Sanskrit and its apparent linguistic purity were powerful arguments in the hands of the Orientalists and even led Schlegel (1808) to assert that the parent language itself originated in India and spread thence westward. A rather similar idea has cropped up in the writings of Sergi¹; he supposes that the ancestors of the European Aryans were a brachycephalic stock originally inhabiting the region to the north of the Hindu Kush. There they would have learned the language of the Mediterranean Hindus and carried it with them into Europe. But modern philology can no longer regard Sanskrit as in all respects the purest representative of Indo-European speech. The fine state of preservation of the original inflection, due in part to the very early fixation of the language in a metrical literature, must indeed be admitted. But phonetically Sanskrit reflects the parent speech less faithfully than many European languages; for instance, "Aryan" must have distinguished between the vowel sounds *ā*, *ē*, and *ō* which in Sanskrit are all alike merged into *ā*. Again the

¹ *Gli Ari in Asia e in Europa.*

Indo-Iranian change of *k* to *s*, going back to the XVth century B.C., is an early example of phonetic decay indicating some physiological divergence from the parent stock in its users.

Even deeper was the impression produced upon the older philologists by the references to an *Airyānam vaējānīh*, an Aryan homeland, in the Avesta of the Parsis. From the localization of this ill-defined centre of Iranian life in Bactria or Sogdiana it was an easy step to the identification of these districts with the cradle of the Indo-Europeans. Indeed, to Pott, Renan, Mommsen and Pictet the theory built on this foundation seemed an unimpeachable truth. That was, of course, partly the result of an illegitimate extension of the term Aryan to embrace all speakers of Indo-European tongues. But though we have for convenience retained the name in that sense in this book, we have stated at the outset that its use as a national appellation by the undivided people is unproven and indeed unlikely. As a racial designation it is peculiar to the Indo-Iranians. At the same time the most that the phrases in question, all in late sections of the Avesta, imply is a vague reminiscence of the migration of the tribe to which their authors belonged.

The case for a Central Asian cradle built up upon the Iranian documents is thus deprived of its basis. On the other hand, it was with justice remarked that the Aryan languages in Asia to-day are in a minority and stand out like isolated peaks in an ocean of Semitic, Asianic, Dravidian, Mongolian and Chinese tongues. And we have seen that the same relations held good in Hither Asia at the dawn of history. Even though at the beginning of our era Aryan languages were spoken over a vast tract extending from the Mediterranean to the frontiers of China, which has only been lost to them as a result of the Mohammedan and Turkish conquests, these languages were still almost exclusively merely dialects of Indo-Iranian as contrasted with the multiplicity of long-established Aryan tongues in Europe. Thus fifteen years ago the intrinsic probability that all the Indo-European languages were natives of Asia seemed but small.

The discovery of the *centum* Tocharian language in the Tarim basin has invalidated this sort of argumentation; it has recalled from the grave the old ghost of the Asiatic hypothesis and has endowed the Orientalists with renewed vigour. The simplest explanation of the presence of a *centum* language in Central Asia would be to regard it as a last survivor of an original Asiatic

Aryan stock. To identify a wandering of Aryans across Turkestan from Europe in a relatively late prehistoric period is frankly difficult. If we were right in regarding the Scythians as Mongols, it will follow that the tide of migration, which in historic times brought to Europe the Huns and the Turks, was flowing westward already in the VIIIth century B.C. It might have begun even earlier—do not many authors see “something Mongolian” in the Hittites? And then it would be easy to comprehend how that flood in its successive waves had wiped out the Aryans from Central Asia, swept them into Europe or hemmed them in to mountain valleys such as the Tarim basin. At the same time the revelation of the cyclic desiccation of Inner Asia has provided a motive for the great exodus of the nomads, perhaps for their very nomadism. Such desiccation might have begun the process of expulsion and isolation which the incursion of the Mongols completed. The world of Upper Asia is historically a blank till the last centuries before our era. We know not what languages it may have contained.

Finally the old catchword, *Ex oriente lux*, which has ever inspired the partisans of an Asiatic home of the Aryans, has at last begun to justify itself against the onslaughts of those who have made their watchword, *le mirage orientale, die Trugspiegelung der orientalischen Kultur*. But a reasoned and documented case using the latest discoveries for the illumination of our problem has not yet been put forward.

1. *The Alleged Brachycephalic Invasion*

The earlier investigators of the Aryan problem operated with the concept of race in the anthropological as opposed to the cultural sense. They relied upon physical characters for the identification of a human group which might have diffused Indo-European speech. Of course, the racial features which are most obvious to the layman, the colour of the eyes, the tint of the skin, the texture of the hair, are only very exceptionally available to guide us in the case of prehistoric men. For the racial classification¹ of our remote forerunners the ethnologist must perforce rely exclusively on the less perishable portion of the body—the skeleton, which under favourable conditions endures for thousands of years. From

¹ On this see Haddon, *The Races of Man*, 1924; Pittard, *The Races and History*, 1925.

the bones exhumed from prehistoric graves the stature and other attributes of ancient men can be reconstructed. But anthropologists lay most weight on the conformation of the skull which is held to preserve very persistent racial peculiarities. The most generally adopted criterion is the ratio of head-breadth to head-length which, when reduced to percentages, is called the *cephalic index*. Skulls in which the breadth is 80 per cent. or more of the length are termed *brachycephalic* or short-headed; where the ratio is 75 per cent. or less the skull is classed as *dolichocephalic* or long-headed; indices between 75 and 80 denote *mesaticephalic* skulls. It should be noted that anthropometrists are now feeling grave misgivings as to the value of the cephalic index alone as a test of race, and many, such as Sergi and Schliz, prefer to rely exclusively on the contour or other details of cranial conformation. In any case the length-breadth ratio by itself gives but a very rough classification. In the regions with which we are concerned the further division of the dolichocephals into Mediterraneans, generally short and dark, and Nordics, generally tall and fair, is also important.

We may pass over the early authors who imagined that Europe was entirely depopulated at the end of the Ice Age and that the neolithic civilization (page 82) was introduced into the void by a wholly new population come from Asia. It has long been established that remnants of the men of the Old Stone Age formed a considerable element in the post-glacial population of our continent. Whether any of these early races had come from Asia does not concern us, as the culture of the Aryans was not that of the palaeolithic phase but of the chalcolithic or neolithic.

Now it has been widely held that the New Stone Age in Europe was ushered in by the advent of a new anthropological type come from Asia. The intruders would be the "neolithic brachycephals". In the neolithic period the short-heads do in fact appear rather like a wedge driven in between the short dolichocephals of the Mediterranean lands and the tall dolichocephals of the North. This apparently intrusive race has been claimed as Aryan, by Sergi and de Morgan¹ among others.

This simple identification is, however, no longer possible. The supposed intruders did not as a whole possess the civilization ascribed on philological grounds to the Aryans, but were still in the ruder stage of hunting and fishing without domestic animals. We are now acquainted with a considerable number of brachy-

¹ E.g., *Syria*, iv, pp. 28 f.

cephalic skulls from Spain, France, Belgium, Britain¹ and Germany which are pre-neolithic. That is to say, these brachycephals although post-glacial were still just food-gatherers and did not even polish stone or flint.² In the light of the results obtained in the last chapter they cannot have been Aryans. Nor is their Asiatic origin any longer undisputed. Bosch Gimpera thinks they may have come from North Africa across the Straits of Gibraltar with the palaeolithic people known as Capsians. The distribution of these early short-heads is in fact notably western. But what is more important, a brachycephalic skull has recently been found in a palaeolithic deposit at Solutré in France.¹ Thus it is no longer necessary to regard the neolithic brachycephals as intrusive nor to postulate an invasion to account for European short-headedness. The idea of using brachycephalism alone to establish a link between Europe and Asia is unworkable.

Equally unsound were the earlier attempts to supplement craniological by cultural data with the same end in view. In his classical work on the Formation of French Nation, de Mortillet admitted that the first short-heads in Europe were pre-Aryan, but assumed that a fresh immigration of the same Asiatic stock, bringing with them the art of metallurgy and the rite of cremation, introduced Indo-European speech to Europe. But here we can to-day see a triple fallacy. In the first place there is no coincidence between cremation and metallurgy. In Central Europe some cremation burials are still neolithic, while throughout the Early Bronze Age the prevailing rite from Britain to Crete was inhumation. Secondly it cannot be proved that the rite of cremation originated in Asia; even in India the oldest graves contain unburnt bodies. Still less can it be maintained that the European Bronze Age was a mere reflexion of the Asiatic. By 1700 B.C., when the use of bronze was regularly established in continental Europe, our ancestors had evolved a whole series of forms which have no parallels or prototypes in the East. In the Aegean, where the roots of the continental Bronze Age lie, the divergence of West from East can be traced back to the middle of the third millennium and became a superiority by the middle of the second.³ The European Bronze Age is a native product, not brought ready made from Asia nor requiring an oriental invasion to explain it. Finally there is no

¹ Keith, *Antiquity of Man*, pp. 139 f. and pp. 91 ff. *L'Anthr.*, xxxv, p. 189.

² See my *Dawn*, pp. 1-12 and 318 with literature there cited.

³ The use of bronze, an alloy of copper with 10 per cent. of tin, was not known in Asia before 1700 B.C., and seems to have been introduced from Europe!

noticeable increase in brachycephalic skulls in Bronze Age graves ; long-heads are still predominant as in the neolithic period.

However, in the immediately preceding chalcolithic period of Central Europe a distinctly brachycephalic race had played an important part in preparing the foundations of the Bronze Age. This race, distinguished not only by craniological marks but also by a culture of its own, is known as the bell-beaker folk or the Prospectors ¹ :

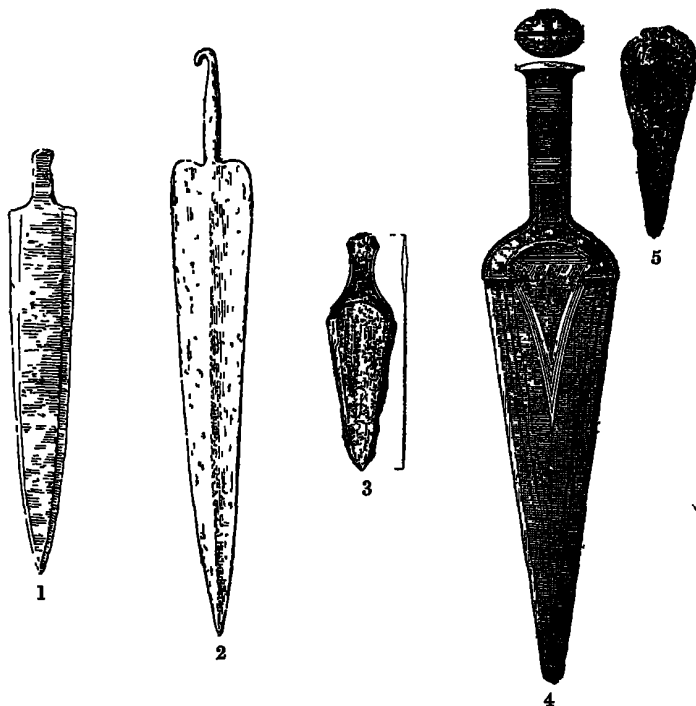


FIG. 12. Types of Dagger. 1, Asiatic; 2, Cypriote; 3, West European; 4, Italian; 5, Central European.

the former title is derived from the distinctive type of vase always buried in these graves, the latter from the fact that its bearers sought out ores and precious substances, while in Central Europe the first articles of value, gold and amber, are found in the same graves. But in continental Europe these intruders—they were not very numerous—did not come from the East but from the South-

¹ On the bell-beaker folk see my *Dawn*, pp. 121 f., 135, and 185 f.

west. The distribution of their graves—most numerous in South-west Germany, sporadic in Silesia and round Buda-Pest and non-existent further east—alone suffices to exclude the idea of an Asiatic immigration. But the grave-furniture is decisive. The most typical metal object is a very short, flat, triangular dagger with a broad tang widening to the blade without any distinct shoulder and probably inserted into a cleft wooden or bone hilt with a semicircular indent where it met the blade (Fig. 12, 3). This weapon is at once distinguishable from the Asiatic dagger with its pronounced shoulders and narrow tang, as illustrated by a growing series from Flam and Anau to Syria and Troy (Fig. 12, 1). On the other hand the Prospectors' dagger is very common in Western Europe and may ultimately have come thither from Egypt.

For there is in fact some evidence to indicate that these Prospectors did, in the last resort, come from the Eastern Mediterranean, though they did not reach Central Europe from that quarter. Both Peake and Giuffridi-Ruggieri hold that a type, which seems to correspond to our bell-beaker folk, originated in the Aegean, where a brachycephalic element is early found in the Cyclades and Crete. Starting thence, it is supposed that the Prospectors sailed westward through the Mediterranean and the Atlantic. It is certain that their physical and cultural types are found at an early date in Sicily, Sardinia and South France, but nowhere is the bell-beaker so richly or characteristically developed as in Central Spain, and it looks as if it was thence that the Prospectors diffused their vases and their daggers to Brittany, South France, North Italy and Central Europe. Be that as it may, it can hardly be contended that the brachycephalic Prospectors were the diffusers of the Aryan languages in Europe. In the first place they appear everywhere on the continent only in small numbers; they made no permanent settlements but, like the Arabs in Central Africa, were merely armed traders. They undoubtedly exercised a powerful civilizing influence, but are not likely to have changed the speech of the natives any more than the Arabs have imposed their language on all the negro tribes of Africa. And secondly the bell-beaker folk had their chief centres in just those parts of Europe where philologists and historians are disposed to recognize in historic times remains of pre-Indo-European languages, such as Iberian. In fact, even to-day in one centre of the bell-beaker culture, the Pyrenees, a non-Aryan language survives in Basque. The brachycephalism

which still marks that people is already observable in the chalcolithic epoch, and may be due in part to our Prospectors. It may not be irrelevant to remark that the Basque word for copper is *urraida*, which may be connected with the Sumerian *urudu*, since Peake¹ has suggested that his Prospectors were Sumerians.

We have now assigned to its proper place in the formation of European metallurgy the brachycephalic element and at the same time excluded it from the Aryan race. It may here be convenient to mention the megalithic culture² since Peake attributes its diffusion to his Prospectors. The monuments in question, the huge stone graves known as dolmens, passage-graves and covered galleries, and the associated monolithic pillars and stone circles, do indeed afford one of the most conspicuous links between Europe and Asia—especially India. In Europe megalithic tombs are scattered all along the coasts of the North Sea and the Atlantic and on the shores of the Western Mediterranean to reappear in Bulgaria and on the Black Sea, whence they extend across the Caucasus into North Persia, while another group emerges in North Africa, Syria and Palestine and again, most significant of all, in South India and Assam. Most archaeologists consider that the idea of constructing these unwieldy tombs was diffused by a maritime race who set out from the Eastern Mediterranean in the search for metals and precious substances; for there is a rough coincidence between the distribution of the monuments and the substances in question. It is supposed that these early voyagers established trading stations or even dynasties where they found the objects of their quest and initiated the natives into their cult of the dead and the architecture which it inspired. In some form this view seems to me to be the right one, but none of its advocates have identified their treasure-seekers with Aryans. Siret calls them Phoenicians, Peake names them Prospectors and connects them with the Sumerians, Elliot Smith derives them from the Ancient Egyptians, and Perry, elaborating his views, considers them scions of Pharaoh's house, "Children of the Sun." Clearly then if the dolmen idea be of oriental origin, the navigators who diffused it cannot be the bearers of Indo-European speech.

There is, however, a school which holds that megalithic architecture originated in the North or West of Europe and spread thence

¹ *Bronze Age*, pp. 58 f. The latest discussion of the ethnology of the Iberian Peninsula will be found in *M.A.G.W.*, lv, pp. 110.

² On the megalithic culture see Perry, *The Growth of Civilization*, 1924, chaps. iv and v, and, for Europe, my *Dawn*, pp. 109 ff., 140, and 280. Peake, *loc. cit.*

eastwards. The advocates of a North European cradle for the Aryans might seize on this idea as a support for their thesis and a brief digression may be permitted here to examine their contentions. It is pointed out that the megalithic tombs of Scandinavia and Britain cover a purely neolithic furniture; in Spain and the Caucasus the tombs contain copper objects, while in North Africa and India the grave goods include iron implements. Moreover, some consider that the Scandinavian tombs are typologically the most primitive. So it is proposed to reverse the usual account of their diffusion and locate the original focus of dolmens in Denmark. Thence, it is suggested, tall sea-rovers with golden locks, the forerunners of the Vikings, set out in glorified dug-outs for Barbary and India. Wilke¹ has sought to buttress such a thesis by adducing ceramic parallels, and Christian² seems inclined to connect the blondes of Libya, known to the Egyptians and Herodotus, with dolmen-builders come from the icy North. Unfortunately Wilke's parallels are chosen haphazard from a mass of material disparate in origin and date and so carry no conviction, while Haddon³ has noted that no dolmens occur where the blonde Kabyles are purest and most abundant. In any case, there are conclusive reasons against connecting the dolmen-builders, come they from North or South, with the Aryans. The distribution of megalithic monuments in Europe itself lies principally in territories which on the consensus of opinion were Aryanized only late—France, Britain and Spain. In North-west Africa and Palestine we know no Aryans, and finally in India the dolmens are located in precisely those parts which were last conquered by the Aryans; in the north dolmens are absent.

It results from the foregoing analysis that Asia's claim to the parentage of the Aryans or of the neolithic civilization in Europe cannot be established by an inspection of skull forms; the brachycephals as such are neither specifically Asiatic nor invariably Aryan. At the same time we have become acquainted with two groups of people very possibly of oriental (not specifically Asiatic) affinities who played an important part in the civilizing of Europe—the bell-beaker folk, who opened up regular trade routes through the interior of our continent, and the dolmen-builders whose maritime enterprise may have introduced the natives of its coasts

¹ *Megalith-kultur.*

² *Anthropos*, 1921-2, p. 583. Cf. p. 76 above.

³ *Op. cit.*, p. 36.

not only to the cult of the dead but to some at least of the arts of civilization. Neither of these peoples were either Aryan or natives of Central Asia. But the cultural material from the latter region which is rapidly accumulating provides the basis for a more plausible case than can be built up from mere cranial measurements.

2. *The Vase Painters*

At the very dawn of the food-producing era the shadowy but stately outlines of a mysterious civilization, majestic in its range, transcendental in significance for human progress, are to-day beginning to emerge from the morning mists that cover the scene of history as the last glaciers retreat. It appears from the Yellow Sea to the Adriatic as the first manifestation of men who had made the great advance from a food-gathering to a food-producing economy. The distinctive trait which holds together the far-flung ramifications of this primordial civilization is the art of vase-painting.¹ Beyond that few, if any, significant points of community can be isolated. The vase-painters indeed everywhere tilled the soil, but it is not clear that they all possessed domestic animals. At Anau, in Turkestan, for instance, the lowest stratum disclosed remains of cultivated plants, but the bones of domestic animals only made their appearance at higher levels. The vase-painters again generally polished stone, and almost certainly were acquainted with copper,² but distinctive types common to distant areas are lacking. The reader may then think that vase-painting is but a slender thread upon which to hang far-reaching historical conclusions.

But consider a moment what that art implies. To paint your clay with a permanent indelible colour which will not be destroyed but fixed by firing, that was a technique the secrets of which are not likely to have been twice discovered. One flash of genius in the brain of a nameless inventor made possible that art of which Attic vases and Doulton china are but elaborations. Nevertheless, I must insist at the outset that the painted pottery which concerns us is very far from being the same everywhere. From place to place the forms, technique, designs, the very aim of the artist,

¹ On the general question consult especially T. J. Arne in *Palæontologia Sinica*, Series D, I, 2 (Geological Survey of China, 1925), H. Frankfort, *Studies in Early Pottery of the Near East* (R. Anthrop. Instit., Occasional Papers, 6, 1924), E. Pottier, in *Mémoires de la Délégation en Perse*, xiii, and R. Pumpelly, *Explorations in Turkestan*.

² This is no criterion of absolute date.

differ profoundly. And at all sites the painted fabrics appear before us tantalizingly perfect; we can only follow what is, aesthetically, a retrogression. Nevertheless, the diffusion of this magnificent art must, I think, denote a migration of culture if not of peoples. The immense range of its distribution in space is enough to account for very wide divergencies. Along latitude 40° our material is dispersed from longitudes 15° to 120° ! (The sites are marked x on our map.)

First we meet painted sherds in the prehistoric midden-heaps



FIG. 13. Painted Vases from the Province of Honan, China. (After Andersson.)

of Japan. Then in China we have the newly discovered Yang Shao culture of the provinces of Honan and Chih-li, and further west round the head-waters of the Hwang-ho in the frontier districts of Kan-su (Fig. 13). Thereafter we must cross the now desert uplands of Chinese Turkestan to pick up the thread again in Transcaspia at Anau near Merv, in Khorassan, and on the Helmund, in Seistan. And finally, after an almost unbroken gap, we have another series of sites in Europe beginning on the Dniepr near Kiev and extending into Transylvania, Bulgaria, Thessaly and South

Italy.¹ At the same time south of the mountain axis painted wares are known from the Punjab,² Baluchistan,³ Elam, the valleys of the Tigris and Euphrates, Cappadocia, Syria, Palestine and the Nile Valley. Such a distribution and its discontinuity are unintelligible on the existing geography of Asia and Europe. But in the six or seven thousand years which have intervened since that diffusion began, deserts and seas have contracted and expanded, forests advanced and retreated ; sites like Anau, now in the desert, or Petreny on the Bessarabian steppe were fringed with woodland when man settled there and hunted the wild boar. In fact, the authors of our culture seem to have skirted the grasslands fringing

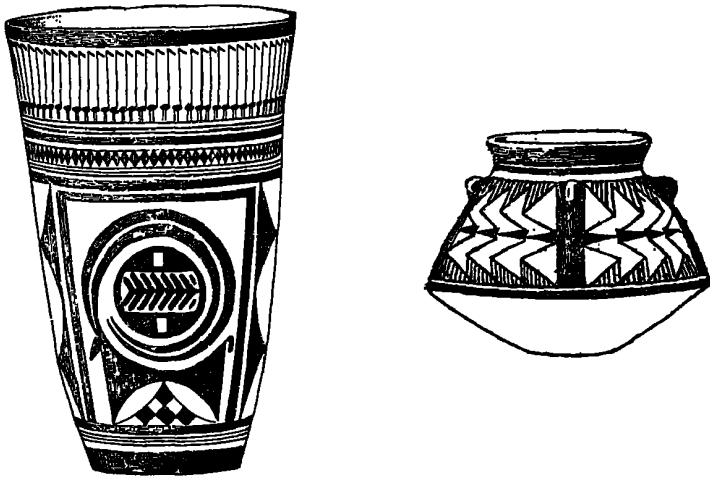


FIG. 14. Painted Vases from Susa I.

the forest and shunned the open steppe as much as the desert. And in climatic changes the motives as well as the direction of these wanderings may be understood. The cyclic desiccation of Asia studied by Elworth Huntingdon⁴ was a factor which induced early man still on the borderline between food-gathering and food-producing to roam from one end to the other of an as yet uncrowded world.

¹ Crete is deliberately excluded, since the oldest pottery there is unpainted and the new technique was probably introduced from Egypt, where it was much older, or Thessaly where the painted ware may partly be contemporary with the incised fabrics of neolithic Knossos.

² *Illustrated London News*, September 20, 1924. Plate VI here.

³ *Arch. Survey of India*, 1904-5, pp. 105 ff., pl. xxxiii.

⁴ *The Pulse of Asia*, 1907 ; cf. Myres in *C.A.H.*, i, pp. 6-86.

Nor is the painted pottery, even the oldest, in each area more restricted in temporal than in spatial range. Not only have a series of successive cultures associated with painted fabrics come to light at a given site or group of sites—two settlements at Susa in Elam, for example, four at Anau in Turkestan, two phases at Cucuteni in Roumania and in South Russia as a whole, two periods again in Thessaly. But further, the beginnings of such art are themselves far from synchronous in its several provinces. In Elam and Egypt vases were being painted by 5000 B.C.; in Thessaly and the Ukraine it seems unnecessary to go back much beyond 3000; the oldest Chinese and Transcaspian material is still really undatable.¹ Such chronological disparities are a salutary warning against hastily attributing the technique to any single and unmixed ethnic stock. In two thousand years much crossing and hybridization may have taken place. The process of diffusion may partly have taken the form of intertribal borrowing. Yet in those remote ages the world's population was smaller than to-day and even further from constituting a continuum over which cultural eddies might be freely propagated. Actual popular movements of the nature outlined in the last paragraph seem a necessary postulate to account for the dispersion of our material. It is therefore not illegitimate to inquire what racial element or elements assisted in such diffusion.

An answer to that question should materially help in the solution of the problem of the original focus of the art. The sites we have enumerated cluster in a striking manner around the great east-to-west mountain spine which divides the Eurasian land mass in twain. Now anthropologists consider that the same barrier separated the regions where two great branches of the human race were characterized: south of the axis the brown Eurafrican dolichocephals, north of it the Eurasiatic brachycephals.² The question just raised would then resolve itself into this: Were the first vase-painters Eurafrican or Eurasiatic? The former view is sustained by Elliot Smith and Perry³ among others, the latter by Christian⁴ and to some extent by Peake. The skeletal remains as yet available for study are hardly decisive. The skulls from

¹ Much higher dates have been assigned by others both to pre-dynastic Egypt and Elam (so Myres, loc. cit., cf. Moret, pp. 120, 200 ff.; Pumpelly, on the basis of a questionable geological and climatological postulate, dated Anau I about 8000 B.C. Professor Hubert Schmidt from an archaeological standpoint not much earlier than 3000! Cf. the several articles in Pumpelly's book.

² Haddon, *Races*, pp. 142 ff.

³ E.g. in *The Growth of Civilization*, pp. 24 f.

⁴ *M.A.G.W.*, liv.

the graves found in China, India, Elam and South Mesopotamia have not been published. No adult burials are yet known from Turkestan, South Russia or Thessaly at the period in question, and for these areas we have to rely on stray skulls or on the skeletons of infants buried under the houses. The measurements of the extant material gives the following results: The infants from the oldest settlement at Anau,¹ the predynastic Egyptians and the vase-painters from Molfetta² in South Italy were all dolichocephalic of the type classed by Sergi as Mediterranean. One out of four skulls exhumed in Bulgaria,² belonging perhaps to a late phase of our culture, and probably one individual from Cucuteni in Roumania² belonged to the same stock. On the other hand, two of the Bulgarian skulls, one from Cucuteni and one from Levkas² in West Greece, were markedly brachycephalic. Finally



FIG. 15. Painted Vase from Susa II.

the two first-named sites and an older village in Thessaly yielded mesocephalic crania, that from Bulgaria belonging to a man whose tallness may denote an infusion of Nordic blood.

These scanty data suffice at least to show that, whatever migrations did diffuse our material, they did not take place in an ethnological vacuum. The admixture which we envisaged above as a possibility appears as an actuality in Roumania and Bulgaria. The one common element in the skeletal remains would favour the view that the centre from which the ceramic art radiated lay south of the mountain axis and that its bearers were a branch of the Eurafrian race. That stock is still represented in India and Persia

¹ Sergi in Pumpelly, *op. cit.*

² Childe, *Dawn*, pp. 71, 87, and 318.

as in the Mediterranean lands proper. At the same time it must be remembered that there was a semi-negroid or negrito stock in Elam at the dawn of its history, and Dr Christian¹ would assign to this element the bow-shaped knife found at Anau and Yang-Shao and still surviving in Malaysia and the Sudan. Still it does not necessarily follow that the Nile was the mother of the new invention of vase-painting. Egypt, lying on the western edge of the province, is far from its centre. Nor does it provide that balance between food-production and mere hunting which had to be postulated to explain the diffusion of the art. And finally the great divergence from site to site of the ceramic forms and technique and of the artifacts—and notably the absence outside the Nile valley of the quite distinctive predynastic pot-forms, the Egyptians' flint technique or their peculiar disc-shaped mace-head—precludes the idea of the immediate descent of all groups from the Nilotic.

On the existing distribution we should rather seek the first focus in Asia. Susa seems nearer to it. There Professor Myres' brilliant analysis discloses in the first village a band of hunters just settling down to agricultural life.² Yet the Susian fabrics and shapes cannot in themselves be taken for the prototypes of all the rest. We must still seek elsewhere, and it is worthy of mention that Professor Obermaier³ can trace in India a typological series leading from the rough "hand-axe" used by palaeolithic man to the polished "neolithic" celt.

We are now in a position to face the question which alone could justify the inclusion of this lengthy disquisition in the present work: Was the first diffusion of vase-painting wholly or partly the work of Aryans? Undoubtedly the civilization just described, vague and attenuated as it is, is one of the most notable links between the Aryan lands of Asia and Europe. Yet as a whole the vase-painters cannot have been Aryans. *Qua* Ancient Egyptians, for instance, they belonged to other linguistic stocks. That is not, however, a final answer to our question. Although not as a whole Indo-European, the vase-painters may by foreign admixture or local differentiation have become Aryans, say in Upper Asia, and have entered Europe as such.

¹ *Ioc. cit.* p. 61. His suggestion that the "Mediterranean" skulls from Anau belonged to prisoners captured by brachycephalic villagers is rather far-fetched.

² Cf. Frankfort, pp. 30-34.

³ *Der Mensch der Vorzeit*, p. 331.

The Asiatic sites where painted pottery has turned up do indeed coincide rather closely with the earliest centres where Aryans appear. An Iranian dialect, Sogdian, was spoken in Kansu in the third century A.D.¹ and the same Chinese district is not far removed from the domain of Tocharian (page 8 above). We have already noted the significance of the new discoveries from the Punjab, and now we can stress the unpublished finds from the Helmund (? Haiā'uvatiš) in Seistan where the *Airyānam vaējānē* might be located. In Persia and Transcaspia the wares in question fall within the range of the earliest Iranian culture. Finally South Russia is by many associated with the first centre of European Aryans and we were led to locate the ancestors of the Hellenes in Thessaly (pages 50 and 59 above).

Not only so; the vase-painters were, like the Aryans, possessed of copper and, at Anau, the same people appear before us as the domesticators of the Asiatic *Urus*, the Asiatic *Ovis vignei*, which will become the turbary sheep of "neolithic" Europe, and, most powerful argument of all, of the desert horse *Equus caballus Pumpellyi*, according to Duerst the first swift horse to be tamed and the ancestor of the Bronze Age horses of Europe and Hither Asia.² These animals were among those known to the primitive Aryans, and they were very likely introduced into south-eastern Europe together with the arts of metallurgy and vase-painting by migrants from Central Asia. Thus the painted pottery appears as a significant link between Europe and those areas of Asia once occupied by Indo-European speech and associated, at least in Transcaspia and South Russia, with animals classed as Aryan.

It cannot, however, be assumed forthwith that our quest is ended. Having eliminated from our survey the painted wares of Egypt and Canaan we are very little nearer an unitary culture. The same divergences that were noted in the case of the vase-painting culture taken as a whole infect the remaining groups in Asia and Europe save that certain domestic animals are common to Europe and parts of Asia. As soon as we desert the abstract unity obtained by isolating and emphasizing the one fact of ceramic decoration and envisage instead concrete regional groups of cultures, the incoherence of the whole structure becomes glaringly

¹ Feist, p. 425. The Kansu pottery is not dealt with by Arne, but a preliminary publication by Andersson is given in *Ymer*, 1924, pp. 24 ff.

² Duerst in Pumpelly, vol. II. The dog was probably not known at Anau I; on the other hand, this animal and the horse are the only species likely to have been domesticated at Susa I.

manifest. With their individualization the several constituent sections of the whole tend to fall apart. At the same time the influence of extraneous cultures, omitted from the first survey, those of the Minoans of Crete or the historical Sumerians for instance, obtrudes itself as a disturbing factor. Without going into the intricacies of ceramic technique, so admirably handled in Mr. Frankfort's monograph, let us note a few simple points.

To begin with Europe,¹ the regions from the Dniepr to the Alt including Bulgaria do form an unitary province to which South Italy may with some reservations be attached, but the oldest culture of Thessaly resolutely refuses to be amalgamated with the North Balkan group. Nothing could be more different in forms, technique and ornament than the first neolithic pottery of North Greece and that of Transylvania. You may see the contrast in Thessaly itself when the true North Balkan culture and pottery do intrude into the eastern corner of that district in the second neolithic period. In the north the ware is thick and true handles are unknown; in the south the vases are very fine and equipped with a variety of very neat handles. In the north the spiral and meander are the leading motives and polychromy is freely employed; in Thessaly the patterns are purely rectilinear and are executed in only one colour. There are indeed a few features besides the fact of painting common to both areas: female figurines of clay were manufactured on both sides of the Balkan range, some of the celt types are similar, sun-dried brick² may possibly have been used in both provinces for building, and a stray stone seal from Thessaly might be compared to clay stamps from Transylvania and Bulgaria. But the types of figurine are far from identical, and the long porched houses of Transylvania do not yet appear in Greece.

If significant links between either European group and Asia be sought, the investigator is in the same quandary. The oriental material falls into a multiplicity of distinct cultures. Anâu I constitutes a group apart no more closely related to Susa than to predynastic Egypt.³ Susa I with the early painted pottery from Bushire on the Persian Gulf and from Southern Babylonia (Ur) forms

¹ See my *Dawn*, pp. 65-71 and 152-168.

² At Orchomenos I in Central Greece (Bulle, *Orchomenos*, pp. 19-20). In South Russia I now think that the inexplicable structures called *ploshcharki* may have been built of such brick.

³ Frankfort, p. 76. If this author over-estimates the differences, it is certain that Myres, Moret, Langdon, and Pumpelly have greatly exaggerated the resemblances between Susa and Anau.

another distinct group to which Baluchistan and India may perhaps be added.¹ Susa II on the other hand is connected by its pottery with Northern Mesopotamia and even Palestine-Syria, but diverges fundamentally from its predecessor Susa I.² (Compare Figs. 14 and 15.) The position of the Chinese wares is still very uncertain. The two European groups show points of contact with all these distinct Asiatic families, but with none more than another.

At Anau the first settlers did live in mud-brick huts as did some European villagers and those of Susa and India, and, like the Thessalians and also some early Palestinian peoples and the Aegeans of Melos, buried children in jars under the houses. But they manufactured no figurines, used no seals or clay stamps, knew not the spiral motive and employed a ceramic technique and a set of vase forms very different from the Thessalian or North Balkan-Ukrainian. At the same time they and all the other Asiatic vase-painters save those of China made use of perforated pear-shaped or spheroid mace-heads of stone which were unknown in South-east Europe at the period which concerns us. On the other hand if we come down to the third settlement at Anau (there were four in the oasis) the European parallels are more numerous; for both female figurines and clay or stone seals are encountered. But by this epoch the other links which were uniting Europe and Transcaspia have dissolved; for the camel had by now been domesticated (he appears even in the second village), and painted pottery is rare, while monochrome vases made on the potters' wheel predominate.

But the figurines and seals and clay stamps appear at Anau in conjunction with other phenomena which are relatively southern. The south is evidently the home of a crescent-shaped copper sickle with a looped tang like Fig. 16, 1, with parallels at Kish in Babylonia and in Elam in period II and of the art of alloying copper with lead, which was Sumerian. Probably the use of the potters' wheel was learned from the same quarter. But some of the finds ~~point to~~ influence from the south-west. That is undeniably the case with a pin terminating in a double spiral—a Trojan-Cycladic type—and a beak-spouted jug which, if not inspired from Crete, would at least be Anatolian. The stamps and figurines may then have come to Anau from the same quarter and have reached Europe independently. As a matter of fact the clay stamps do

¹ The sherds brought from Seistan by Sir Aurel Stein are certainly very like the Babylonian and the site lies on the way from Mesopotamia to India.

² *Ibid.*, pp. 43 f. M. Pottier takes the opposite view.

recur not only in Cappadocia,¹ but also in Troy where the pottery was not painted! Hence an immigration from Anau in its third phase is not requisite to explain the European analogies and is indeed extremely unlikely both on palaeontological and chronological grounds. If any migration connects Anau with the west, it is most likely to have been in the opposite direction; for this settlement is generally assigned there to the second millennium B.C., and we find in its ruins a hollow hemispherical button with a loop on the inside,² an ancient European type which we shall shortly meet in the Caucasus along with other undeniably European objects (page 124).

Further isolated parallels to the European material may be cited from other groups of Asiatic cultures, but always dispersed. Spirals are to be met in Armenia, the Punjab, at an uncertain date in Transcaspia and in the Honan province of China (Fig. 13), but in no case does a running spiral constitute the very basis of the ornament as in Transylvania and the Ukraine. The meander, equally common with the spiral in the latter regions, has so far only been reported from Kansu in China.³ On the other hand naturalistic motives characterize the Asiatic pottery from Elam (Fig. 15), Syria, and Kansu,⁴ but in Europe only appear as stray intruders in the geometric framework in the second cultural phase of the Ukraine. Conversely, the tall vase-supports and pedestalled bowls which are leading forms in the oldest North Balkan painted ware have convincing parallels in Mesopotamia, but among cult-objects which may be Sumerian and unconnected with the painted fabrics, and recur unpainted at Troy. Again, theriomorphic vases, found with painted ware in Europe, recur at Susa and the Punjab, but seem most at home in eastern Asia Minor and the Caucasus.

In conclusion, let us mention some unexplained parallels between China and South-east Europe. Some tripod vases from South Russia (possibly no older than period II) are exactly like those from all the Chinese sites⁵ but find no analogies in the intermediate stations. Again the prehistoric villagers of China wore rings of mussel-shell, and similar ornaments are found with painted pottery in Baluchistan and Thessaly, while the prehistoric

¹ Chantre, *Miss. en Cappadoce*, pl. vi, 15; note the spouted vase; *ibid.*, pl. viii; cf. also Frankfort, pp. 81 f.

² Pumpelly, vol. 1, fig. 259.

³ Ymer, 1924, loc. cit., fig. 1.

⁴ *Ibid.*, figs. 8-9.

⁵ *M.A.G.W.*, liv, p. 73, fig. 12.

stone bracelets of China¹ have parallels in Egypt, Thessaly and Italy.

Enough has now been said to demonstrate that the attempt to crystallize out of the general complex in which painted pottery occurs, a single and peculiar group common to Europe and Asia leads to a cul-de-sac. We may still believe that this ceramic art was introduced into Europe from Asia, and that perhaps with more confidence than before, but we cannot isolate any specifically Eurasiatic culture associated therewith to contrast to an Eurafrian or Africo-Asiatic. So we come back to the abstract unity with which we started and to the same hypothetical wanderers as its vehicles. Now in no case can the earlier descendants, ethnic or cultural, of these assumed migrants be convincingly and unambiguously connected with Aryans. On the other hand their heirs can in several instances be shown to have entered into the composition of non-Indo-European peoples.

That is obviously the case with the predynastic Egyptians who, although surviving into historical times, left no traces of Indo-European speech in the Egyptian language. Of the earliest vase-painters of Susa I and South Mesopotamia it is not possible to speak with the same confidence. M. Pottier would indeed see in the former proto-Elamites, while Dr. Hall still thinks that the earliest prehistoric people of Ur may have been Sumerians.² Mr. Frankfort combats both these assertions, and his arguments are very powerful.³ Even less can an ethnic label be attached to the inhabitants of Anau I.³ But the people of Susa II are connected by a variety of traits⁴ with an ancient population which has left its mark in the pre-Sumerian levels of Assur, in Cappadocia and North Syria, and whose artistic style survived in Palestine into Professor MacAlister's "Second Semitic" period⁵ as M. Vincent⁶ has recently demonstrated. That is to say this culture and this painted ware belonged to the population of the mountain zone encircling the Fertile Crescent on the North. We need not here ask whether that population should be designated "Semitic" or whether it did not rather represent Asianic "proto-Hittites"—some of its members

¹ On these see Arne, *op. cit.*, and Andersson in *Pal. Sin.*, D, I, 1, p. 14; note also the celts there figured and the stone bead of fig. 4 which is rather like one from Anau III (or IV), Pumpelly, fig. 338.

² *Man*, xxv, 1.

³ Cf. Langdon, *C.A.H.*, i, p. 362, for an opposite view.

⁴ Frankfort, *op. cit.*, pp. 62 and 70 ff.

⁵ *Excavations at Gezer*, level III.

⁶ *Syria*, v, pp. 91 ff.

wore a sort of pig-tail,¹ a style of headdress we have learned to know among the Hittites (page 28). It is enough for us that the cuneiform texts know no Aryans in these regions during the period of the early painted pottery² or, in the case of Palestine, only as isolated intruders in an essentially Semitic region. As for the Chinese pottery, the skulls found with it look quite like "the present inhabitants of North China" to Mr. Dudley Buxton,³ and the tripod vases seem to be prototypes of the Li-tripods of bronze used under the early Chinese dynasties.

If so many of the earliest vase-painting peoples were not Aryan, it is highly unlikely that the initial masters in the art were such or that the migrants to Europe belonged to that stock. This conclusion is fortified by cultural considerations. The numerous female figurines in South-east Europe point to the cult of a Mother Goddess of whom Indo-European religious terminology preserves no reminiscence (page 81). In the economy of the vase-painters agriculture was fundamental—it has even been questioned whether the Susians of period I had any domestic animals at all—with the Aryans we suspect that it was only a secondary source of nourishment. When vase-painters had domestic animals, the pig was always prominent, sometimes the most prominent;⁴ we have had to query the domestication of swine among the Aryans (page 83).

The idea that the diffusion of painted pottery in Eurasia was the work of Aryans remains a frankly attractive hypothesis. Some day it will be refuted or verified by further excavation in Iran and Central Asia. Till that happens the weight of evidence is against it, and we shall pursue our quest for some group of remains which can with greater confidence be connected with Aryan peoples.

But though the claim of these Asiatic immigrants to the name Aryan be provisionally rejected, their rôle in the formation of civilization in Europe needs a word of appreciation. Firstly must two waves of land-seekers be postulated? That would seem to be

¹ Andrae, *Die archaischen Ischlartempel in Assur*, pls. xliii and xlvi c-f; cf. Frankfort, p. 88.

² Cf. p. 23 above; the painted pottery of Cappadocia was very likely contemporary with the Semitic settlement there known to us from the Cappadocian Tablets. Dr. Christian indeed regards the naturalism of the Palestinian and second Susian pottery as a proof of Aryan influence, but almost in the same breath attributes the same quality in the metal work from A-anni-padda's temple at Tell el'Obeid to Semitic inspiration (*M.A.G.W.*, lv, pp. 190 and 193)! Both contentions are equally perverse.

³ *Man*, xxv, 10.

⁴ So in China, at Anau, in South Russia, Thessaly, and South Italy.

implied in the contrast between the first neolithic culture of Thessaly and the North Balkan. Yet the first band have left no traces of their passage either on the western coasts of Anatolia or in South Russia. It is still just possible that the two contrasted cultures belong to different branches of the same tribe, the peculiarities of the more northerly being due to intermingling with another ethnic group which we shall learn to know as Danubian. The colonists who established themselves in the Ukraine, Transylvania and Bulgaria must in any case be supposed to have come thither by land from Central Asia. That does not necessarily mean that they travelled along the steppe north of the Caspian and the Caucasus. There is another route from Central Asia south of the range through the valleys of the Kura and the Rion (the ancient Phasis)¹ and then along the Black Sea coasts. As a matter of fact painted pottery is said to have been found in the Crimea, and in the Araxes valley vases have been discovered² which, more than any others known to the author, resemble at once the European and Asiatic styles, although they apparently belong to a relatively late epoch. A journey through these valleys would help to explain the special analogies between the culture brought to Europe and that flourishing in the North Mesopotamian region. Whatever route they followed, the immigrants only began to settle down when they reached the extremely fertile loess lands, now the "black-earth" belt, on the edge of the forests on the western margin of the steppe (upon which ranged other more nomadic peoples).

Here in the valleys of the Dniepr, Bug, Dniestr, Pruth, Sereth and their tributaries they established their villages, tilling the marvellously fruitful soil and very likely adding to such head of domestic stock as they had brought with them by interbreeding with local species such as the wild swine. And very early indeed they crossed the Carpathians to settle on the head-waters of the Alt in ~~Transylvania~~. And thus they introduced the "neolithic" civilization into Central Europe. It is, however, unlikely that they found these regions absolutely deserted and there are indications of early admixture with other races. The brachycephals, attested by the skulls from Bulgaria and Roumania mentioned above, may have, it is true, been numbered among the original migrants

¹ Cf. Casson in *B.S.A.*, xxiii, pp. 112 ff. His map shows how the Transcaucasian mounds lie along a line adjoining Anau and the black-earth belt of Russia.

² At Kizil Vank, *Izvestia. Imp. Arch. Komm.*, xxix (1909), pp. 1 ff. The pot from near Erivan, figured by Frankfort (pl. v, 1) and compared by him to fabrics from Susa I (!), is obviously allied to this group.

from Asia. But certain features in the material from the Ukraine, Transylvania and Bulgaria, most notably the spiral ornament on the vases, lead us to think that the Asiats were there amalgamated with other tribes of Mediterranean affinities and more lowly culture¹ with whom we shall soon become better acquainted. At a still later date signs of Nordic influence will be noticed among the vase-painters. Finally in Transylvania the peasants found themselves in a land of gold, and perhaps the command of this wealth brought them into commercial relations with the Aegean, Anatolia, and even Mesopotamia and Egypt; certain it is that civilization upon the banks of the Alt early blossomed forth into urban luxury.

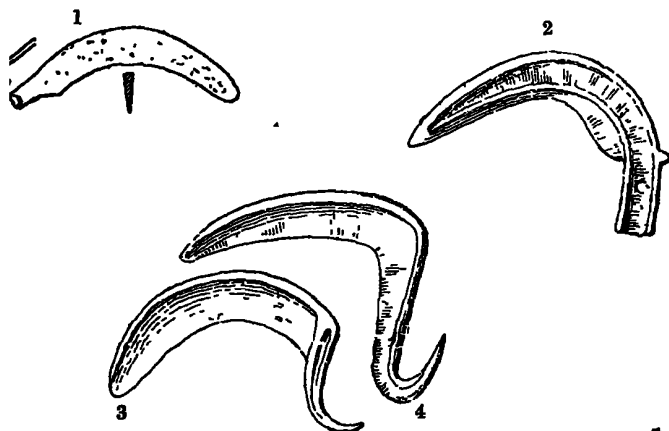


Fig. 16. Types of Sickle. 1, Mesopotamian (Troy VI); 2, European (Switzerland); 3, Transylvanian; 4, Caucasian.

Nevertheless the culture of the vase-painters in this area remained essentially Asiatic; even in the Bronze Age a sickle was there in use which diverged from all European models and was derived from the crescent-shaped type with looped handle that we have met in Elam, Turkestan, and Babylonia (Fig. 16). Perhaps it was owing to their orientalism that the remarkable civilizations of South-east Europe were eventually submerged by more truly occidental cultures.

¹ See the reservations made in *Dawn*, pp. 158-60; cf. Myres in *C.A.H.*, i, pp. 80 f; he, however, is mistaken in imagining that the spiral was unknown to the first period. It is just in that period that this motive is found; in the later phase it is dissolved into circles and arcs.

3. *The Caucasus and the Iron Age in Europe*

There is yet another phase of cultural development in which the work of immigrants from Central Asia is in the eyes of some authorities discernible—that is with the inauguration of iron-working. Some would ascribe the introduction of the new metal to the Aryans as such, others would see in its bringers the last wave of Aryan invaders from Asia; the late M de Morgan called them

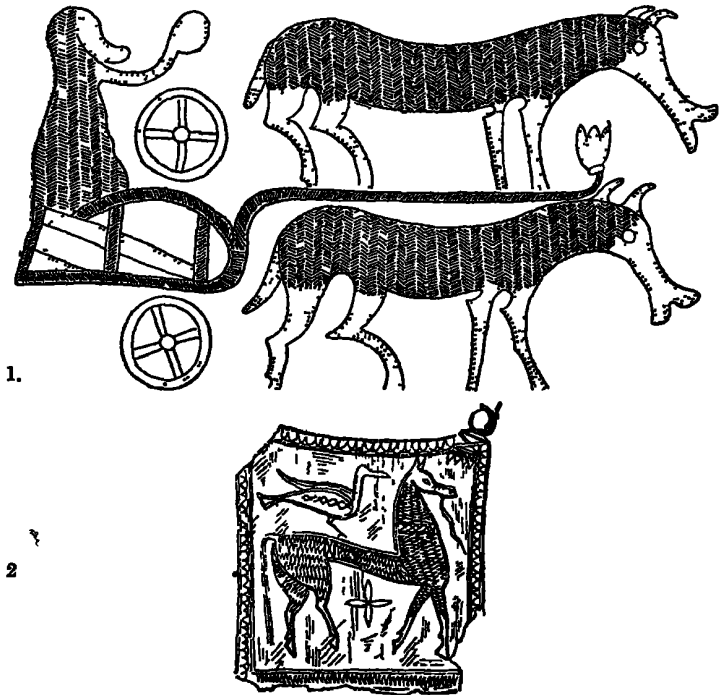


FIG. 17. Engraved Bronzes of the Early Iron Age. 1, Girdle plate from Transcaucasia, 2, Plate of a Greek fibula.

frankly Celts. Could it be proved that the European Iron Age was in reality ushered in by an Aryan migration from Central Asia, even by the last wave of that migration, the general thesis of a Central Asian origin would be established; for after all it is only in the Iron Age that the Aryan peoples of Europe—Hellenes, Romans, Celts—are recognizable with absolute certainty.

It is to-day generally accepted that the earliest centres of iron-working on a large scale lay somewhere in the Hittite realm of northern Asia Minor (page 29). At the same time the Early Iron Age civilization of Central Europe, the so-called Hallstatt culture, shows such close affinities with that of the Caucasus that only a racial drift from one end to the other of the Danubian-South Russian plain will explain them. Now this Hallstatt civilization belonged to and was diffused by the Celts and Illyrians. Moreover, the Early Iron Age geometric culture of Greece and the Villanova culture of North Italy are, as we have already seen, connected by some authorities very closely with that of Hallstatt and attributed to the Hellenes and Italici respectively. If then the connections between the Caucasus and Central Europe do betoken a dependence of the latter area on the former the orientalist case will be well nigh established.

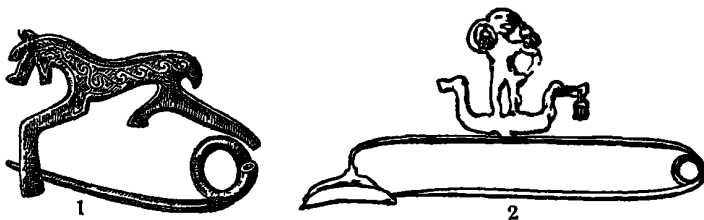


FIG. 18. Early Iron Age Brooches. 1, Koban ; 2, Suessuola, Italy.

The parallels between the material exhumed from graves in the great cemetery explored by Bayern, Virchow, and Chantre at Koban¹ on the road across the Caucasus from Vladhivkaz to Tiphlis, and that from the necropolis of Hallstatt in Upper Austria and other sites in Central Europe, are indeed numerous and exact.² But they fall into two perfectly distinct groups. We have in the Caucasus on the one hand objects which recur to the West at Hallstatt or other contemporary cemeteries of the Early Iron Age and on the other types which in Europe belong to a distinctly earlier period, the Middle or even the Early Bronze Age. Such duality is scarcely compatible with the doctrine of a one-sided dependence of the West on the East.

¹ Published by Chantre, *Recherches anthrop. dans le Caucase*, 1885-7; cf. J. de Morgan, *Mission au Caucase*, 1889.

² An exhaustive list of these is given by Wilke, *Z.f.E.*, xxxvi, pp. 40 ff., but without taking into account chronological differences.

Let us consider first the former group. Both the folk buried at Koban and those interred or, earlier, inurned at Hallstatt were great horsemen, and there are many remarkable similarities in the bits and horse-trappings found at both cemeteries. Particularly striking are the openwork pendants often shaped like bells (Chantre, pl. xxvii, 9). The warriors of Koban and Hallstatt both used peculiar bronze or iron swords distinguished by a hilt terminating in crescent-like projections turned away from the blade (ib., pls. v bis, 2, vii, 2. Cf. our Fig. 25, 6).

Archaeologists call these weapons "antennae swords". In individual cases the sword-hilts from both areas were decorated with patterns formed by bosses in relief (ib., pl. v b). But the most distinctive common trait is to be found in the sphere of art; in

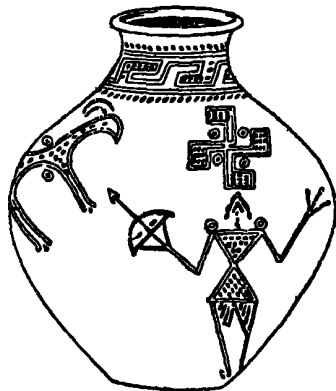


FIG. 19. Early Iron Age Vase. Hellenendorf, Transcaucasia.

both regions a striking decorative style characterizes the pottery and metal work. Bizarre animals—horses, dogs or even men—appear cast in bronze as pendants, or ornaments for chariot poles, engraved on bronze plaques and girdles and incised or painted on vases (Figs. 19–21). Even brooches (fibulae) are made with a dog's or horse's body (Fig. 18). At the same time this art was everywhere inspired with a veritable *horror vacui*, and the spaces between the naturalistic representations on plaques and vases are filled up with swastikas, meanders, spirals and concentric circles. It would be easy to amplify the list of analogies, but enough has been said to demonstrate the close connection of the two cultures. Add to all this that the Koban civilization is attached by other

traits—the glass beads, the open-work technique on the bronze pendants, the style of inlaying sword-hilts and girdle-plates with coloured enamels and certain dagger types to the South Caucasian and Hittite civilizations, among which iron industry probably originated, and that the animal style itself is a survival of an older



FIG. 20. Early Iron Age Vase, Langenlebern, Lower Austria. (Hallstatt style.)

local tradition (cf. page 184 below), and the idea that the Hallstatt culture is a transplantation to Europe of the Caucasian seems irresistible.

Yet the full facts do not justify such a conclusion. In the first place the objects from the Koban only explain a fraction of the Iron

Age material of Central Europe, let alone Greece and Italy. For instance, at Hallstatt the typical weapon was a very long sword with the blade designed for slashing, and in Europe this type goes back to the Middle Bronze Age (XIV-XIIIth centuries). In the Caucasus the swords are normally short—60 cm. is an exceptional length—and are usually designed for thrusting. Again in Central Europe the commonest form of axe-head was the "socketed celt", which was fitted on to the bent fork of a stick. This type is missing in the Caucasus, where the genuine axe-head perforated with a hole parallel to the shaft was in use. Again



FIG. 21. Early Iron Age Vase, Greece. (Dipylon style.)

the Hallstatt brooches belong to a different series, or an earlier stage of the same series, to those found at Koban.

Secondly some of the phenomena on which we have relied appear in Europe—not indeed on the Danube, but much nearer it than the Caucasus, in Greece—in an earlier context than at Koban. Thus iron was coming into use there in the latest Mycenaean age in association with the simple violin-bow fibula (Fig. 8, 2-3); in the Koban graves the earliest type of fibula is the derivative arc-shaped variety (Fig. 8, 4). The same remark applies to certain decorative motives and the list might easily be extended.

But thirdly the Koban culture is to a much larger degree dependent on the European Bronze Age civilization than the western Iron Age can be supposed to be dependent upon it. That is to say the Koban presents fully formed a whole series of types the evolution of which can be traced in Europe and nowhere else. For instance, one set of Koban daggers with a bronze hilt cast in one piece with the blade so as to leave a semicircular indent at the join are evidently imitations of the "Italian" dagger (Fig. 12, 4) which was diffused throughout Central Europe and as far east as Lithuania by the Early Bronze Age (1700-1400 B.C.). Most striking is a bronze sword of this pattern found at Mouçî Yeri just south of the range from the Koban, the hilt of which was composed of alternate rings of bronze and bone (Fig. 25, 7), for the same type is found in Denmark by the Middle Bronze Age (1300 B.C.). Again a whole series of the ornaments from the Koban tombs—notably the penanular bracelets with recoiled ends or terminating in opposing spirals or double spirals, wide arm-bands of bronze with four or five horizontal ridges on the outside and cylinder-shaped coils of wire terminating in spirals—belong in Hungary, Silesia and Denmark to the Middle Bronze Age, while some go back to the Early Bronze Age. So again the pins from the Koban in which the shaft expands above to form a wide flat head, raquet-pins as they have been aptly termed, are only a specialized variant of a type known already in Hungary at the end of the Early Bronze Age (before 1400 B.C.).

All these types and many others appear in the Caucasus fully formed, whereas in Central Europe the several stages of their evolution can be traced in detail. At the same time the Caucasian specimens are dated relatively to the western by the associated fibulae. The simplest of these have semicircular arched bows (like Fig. 8, 4). This is a secondary type in Europe proper to the Late Bronze Age or in Greece to the end of the Achaean period, and is therefore dated not earlier than 1200 B.C. The older type shaped like a violin bow (Fig. 8, 1-3) and belonging to the Middle Bronze Age in Europe and the Mycenaean period in Greece (1300 B.C.) is not represented at Koban. Hence the second class of Caucasian-Danubian parallels is constituted by types the appearance of which is earlier in Central Europe than at Koban. That is to say they travelled thither from the West, not *vice versa*. And lest there should be any doubt of the point a little amber (presumably of Baltic origin) has been found in the Koban tombs.

But this is not all. South of the range another series of necropolises have been explored, some of which represent the Koban culture in a later phase of evolution.¹ For instance, they contain fibulae which are an elaboration of Koban types, sometimes giving rise to a peculiar local variant in which the pin is a separate member and pushed through two catches in the bow. In these more southerly sites the influence of Central Europe is less apparent, but it is still occasionally noticeable. For instance, it is from this region that the "Danish" sword comes and a clay jug with excised ornament is remarkably like some Late Bronze Age vessels from Bavaria. All this goes to show that certain elements in the Koban culture came thither from the north-west and subsequently advanced further in the same direction to Transcaucasia.

There is therefore no longer any reason left for bringing the Celts or any other wave of Aryans from the Caucasus to Central Europe. However, the ghost of this idea still haunts Mr. Peake, and needs to be banished. This author, who agrees that the Koban culture was largely inspired by people come from Central Europe whom he accepts as Aryans, nevertheless holds that some of them returned from the Caucasus and brought with them the Hallstatt culture to the Danube valley.² He naively imagines that the visitants to the Koban, delighted with the iron that had been shown to them by natives living in the Transcaucasian valleys, galloped back across the 1,800 miles of steppe to exhibit it to their "relatives" in Hungary as a child might show a new toy to its mother. This is a hard saying. Historically, peoples like the Goths who reached the Caucasus from the West seem to have stayed there. And our Koban folk apparently crossed the range.

It remains to ask whether the first group of parallels—those between Koban and Hallstatt—really presuppose any direct connection. Now I do not think that there can be any question of direct Hallstatt influence in the Koban. All the most European types in the latter region are anterior to the Iron Age and some of them are missing from Iron Age graves in the West. On the other hand, as soon as it is recognized that the Koban culture has roots in the Central European Bronze Age civilization, it becomes clear that many objects common to Koban and Hallstatt are just survivals from this older period of community. For instance,

¹ See de Morgan, *Miss. au Caucase and Prehistoric Man*, fig. 66.

² *Bronze Age*, pp. 121 f.

curious adzes with lateral lugs found in both cemeteries are known in a rudimentary form in the Early Bronze Age of the Saale Valley and in the Copper Age of Italy. Again the hollow hemispherical bronze buttons with a loop on the inside, worn both by the Hallstatt and Koban folk, are met in Hungary in deposits assigned by Baron von Miské to the Early Bronze Age. Thus the similarities are largely explicable as parallel developments of a common cultural substratum in both areas.

The rest can partly be explained as the result of the influences at work in both regions but emanating from a common centre. The use of iron doubtless came to the Koban across the range from Asia Minor. There is every reason to suppose that it reached Europe from the same quarter. We have already suggested that it was transmitted to Greece from Anatolia. And since the amber trade was still in full swing, the knowledge of the new metal may well have been diffused up the Adriatic and into Central Europe as a result of that commercial intercourse. It is precisely on the amber trade routes that the earliest centres of the iron industry in Europe arose. But if that be so, other common phenomena—the open-work metal decoration for instance—may well have reached Hallstatt and Koban independently from a common centre in Asia Minor or Assyria. The influence of these regions is observable in the Early Iron Age both of Greece and Italy, and the most competent authorities¹ hold the Hallstatt culture to be posterior not prior to the earliest Geometric Age of Greece or the first phase of the Villanova culture in Italy. The typical Hallstatt bird meets us on a cup from the Tiryns hoard (page 52); perhaps this marks a resting-place in its flight from its oriental nest to Central Europe.

So the diffusion of iron working in Central Europe, like that of metallurgy in general, would be due to the fertilizing inspiration of commerce. The only ethnic movement which the parallels between the Caucasus and the Danube Valley presuppose is one from the West. And even so it must be borne in mind that South Russia was not an uninhabited desert. We shall later see that it was occupied by a mobile population well adapted to act as mediators in the transmission of culture.²

¹ Hoernes, *Urgeschichte der bildenden Kunst*, p. 436.

² A common ancestry in the latest painted ware of the Ukraine may ultimately explain the ceramic parallels between Hallstatt and the Caucasus.

4. *The Possibilities of the Anatolian Plateau.*

Archaeological evidence then fails to provide the expected support for the doctrine of a Central Asian cradle. But there is another corner of Asia which has put in a claim to be both the reservoir which supplied part of the neolithic population of Europe and the primitive habitat of the Indo-Europeans. The tendency among anthropologists in this country has recently been to locate the area of characterization of the brachycephalic Alpine race in the tablelands of Asia Minor.¹ At the same time the discovery of both *satem* and *centum* Indo-European languages on the fringe of the Anatolian plateau has induced Professor Sayce² to propose the transfer of the Aryan cradle from Central Asia to Asia Minor.

Now several migrations from that quarter into Central Europe are supposed to be detectable. According to Professor Myres³ the first intruders into the uplands of Europe, which are as it were an extension of those of Asia Minor, brought with them the rudiments of agriculture and the habit of building pile-dwellings on the shores of lakes and swamps. As is well known, such pile villages are the characteristic features of the New Stone Age in Switzerland and Bavaria, and Professor Myres can point to survivals of the same style of habitation in Macedonia and the Caucasus in historic times. Moreover, the Alpine lake-dwellers were brachycephals. However, I cannot agree that the idea of constructing pile-dwellings was necessarily an importation from Asia nor that it gives evidence of an immigration from Asia at least in the period which concerns us.

Peculiar pressure from the environment must have been needed to impose upon primitive man the laborious task of erecting pile-structures to inhabit. Now the requisite conditions are fulfilled in North Europe after the glaciers had at length retreated; for they left a world of swamps and damp forests behind them which would almost force its denizens to construct some artificial resting-place. And as a matter of fact we find that the very early settlers on what was to be the Baltic, but was then a shallow mere, men who had not yet reached a neolithic stage of culture, did devise a sort of habitation from which the true pile-dwelling might have been evolved.⁴ To find a dry place to lie down in and to be near

¹ Haddon, *Races*, pp. 26, 57; Myres, *C.A.H.*, i, p. 62.

² *Ramsay Studies*, p. 393.

³ *Loc. cit.*, pp. 72-5. Myres is mistaken in thinking that the earliest lake-dwellers had no domestic animals; the domestic species are best represented in the very oldest Swiss settlements. *Dawn*, p. 246.

⁴ For full details see *Dawn*, pp. 212 and 245.

the fish on which they largely depended for nourishment, these pre-neolithic Baltic folk sometimes made rafts of logs and saplings on which they lived. And so did the direct descendants of the same people in Sweden and Denmark in full neolithic times. But the latter had made improvements. The raft of logs was first converted into a fixed pontoon by posts at the corners. But such a pontoon soon became waterlogged, and fresh layers of logs had repeatedly to be added to form a dry floor, till at length a piled stack resting on the lake bottom was created. Such primitive structures are known both in Denmark and in Switzerland and Wurtemberg. In founding new settlements some genius hit upon a modification which considerably economized labour. Instead of making the foundations of your village out of a stack of many horizontal logs, you laid down a single platform resting upon rafters supported by upright piles, and this required far fewer trees laboriously felled with stone axes. So perhaps arose the classical pile-dwelling.

Now the pre-neolithic raft-builders of the Baltic had included brachycephals like the neolithic pile-dwellers of the Alps. At the same time there is reason to believe that a kindred stock of hunters and fishers was widely diffused throughout the forests and marshes of northern Europe in early post-glacial times. Some of these we may suppose retreated, perhaps up the Rhine, to the highland zone in pursuit of fresh-water fishing and such game as the chamois at the time when the salt waters of the North Sea made their way into the Baltic depression and the climate became milder. And in the uplands they found fresh-water lakes on which they settled, developing their domestic architecture through similar phases to those traceable among their kinsmen in Scandinavia. Thus the Swiss lake-dwellings are explicable without assuming any invasion from Asia Minor in neolithic times.

Moreover, there is positive evidence against the hypothesis of such a migration. In the first place the lake-dwellings of the southern parts of the Alpine zone, Carniola, Bosnia and Macedonia, seem all distinctly later than those of Switzerland, Wurtemberg and Scandinavia, not earlier as might be expected had the pile-dwellers come from the south-east. Secondly the neolithic elements in the Alpine and Swedish lake-dwellings are essentially different; the common features are only the architecture and certain "palaeolithic" survivals—bone harpoons, phallange whistles, and so on. That means that the neolithic arts had not been introduced with

the custom of pile-dwelling, but had been acquired separately by the several groups of pile-dwellers from other more advanced peoples. Those of Scandinavia were in fact instructed by the megalith-builders of the coasts, those of Switzerland and Wurtemberg by the Danubians¹ whom we shall next consider. Thus we see the original Alpines as a food-gathering folk of the forest, swamp and mountain who only acquired the "neolithic" arts from more progressive neighbours. Hence, if they came from Asia Minor at all, they did not come as Aryans.

But those Danubians² whom we have just mentioned may themselves be immigrants from Asia Minor. They rival in antiquity the vase-painters from Asia and may have mingled with the latter in South-east Europe. It is certain that they spread from the Danube valley far and wide in Central Europe, diffusing the knowledge of domestic animals and cultivated plants to Little Poland, Silesia, Central Germany, the Rhineland and Belgium. Now some traits connect these Danubians with Asia Minor; in particular their clay vessels are evidently imitated from gourds. The gourd will not harden north of the Balkans, so that the prototypes of the Danubian pottery must be sought further south. Professor Myres³ has adduced grounds for the belief that the primary focus is to be looked for somewhere in western Asia Minor or Syria, where gourd-like forms long persisted and in some cases are in use to-day. Of course, the Anatolian and Syrian fabrics are not identical with the Danubian and cannot be looked upon as prototypes of the latter, which exhibits peculiarities which might lead one to imagine a survival of palaeolithic art in the region. The most that can be admitted is a generic kinship with Asia Minor. And at the same time other Danubian peculiarities are distinctively Mediterranean.

To clarify the issue it is desirable to ask to what race the Danubians belonged. Mr. Harold Peake holds that they were Alpine brachycephals, and his view has been followed by Myres and Fleure. This supposed brachycephalism is adduced as additional evidence for the Anatolian origin of these people. But Mr. Peake's view seems to rest on a misconception; I can find no

¹ Myres, loc. cit., p. 75, agrees that the Alpines acquired the domestic stock from the Danubians. He does not hold that the original invaders had been fully neolithic, but seems to credit them with the rudiments of agriculture.

² On these see *Dawn*, pp. 171-6.

³ Op. cit., pp. 77 f.

evidence for the presence of short-heads on the Central European loess lands at this epoch. The skeletal remains are indeed exiguous; still a few graves with contracted skeletons or stray skulls have been found in Serbia, Moravia and Lower Austria accompanied by Danubian pottery and artifacts. Not one of these skulls is brachycephalic; all are moderately long-headed and moreover agree in this and every other respect with a much larger series of skulls found with identical pottery in slightly later graves of Central and South-west Germany. It only remains therefore to ask to which dolichocephalic race these Danubians belonged. The late Dr. Schliz assigned them to the North European race, a branch of what became the Nordic stock. And no doubt true Nordics do appear mixed with Danubians, but only at a later date. The earliest skulls which concern us here belonged to short individuals, and resemble in several respects, as Schliz himself was forced to admit, Sergi's Mediterraneans more than the tall Nordics.

The correctness of the latter attribution is borne out by the markedly southern character of the Danubians' cultural heritage which links them with other Mediterranean stocks. Not only does their pottery imitate the southern gourd, but the black fabric and the incised decoration suggest vague comparisons with Cretan and North African wares as much as with Anatolian. Again the Danubians made female figurines of clay, and these show a tendency to steatopygy just as do early figurines in Crete and Egypt, and this feature is to-day counted a mark of beauty among the Bushmen of South Africa. Moreover this continental people even in the heart of Central Europe continued to deck themselves with the shells of a Mediterranean mussel—*Spondylus gaederopi*. Finally the one weapon found in the villages of the first Danubians is a mace-head formed of a flat stone disc perforated at the centre and generally sharpened at the edges. In contrast to the piriform or spheroid types this is a rare form of mace, and originated somewhere in the immediate vicinity of the Nile valley, since the type was current in Egypt in predynastic and the earliest dynastic times, but perhaps nowhere else in the Ancient East.

We must then regard the Danubians as a branch of the Eurafrian race. That does not exclude the possibility that they came to Europe immediately by way of Asia Minor, either crossing over by the Dardanelles and Bosphorus or even travelling at a still earlier date by the old land-bridge where the Archipelago now lies. Some such hypothesis would explain the ceramic similarities

between Danubian and Anatolian pottery—similarities which extend also to Crete and the Cyclades—and the recurrence of certain dolichocephalic types on both sides of the Aegean and north of the Balkans, which Serbian students have designated by the doubtful name of Pelasgian. Plainly the migration in question must have been very early—antecedent even to the advent of the first band of Asiatic vase-painters. One really wonders how much of the “neolithic” civilization these proto-Danubians brought with them ready made. All that is proved is the use of gourds as vessels, the tradition of a Mother Goddess, not necessarily represented in idols of baked clay rather than, say, wood, an affection for a particular shell and a very archaic type of weapon. Since the typical Danubian “celt” of polished stone is found at least as far south as Thessaly and was in reality above all a gardening tool, a hoe, the cultivation of cereals in a garden plot may be added to the list. It remains possible that the Danubians’ animals and their ceramic technique were borrowed from the Asiatics of Transylvania. At the same time the spiral ornament used by the latter was probably inspired by Danubian models which were not necessarily applied originally to clay vases. But here the possibility must be borne in mind that some survivors of palaeolithic tribes who, ages before, had decorated bone with spirals, still persisted in the plains of Central Europe and had mingled with the newcomers from the south.¹

Should we then give the title Aryan to this Mediterranean stock as it appears in Anatolia and the Danube valley? There are no very cogent grounds for so doing. *Qua* Mediterraneans the Danubians were not Aryans. Nor do they constitute a substantial link between Asia Minor and Europe. In the former region they were at best but passers-by. And their primitive culture is too vague and inchoate to be called Aryan. All they brought with them were the rudiments of a cult, some simple implements and weapons and a few grains. Thus equipped the invaders of Central Europe created their own culture on the fertile loess lands of the Danube basin inspired perhaps by their Asiatic neighbours and that southern trade to which their superstitious attachment to a Mediterranean shell impelled them. Whether this people developed into Aryans there in Central Europe is a question for subsequent discussion.

¹ Cf. Menghin in Hoernes, *op. cit.*, p. 774.

However, relations between Europe and north-west Asia Minor did not cease with the passage of the proto-Danubians. Out of the shadowy Anatolian culture, the relations of which to Central Europe have just been discussed, there arose by differentiation and concentration a more substantial civilization, best known by the remains from the second city of Troy (Hissarlik). This civilization undeniably influenced Thrace, Macedonia, the Danube valley, Thessaly and, through Thessaly, South Italy at a period subsequent to the descent of the second wave of vase-painting peoples into North Greece—i.e., between 2500 and 1800 B.C. The points of contact between Troy and Thrace have already been enumerated. In Thessaly the testimony to influence from Troy is in the first place a series of vases of which the most unambiguous are high-handled cups. In Central Europe these are found, not in the oldest Danubian graves, but in those of the second period from Hungary to Silesia and Bavaria and stretching well across the Illyrian mountains to Italy. They are certainly clay copies of metal vases of Troadic type. And with them are associated in Central Europe copper ornaments in the form of two spirals linked like a pair of spectacles,¹ another Trojan pattern. Other types of objects also found at Hissarlik, without being peculiarly Trojan—spheroid mace-heads, perforated stone axes and the most primitive copper axes—also make their appearance both in Central Europe and Thessaly about the same time. At a rather later date some current from the south-east carried up the Danube valley certain types of pin, earrings and the curious Cypriote dagger with a looped tang (Fig. 12, 2), all of which recur at Troy. Nor is this all, Troy II was in not altogether one-sided relations with the East. The pin with a double spiral head met at Anau III (page 111) recurs at Hissarlik and, if not specifically Trojan, was at least Aegean rather than Mesopotamian.

Finally on both sides of the Aegean, in each case about 1800 B.C., possibly allied phenomena appear, the seeming parallelism of which might be explained as the result of emanations from a single centre in Asia Minor—I refer to cist-graves of large stone slabs enclosing contracted skeletons, accompanied in each case by high pedestalled bowls, found among the houses of Carchemish on the Upper Euphrates and those of Orchomenos and other towns in Greece (cf. pages 27 and 60).

In all these directions we have points of similarity amidst

¹ *Dawn*, p. 179, fig. 79, 1.

differences. In Thrace the Troadic types are in a minority as compared to the peculiar local forms. In the Danube valley they appear alongside survivals of the earlier culture and contributions from other centres lying outside Asia Minor. It is just the same in Greece, and in particular the immediate derivation of the cist-grave culture from Troy is by no means certain; it is indeed quite as likely that the Minyan ware of Troy is due to influence from the north-west. Neither the cist-graves of Carchemish nor their contents can be regarded as immediately derived from Troy and the technique of the pottery found in them and the forms of the bronzes differ at once from the Trojan and the Greek. Finally the parallelism between Troy and Anau may be due to the influence of some intermediate culture upon both centres.

Nevertheless we have at this juncture a degree of cultural interconnection between wide areas in Europe and Hither Asia never hitherto nor subsequently attained. Furthermore the context in which the vestiges of this interconnection are detected is in some cases quite possibly Aryan. In the European cultural complex certain elements, which we have designated Troadic, persist and reappear in the Italian *terremare* which we have agreed to regard as the earliest monuments of Aryans in the Apennine peninsula. In Greece and Macedonia the culture in which our Trojan parallels appear is continuous with that which on one hypothesis might be assigned to the Hellenes (page 60). As we remarked above, traces of connexion between western Anatolia and Thrace, such as the traditions concerning the kinship of Phrygians and Thracians imply, are discernible at no other period till well on in the Iron Age, while certain types already current in north-western Asia Minor survive to emerge again in the barrows of Gordion which undoubtedly belonged to Phrygians. The Hittites had been exposed to Aryan influence some time in the second millennium B.C., and it is to Hittites that Mr. Woolley ascribes the cist-graves round Carchemish. Finally Indo-Iranians were wandering about into the north of Mesopotamia somewhere about this time and must later have embraced Anau in their domain.

Thus the links with western Anatolia which might be established through Troy would connect up a number of areas subsequently occupied by Indo-Europeans. It can, of course, hardly be contended that Troy was itself the centre of a proto-Aryan empire; it may very reasonably be demanded whether the Anatolian civilization of which Troy was one peripheral manifestation was not proto-

Aryan. To reach an answer to that question we are forced to rely very largely on the material gathered at Troy itself, supplemented by such inferences as phenomena observed at the opposite end of the plateau of Asia Minor enable us to draw. And it must be remembered that Troy is a mound of nine superimposed cities, the objects from each of which the excavator, Dr. Schliemann, did not very accurately distinguish.

In the civilization of Troy II, which is what here concerns us, a multiplicity of influences converge. We meet first types reminiscent of neolithic Crete, survivals of that earlier age to which reference has been made above, together with signs of the inspiration of the Bronze Age Minoan civilization. Then indebtedness to ancient Mesopotamia is attested in the use of brick for the fortifications and in the whole inventory of metal types. But the civilization of Troy in its more intimate aspects, its pottery for instance, is quite distinct from the Sumero-Akkadian and also from the intermediate culture of Cappadocia where the vases were painted. The ceramic evidence attaches the Troad to a more westerly culture, the roots of which are discoverable in Cyprus and North Syria—Myres' red-ware province. It can only be Anatolian culture in this latter sense that must concern us here.

But there are conclusive reasons for denying to it as a whole, just as much as to the Sumero-Akkadian or Cappadocian civilizations of the third millennium, the title Aryan. In the first place Anatolia was the very heart of the Great Mother's realm.¹ Was she not represented on the oldest cult monuments from one end of the plateau to the other, from Troy and Cyprus to Assur? Was not her cult characteristic of the region at all epochs? Did not even the Aryan Phrygians have to admit her to their pantheon? It is inconceivable that any people coming from Asia Minor should have lost all recollection of her. Secondly in historical times not only was the eastern portion inhabited by non-Aryan peoples, but also on the western coasts of Anatolia dwelt remnants of cognate stocks, Leleges, Carians, Lydians, and so on.² At the same time the native topographical nomenclature of the whole region is non-Indo-European, but includes parallels, not only to Fick's pre-Hellenic names in Greece but also to those Asianic names occurring already in the third millennium B.C. on Cappadocian tablets. Hence it looks as if an Asianic population occupied

¹ Meyer, *Reich und Kultur*, p. 90.

² *Ibid.*, p. 125; cf. Sundwall in *Klio*, 1911, pp. 464 ff.

the whole of the plateau. The Anatolian culture as a whole should be ascribed to this stock, and we may recognize their descendants among the Dardanian opponents of Rameses II, who resemble Hittites in some features (Plate VII, 1, cf. page 64).

But though this Anatolian culture cannot as a whole be regarded as Aryan, we were perhaps wrong in calling Troy a peripheral manifestation of it. The European parallels all refer to the north-west corner of Anatolia. Perhaps we should confine our attention to that region in seeking their roots. At least by the XIIIth century this area found formed a politically isolated unit contrasted to the rest of the land mass as we saw in Chapter III. But if we do look to the north-west corner of the Troad and its immediate hinterland, as opposed to the rest of the Anatolian promontory, a very surprising result awaits us.

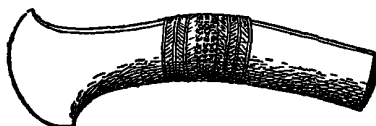


FIG. 22. Decorated Stone Battle-axe, Troy II.

When we make abstraction of the elements presumed to be common to the whole land mass and concentrate attention upon what is peculiar to its north-western corner, Troy no longer seems the Asiatic root of an European culture, but a branch of an European stem pushed across the Straits. The palace of Troy's kings was a *megaron*, a long narrow room with a central hearth and a pillared porch on the short side; the earliest dated examples of this sort of house come from Transylvania, and we meet the same type in Wurtemberg by 2000 B.C. (Pl. VIII, 1), and rather earlier in Thessaly. Again the Trojan kings wielded as symbols of their power heavy battle-axes of noble stones, superbly polished and richly carved (Fig. 22). Stone battle-axes are indeed very common throughout the ruins of Troy and recur at the contemporary cemetery of Yortan in Mysia. Such clumsy weapons are strange things to find in a Bronze Age town; in the rest of the Aegean area, in southern Asia Minor and in Mesopotamia, they are virtually unknown. But in Europe from the Volga to the Rhine they are scattered

about in profusion and all the varied Trojan types are there represented. These European axes in Troy cannot (as I once thought) be explained by trade. Why should a people rich in metals import such barbaric weapons? Why should they be symbols of kingly power? Surely they are the monuments of an intrusion from Europe of a people accustomed in a wilder environment to swing such mighty hammers. And it is precisely this element which distinguishes the civilization of north-western Asia Minor from the general "Asiatic" cultural background to which it was so deeply indebted. To the wielders of those ceremonial axes might perhaps be attributed the erection of that sovereign power which has transformed the village of Troy I into the city of Troy II and ultimately welded the heterogeneous tribes of the region into a compact confederacy. And so the Troad and its hinterland becomes part of the great European battle-axe province extending from the Baltic to the Black Sea. At the same time if the *Takru* who attacked Egypt in 1192 B.C. be Teucrians from the Troad,¹ they attest the presence of men of European aspect side by side with the Armenoid Dardanians (Plate VII, 2).

So our question now assumes a new complexion. Is it with Troy as thus Europeanized or with the "Asiatic" substratum that the Thessalian, Balkan, Italian and Danubian cultures are somehow allied? On the one hand in Hungary the graves where signs of parallelism with Troy—high-handled cups, spheroid mace-heads and spectacle spirals—are first noted cover the remains of that same tall dolichocephalic race as wielded the battle-axes of Scandinavia, Germany and Russia (page 174), and that race was essentially European. On the other hand Anatolian culture as a whole did not penetrate into Europe. The ceramic parallels we have enumerated are in effect limited to imitations of Trojan metal vases. Such imitations, as well as the metal spirals, pins and earrings later found in Central Europe, may well be the result of trade. The Trojans were in possession of tin, since 10 per cent of that metal entered into the composition of their bronzes; they may well have been the inventors of this alloy, prompted by familiarity with the technique employed much earlier by the Sumerians of mixing copper with lead in the same proportions. The Trojans most probably imported this tin from Bohemia. That does not mean that they invaded Central Europe any more

¹ This is very doubtful, see p. 74 above.

than amber in Minoan tombs and Minoan metal-work or clay imitations thereof in Thuringia imply a Minoan colony on the Elbe or than Greek vessels from Denmark denote a Hellenic colony on the North Sea. Individual pioneers from Troy may certainly have been the first to stumble upon the mineral wealth of Bohemian soil or that may have been the work of our Prospectors from the west (page 99), but the exploitation of the deposits was in the hands of the local population. In any case the Trojan pins and Cypriote daggers transmitted through Troy, which are found in the Danube valley, are landmarks on an ancient trade route. And we may believe that commerce flowed along that road till the fall of Troy II which seems to coincide with the diversion of Aegean-Bohemian trade to the route terminating at the head of the Adriatic somewhere between 1900 and 1600 B.C.¹ Trade rather than migration of peoples will then explain most cases of influence from Troy upon Southern and Central Europe.

But with these admissions the whole theory that the Thessalo-Illyro-Danubian culture was the reflex of an invasion from Asia Minor collapses. The cultural continuum is no longer just a projection of Asia into Europe; it may equally well be designated an European culture with an Asiatic enclave: the Oriental connections are connections with the Troad as cut loose from the Anatolian cultural complex as a whole. The question of their final explanation is transferred at once to European soil. From that standpoint we must ask in the next chapter how far the unity which embraces North Greece, Macedonia, Upper Italy and the Danube valley is infused with the same elements as Europeanized Troy and so whether it is Aryan.

5. *The Claims of Asia Reviewed*

The conclusions of the foregoing paragraphs afford very slender support to the hypothesis of an Asiatic cradle for the Aryan people. The material available in Europe to the prehistorian does not disclose, as was once expected, wave upon wave of Asiatic immigrants bringing with them the civilization of the Ancient East. The neolithic population of Europe was very largely descended from the palaeolithic which already included both long and short-headed types. The brachycephalic invasion is receding into an

¹ *Archaeologia*, lxxiv, p. 174.

ever remoter past. If hordes of Asiatics did drift westward during the geological present they have left singularly little evidence of their advent and so are unlike the later Scyths, Sarmatians and Mongols. In "neolithic" times only one tide of migration from Asia could be recognized by archaeological means. It brought the mysterious cultures with painted pottery to Thessaly, Transylvania, Bulgaria and the Ukraine. With the same movement were to be associated certain very important contributions to the civilization of South-east Europe, notably the introduction of agriculture and domestic animals of Asiatic species, oxen of the Urus breed and the turbarly sheep. But the area occupied by these intruders was as restricted as that reached by the Asiatic invaders of the historical times; we found no reason to suppose that the propagation of the new arts was the work of the Asiatics as such. Save in a few corners like Bulgaria they seem to vanish while the new arts were taken over and elaborated by other tribes. Nor could we honestly identify the vase-painters with Aryans.

At the same time we have postulated an invasion of Central Europe by Mediterraneans, come perhaps through Anatolia, just as other streams of Eurafican peoples were reaching Western Europe across the Iberian peninsula even in palaeolithic times. To the Mediterranean invaders we attributed the elaboration of the Danubian neolithic civilization probably assisted by culture contact with the Asiatics. But again we saw no reason to describe the proto-Danubians, *qua* strangers to Europe, by the epithet Aryan.

The third great impulse which affected Northern and Western Europe and some points on the Black Sea coast early in the New Stone Age, the megalithic culture, seemed even less to answer the requirements laid down for the Aryans. If and in so far as it was foreign, it was Eurafican in character. And it was only in a minor degree the result of a racial drift. The idea of the megalithic tomb and the associated cult of the dead were very likely brought in the first instance by navigators from the southern shores of the Eastern Mediterranean imbued with Egyptian eschatology, if not themselves Egyptians. But a colonization of the coasts on a large scale by megalith-builders is not to be thought of; the actual settlers were few, but they instructed the natives in their religion and in some of the neolithic arts, notably the domestication of short-horned cattle. Neither the strangers who brought the cult of the dead and megalithic funerary architecture nor the Eurafican

aborigines who adopted and propagated them in Spain, France and Britain can on any grounds be regarded as Aryan. And with the dolmen-builders the list of Europe's invaders during the early neolithic period is closed.

In the sequel there is little room for immigrations on a large scale, though shifts in the population within Europe itself were frequent. And in this epoch, the full neolithic age of our continent, intrusions from Asia are not traceable with any certainty. In particular the one band of brachycephalic migrants whom we could detect came not from Asia but, immediately at least, from the Iberian peninsula, whence they brought the bell-beaker to Central Europe. Thereafter the development of the Bronze Age was self-contained and rapid till so far it was not Asiatic weapons and ornaments which were imported into Europe, but European types which migrated to and implanted themselves in the Near East as our excursion to the Caucasus showed.

But if our search for Aryans has so far been abortive, the results of the chapter were not merely negative. We beheld the founding of the new civilization in Europe, we witnessed the addition to the old palaeolithic stocks of new ingredients come from Asia and Africa and estimated the culture of the newcomers. It was in no case beyond that inferred for the Aryans. Hence if the extraneous elements did not themselves become Aryans in Europe, their culture was not such as to offer serious obstacles to Aryanization by conquest or absorption in the Aryan people.

CHAPTER VI

DID THE ARYANS ORIGINATE IN CENTRAL EUROPE

To-day the Asiatic hypothesis has been abandoned by most linguists; the last chapter showed that the archaeological evidence also led away from it. With the reservations made above no migration from Asia is discoverable which can with any probability be connected with Aryans. We are thus encouraged to follow the philologists on to European soil.

We have seen further how the neolithic population of Europe constituted a veritable mosaic of races. Culturally a still greater diversity reigned. From neolithic times the continent may be divided into a number of provinces each exhibiting its own material peculiarities. In which of the nascent civilizations of neolithic times shall we seek the first centre of Aryan activity? It makes no difference for us whether the authors of the several cultures were indigenous or intrusive. Aryanism grew up out of a racial mass, which must have been at some time not yet Aryan. But though the racial antecedents of the inhabitants of the several areas of neolithic Europe do not provide a criterion for excluding any of them from our survey, some regions may on other grounds be omitted. The consensus of opinion among historians and philologists allows the Mediterranean basin to be eliminated; that area, populated originally by various branches of the Eurafrian stock and owing the foundation of its civilizations to maritime commerce with the early cultural centres of that race, Egypt and Crete, was only Aryanized late in its prehistory. The same general agreement justifies us in passing over the great West European cultural province where the principal racial element was again Eurafrian, and the chief formative influence the Mediterranean megalith culture. In fact most investigators look to one or more of three regions, North Europe, East Europe, and Central Europe. We shall begin our survey with the last-named region, because the discussions of the preceding chapter

were tending to conduct us up the Danube valley. We do so with all the more alacrity, since the claims of this region have been brilliantly championed by Dr. Giles in very recent times.

1. *Dr. Giles' Hypothesis and the Danubian Peasants*

As the area where the Aryan people were differentiated, Dr. Giles¹ has proposed the loess lands between the Carpathians on the east, the Balkan mountains on the south, the Alps and the Böhmer Wald on the west and the Erzgebirge and northern Carpathians on the north. Here he thinks the environmental conditions of the primitive Indo-European culture, in which, on his view, agriculture was just as important as stock-raising, are best satisfied and hence the Aryans, or *Wiros* as he prefers to call them, would have spread throughout Europe and to Asia. The exodus must he thinks have begun about 2500 B.C., and the route followed by the eastward migrants would be across the straits of the Bosphorus and Dardanelles and over the highlands of Asia Minor.

The distinguished philologist is not an archaeologist, and makes no attempt to trace his "Wiros" with the aid of material remains. But the area he has outlined, was in fact the centre of a distinctive culture, the development of which falls within the chronological limits he has laid down. This culture, which may be called Danubian or more precisely Danubian I, was the creation of those early Mediterranean colonists whose advent was discussed in the last chapter, and who, as we there saw, may early have been mixed with descendants of palaeolithic tribes and influenced from the east as well as the south. These people made their settlements exclusively on the loess, a very fertile soil that covers the plains of Central Europe to a considerable depth.

We may picture² these Danubians living as peasant cultivators in the fertile valleys. Their small unwallled villages were always planted in proximity to streams, and consisted of groups of half-subterranean huts (cf. p. 86). Near by were small garden plots, roughly cleared by stone axes and hacked up by stone hoes (the typically Danubian "shoe-last" celts) to receive the grain, which on the loess would flourish even under these summary methods. In the parklands of the adjacent slopes, grazed the peasants' herds—cattle, sheep and swine—watched by the village children,

¹ *Cambridge History of India*, i, pp. 68-70.

² For the evidence on which this picture is based see my *Dawn*, pp. 171-6.

just as is done in Galicia to-day. Perhaps the horse had been already domesticated¹ to aid in the pursuit of straying beasts. A little fishing gave variety to the villagers' diet, but the game from the primaeval forest, the haunt of bears and wolves, does not seem to have been hunted. The community was small with no regular division of labour. Within it the women doubtless

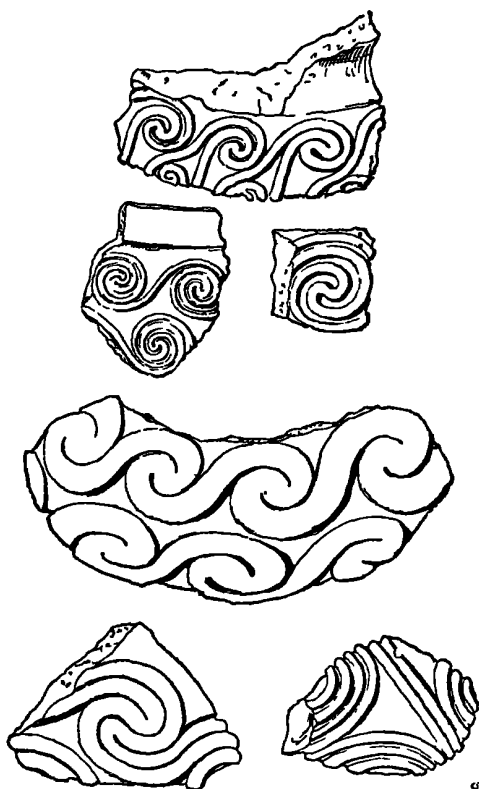


FIG. 23. Decoration of Danubian pottery from Butmir in Bosnia.

made the pots, imitating with feminine conservatism the gourd vessels of their remote ancestors. They decorated their clay vases tastefully with spirals and meanders (Fig. 23). The religion of the cultivators certainly included the worship of a Mother

¹ No positive evidence is, however, forthcoming for domestic horses in the Danube valley in period I. Horse bones found with Danubian I pottery in the Rhineland may be much later.

Goddess, clay models of whom adorned the huts. Beyond the garden plots would be other villages not very far away, and in the absence of weapons (save for the disc-shaped mace-heads) we may believe that the several groups lived in mutual amity. But in the background loomed the primæval forest, almost impenetrable in summer and very perilous in winter.

Despite the forest, the Danubians spread far and wide. Even the fertility of the virgin loess might become temporarily exhausted under their rudimentary methods of cultivation. In any case the natural increase of the population under such favoured conditions, necessitated an even wider expansion of colonization. New generations went forth from the village, as in the Sacred Spring of the oldest Romans, to found fresh villages and bring fresh land under tillage. The colonists generally followed the river valleys and were aided in the transportation of their simple belongings by dug-out canoes. Ultimately, as in the course of centuries a gradual process of mild desiccation thinned out the woods, the Danubians crossed the Böhmer Wald and entered the Rhineland. But during all their history, peaceful communication was maintained throughout the whole area. The *Spondylus* shell bracelets, to which we have already referred, must have been handed on from village to village, perhaps in a ritual exchange of tokens like the *kula* traffic of the Pacific Islanders. As an incident in this commerce the Danubians became possessed of copper trinkets.

Moreover, the Danubians came in contact with other ethnic groups in the course of their wanderings. On the mountain slopes to the west, whither they had repaired in pursuit of the chamois and the deer, lived a sparse hunting population descended as we saw (p. 126) from pre-neolithic stocks. Here and there these wild hill folk borrowed from the Danubians elements of a higher civilization and gradually settled down. In Germany and Poland, the Danubians soon met tall men of the Nordic race, probably already pastoralists. In some cases the two stocks amalgamated and the Nordics assimilated the cultures of the peasants as on the Rhine; elsewhere the Nordics established themselves as overlords among the cultivators and eventually imposed upon the peaceful Danubian culture their own more warlike one. To the east the Asiatic vase-painters were established and interaction between them and the Danubians had begun very early.

Were the Danubians then Aryans, Dr. Giles' "Wiros" ? First let us consider their relations to other areas later occupied by Aryans. In Europe a consideration of the question from this side leads to very satisfactory results. The Danubians occupied a considerable part of Poland, the whole of South Germany from the Oder to the Rhine and even pushed into Belgium, and possibly to East Prussia as well. Throughout this wide area the foundation of culture was Danubian even where racial intermingling took place. In the Alpine zone the lake-dwellers were deeply indebted to the Danubians for their arts and crafts; why not for their speech too? To the south Illyria was originally an appanage of the Danubian province as the finds from the celebrated station of Butmir in Bosnia show. And since the Italicis of the *terremare* came from the Danubian side of the Alps (p. 71) a Danubian element may be assumed there too. Eastward many German investigators, such as Schliz, Hubert Schmidt, Menghin and Kossinna, would actually treat the Transylvanian and Ukrainian painted pottery as the work of Danubians and, though we cannot accept that thesis, we have admitted the possibility of a Danubian admixture among the vase-painters from Asia and therewith of a Danubian element in Thrace and Thessaly. To this extent the real or possible distribution of Danubians coincides quite well with that of the earliest Indo-European languages.

Relations with Asia are much more hard to find. The Danubians had a well-defined culture and art of their own. It should then be possible to point to some monuments of the various waves of migrants across Anatolia, invoked by Dr. Giles to explain the Indo-Iranians, the Aryan inspirers of *Nasîhî*, the Phrygians and the Armenians. Though the material at our disposal is still inadequate, the general character of the culture of the more vital region, north-western Asia Minor, is not unfamiliar. A mere inspection of the finds from Troy and Yortan suffices to show that we have there no pure extension of Danubian culture as we have seen it at Butmir and from Moravia to Belgium. In fact we have seen in previous chapters how very slender are the links which can be found to connect Anatolia and Europe in any direction. We did indeed detect at a period posterior to the purest phase of the peasant culture elements of cultural community between Troy and the Danube valley as well as Thrace and Thessaly. But none of those elements are distinctively Danubian in origin. Some of them come from Troy, while the battle-axe

which is genuinely European is no more at home in the Danube valley than in Troy. Thus the requisite links between the Danube valley and the Ancient East cannot be established by way of Anatolia. We shall later see that the alternative route across South Russia and the Caucasus is even more definitely excluded.

Nor does the Danubian manner of life really correspond very satisfactorily to the primitive Aryan culture deduced by linguistic palaeontology. We shall not insist on the prominence of agriculture and swine-breeding, since Dr. Giles attributes both arts to his *Wiros*. But the absence of arrowheads or other weapons deserves notice. Again the cult of a Mother Goddess is an un-Aryan trait among the Danubian peasants. But the last word sums up the crucial objection to identifying the first neolithic inhabitants of the Central European loess lands with the Aryans. Without subscribing to the extravagances of the "racial psychologists" (p. 163), it may be said that the Danubians must have acquired a specific mentality, that of the peasant. The peculiarly sedentary agricultural culture which we have described must have stamped its authors with the essentially peasant outlook still so familiar in eastern Europe or China. That its narrow conservatism, its intense attachment to the soil should ever have developed of itself into that restless love of wandering and acquisitiveness which has not only diffused Aryan languages over half the globe, but also imposed them on so many non-Aryan peoples is highly improbable.

Of course cases are not unknown in which sedentary peoples have taken to nomadism; that might have happened to the Danubians and changed their mentality. But there is no evidence in Europe for such a climatic crisis during the geological present as could have induced the cultivators of the loess to make that adventure into the unknown. As a matter of fact the Danubians survived in Central Europe. The peasants appear, as far as we can judge, throughout the prehistoric age, as an inert mass, and have ever been the prey of a series of conquerors, just as they appear in history. Historically the peasantry have again and again passed under the rule of new lords, and often have submissively adopted the language, customs and beliefs of the conquerors. And we shall see the Danubians themselves continually being mixed with, and overlaid by alien ethnic and cultural types, even in the prehistoric period. Much that was at base Danubian was preserved and persisted as it persists to-day ;

for are not the Virgins of Austria and Serbia the survivals, transformed and sublimated, of the Mother Goddess whom the first Danubian peasants modelled in clay? It is unlikely that the Aryan language, at once the product and the matrix of Aryan psychology, was the work of such peasants. We should rather expect to find the Aryans emerging after the peasants had become mixed with other more venturesome elements. It would not inevitably follow that the other elements were Aryan before they reached the Danube.

2. *The Rite of Cremation*

If we reject the identification of the Danubian I peasants with the Aryans, it still remains possible to argue that one or more of the later racial groups that settled in the Danube valley became Aryan there. This is in effect the contention of E. de Michelis.¹ He starts from a very remarkable phenomenon observed in the Danube valley and the surrounding regions during the Bronze Age—the change from inhumation to cremation. The mode of disposal of the dead is often regarded as one of the most fundamental customs of a people, and one that they would most tenaciously preserve. Yet we see the new practice of burning the body spreading into regions where the dead had previously been interred. Our author thinks that the spread of the new rite was due to a racial migration, and that the migrants were Aryans setting out from the Danube valley.

De Michelis points out, as we have done, that the rite was introduced into Italy by the *terramaricoli* who were Aryan invaders. It was followed by the Umbrian Villanovans and the Veneti of Este coming, like the *terramaricoli*, from Central Europe. For Greece Ridgeway can be cited as bringing the rite of cremation with the Achaeans from the same quarter. In the west our author shows that the cremation graves, which during the Late Bronze and Early Iron Ages spread through France and ultimately reach Spain, may well be due to Celts coming from east of the Alps and the Rhine. In Scandinavia and North Germany the inhabitants took to burning their dead about the same time. Further east de Michelis assigns the fields of cinerary urns of the Lausitz type which extend from Bohemia to the Vistula

¹ *L'Origine degli Indo-Europei*, 1903, esp. cap. ix.

and beyond to the Slavs, and proposes to derive the whole culture from Hungary. In Hungary itself cremation is well attested at least by the Middle Bronze Age. Thus the Italian philologist can present the cremators as radiating from Hungary and show that all were Aryans. In Asia the Aryan Hindus practised cremation, and we know now that in the Indus valley that rite superseded the older practice of inhumation. Intermediate links are indeed lacking unless the change from inhumation to cremation, about 1100 B.C., at Carchemish be regarded as a reflection of the passage of Aryan cremationists. But the rite itself is a material bond.

As thus stated de Michelis' thesis achieves the finest cultural synthesis among all Aryan peoples yet found. It gives a distribution of a cultural peculiarity which harmonizes exceptionally well with the distribution of Indo-European languages. Yet on closer examination the difficulties seem almost insuperable. The facts just stated are correct, but they are not all the facts. Our fuller knowledge of 1925 reveals that cremation presents a much more complicated problem than an author writing in 1902 could imagine.

In the first place instances of cremation, earlier than those cited, have come to light. In Britain¹ burnt bones have been found in "neolithic" long barrows and again in round barrows of the second phase of our Bronze Age, which is still contemporary with the Continental Early Bronze Age. In both cases then the rite appears earlier in Britain than that expansion of Celts to which de Michelis attributed its diffusion westward. The position in Brittany is much the same. In Central Europe the phenomena are even² more intricate. In the Neckar valley² burnt human bones have been found with sherds typical of the Danubian I peasants and some of the same people seem to have cremated in Bohemia too. Elsewhere in the Rhineland barrows belonging to a Nordic battle-axe folk occasionally cover cremated bones.³ In North Germany⁴ ashes contained in cinerary urns have sometimes been found in late megalithic graves. In Thuringia and Saxony⁵ a Danubian II people using pottery and other artifacts similar to those met in the inhumation graves of Lengyel in

¹ *Dawn*, pp. 288 and 296.

² Wolff, "Neolithische Brandgräber der Umgebung von Hanau," *P.Z.*, i.

³ *Dawn*, p. 257.

⁴ Schumann, *Die Steinzeit gräber der Uckermark*.

⁵ *Mannus*, xi-xii, pp. 312 ff.

Hungary (p. 150) had taken to incinerating their dead, while other late neolithic cultures in the Elbe valley also belong to cremationists. Finally in Moravia¹ the bell-beakers, usually accompanying the inhumed skeletons of the Prospectors from the West (p. 99), in one or two cases contained cremated remains. All these cremations in Central Europe are locally classed as neolithic or chalcolithic and are to be dated at latest between 2400 and 1800 B.C. And they were associated with material which is normally found with inhumed skeletons belonging to different racial types, Mediterraneans (Danubians), Nordics and Prospectors! To add to the confusion, isolated cases of the rite have been reported from Hither Asia at a very early date—in “neolithic” deposits at Gaza² in Palestine, and about 2000 B.C., in a “fire necropolis” at Surghul³ in Babylonia (the latter very doubtful however). These scattered remains cannot be neatly linked up like the Bronze Age examples, on which Dr. de Michelis relied.

Secondly in many cases inhumation gives place to cremation without any other signs of a break in the general continuity of culture or of the presence of a new race. Thus in Britain the use of metal was introduced by short-headed invaders from the Continent, who built round barrows (as contrasted to the neolithic long barrows) but inhumed their dead. The artifacts found in rather later round barrows of Bronze II covering burnt bones give no sort of indication of a fresh invasion from Central Europe or anywhere else. Again Scandinavian archaeologists insist emphatically on the complete continuity of culture between the epoch of inhumation and the subsequent period of cremation in the Danish and Swedish Bronze Age. Indeed, the two methods of burial are often met at different levels in the same barrow. Not only so, from the exiguous skeletal remains from the cremation epoch and the richer material later available after the reversion to inhumation, it is clear that the skulls belong to exactly the same racial types as existed in Denmark and Sweden from late neolithic times when the dead were interred.⁴ The cultural continuity is even more strikingly exhibited in South-west Germany. The barrows of the Nordic battle-axe folk on the Neckar and Lower Main provide a most instructive series. It had always been the custom of this people both in the Rhineland and in Thuringia,

¹ *W.P.Z.*, vi, p. 41 f.

² *O.L.Z.*, xxi.

³ MacAlister, *Excavations at Gezer*.

⁴ Pittard, pp. 210-12.

whence their ancestors had come, to kindle a great fire perhaps for a funeral feast in the trench destined to receive the corpse. Dr. Schliz¹ has very plausibly suggested that, after a time, the custom arose of casting the corpse on this fire without waiting for its extinction as had been originally the wont. Here is a possible explanation of the local rise of the new practice. In Bavaria cremation only comes in gradually during the Bronze Age, and to illustrate this we may cite the curious transitional observances: part of the body was interred unburnt while part was cremated, and the ashes deposited in the same grave enclosed in an urn.²

Thus the rite of cremation not only appears at various times, and at widely separated centres among people apparently belonging to different physical types, but also its introduction is associated with no other symptoms of racial change; the new rite develops gradually as if spontaneously and does not as a rule come in catastrophically. The extraordinary complexity of its distribution both in space and time makes the reference of the practice of cremation to a single race or an unique focus exceedingly perilous. Nevertheless the phenomenon is perplexing. There always remains the possibility that there was somewhere in prehistoric times a people who always cremated but, who because of this very fact and because they used artifacts of perishable materials such as wood and leather, are and must remain unknown to the archaeologist. Myres³ and Christian⁴ incline to the view that the brachycephalic Alpine race both in Europe and Asia regularly practised cremation. Burials by this method are admittedly very difficult to detect. It must be remembered that no adult burials are yet known in connection with several cultures—those of the vase-painters of Anau in Turkestan and of Thessaly and South-east Europe in general or of the Alpine lake-dwellers for example. The distribution of the rite in prehistoric Europe and in Hither Asia certainly needs elucidation. A thorough study of the burial rites of the Cappadocian Hittites and of the circumstances under which cremation replaces inhumation in the Punjab may reveal that this rite is intimately bound up with the solution of the Aryan problem. At the moment the identification

¹ "Die Schnurkeramische Kulturkreis" in *Z.f.B.*, 1906.

² Dechelette, *Manuel*, ii, p. 157. Cremations and inhumations already occur by side in the same barrow in the Middle Bronze Age.

³ Or rather that all cremationists were Alpine (*C.A.H.*, i, p. 73). He is certainly mistaken in attributing the early inhumation graves of Switzerland to the lake-dwellers, and the evidence for cremation among the vase-painters in South Russia is very dubious and generally rejected by the most competent authorities to-day; cf. *J.R.A.I.*, liii, p. 267.

⁴ *M.A.G.W.*, liv, p. 42.

of the Aryans with the nebulous and hypothetical people who diffused it would seem at least premature and the localization of its original focus in Central Europe utterly groundless.

On the other hand, it may be doubted whether cremation is really such an ingrained and characteristic habit of a race as Professor Ridgeway and most Italian prehistorians imagine. It is alleged that the burning of the corpse implies a peculiar belief in a world of the sky whither the soul of the departed is conveyed by the funeral fire instead of descending to the underworld or abiding in the tomb. It cannot be said that a study of the funerary customs of "primitive" peoples has confirmed this doctrine. On the contrary, it has shown that a great diversity of burial rites subsists among culturally and physically homogeneous tribes.¹ In America some Indians cremate, some dispose of their dead in other ways. It is just the same among the Melanesians and the Pacific islanders.² In Australia, where the population is extraordinarily uniform in physical type, cremation is but one of many rites in vogue. Even within a single tribe it may be reserved to a particular class or grade while other members of the same tribe are inhumed or exposed on platforms or trees.³ What is still more remarkable is that both inhumation and cremation were practised by the Tasmanian aborigines.⁴ Yet this race had preserved a palaeolithic culture, no higher than the European Aurignacian unaffected by any foreign influence till their extermination. Such instances warn us against attaching too high a value to burial customs as criteria of race. In the case of the Siberian aborigines it is clear that burning has been adopted because no other method of disposal of the corpse was practicable, the ground being too hard for a grave to be dug.

In any case it can neither be shown that all Aryans cremated, nor that all cremationists were Aryans. In Bosnia, the earliest barrows usually ascribed to Illyrians cover unburnt dolichocephalic skeletons. The Early Iron Age graves of Macedonia, which must be ascribed either to proto-Dorians or the Dorians' immediate cousins, were invariably by inhumation. On the Greek Mainland no cremations were observed in the early Geometric cemeteries of Tiryns, Asine, and Argos. As we have remarked above it is quite as likely that the custom spread to Greece from Asia Minor as that

¹ See the article "Burial Rites" in *Hastings' Encyclopædia*.

² Cf. Fox, *Threshold of the Pacific*, 1924, pp. 217 and 229.

³ *M.A.G.W.*, xlvi, p. 86.

⁴ *Ibid.*, p. 84.

it was introduced from Central Europe by Achaeans or Dorians. Again the earliest Phrygian barrow at Gordion contained an unburnt body. On the contrary, neither the early cremations from Palestine nor the questionable examples from Surghul in Mesopotamia can be attributed to Aryans. And though the people of Carchemish, who began to cremate about 1100 B.C., may be called "Hittite", there is no evidence that they were admixed with the same Aryan element as had influenced the Hittites of Cappadocia three or four centuries earlier.

In the light then of this cursory survey of burial rites, ancient and modern, it may be said: (1) No single race is identifiable, either somatically or by means of its pottery or implements, to which all the cremations even in Central Europe during the IIIrd and IIrd millennia B.C., let alone those of Britain or Hither Asia and modern examples in Australia and America, can be traced. (2) The change from inhumation to cremation can in some cases at least be shown to be accompanied by no change in race detectable anthropometrically or culturally. (3) It cannot be proved that the practice of burning the dead originated in and radiated from Central Europe. (4) Cremation is not universally attested among the earliest Aryan peoples, while it was sometimes practised by non-Aryans. On these grounds the attractive hypothesis of Dr. de Michelis as stated above must be abandoned.

3. *The Nordics in the Danube Valley*

The possibilities of Central Europe are still far from exhausted. In the Danube Valley other cultural groups grew up and expanded upon the foundation prepared by the Danubian peasants. In Hungary and Moravia the Danubian I culture gives place about the middle of the IIIrd millennium B.C. to a new group,¹ centred in Hungary conserving many of the old elements with an infusion of new ones. Socially the unit of organization is enlarged and at the same time consolidated, and opposed to other groups; villages are now more extensive, large cemeteries are laid out near them, fortification walls are sometimes thrown up, weapons of war are manufactured. Culturally, the innovations have a double aspect; on the one hand a sort of barbarous vase-painting, in which the coloured designs are laid on the surface of the vase after its polishing

¹ Described with illustrations in *Dawn*, pp. 176-80.

and firing, and certain ceramic types, such as pedestalled bowls, point to an impulse from the Transylvanian vase-painters to the east; on the other, certain vases and spectacle spirals of copper betoken contact with Troy II. Ethnically a change is denoted by the presence of tall dolichocephalic skeletons of Nordic type in the cemeteries of Bodrogkeresztur near Tokay and of Lengyel in Tolna County, south of Budapest.

Now some authors, who hold that the Aryans belonged to the Nordic race, yet consider that they formed only one branch of that race. De Lapouge¹ placed the area of characterization of the Aryan branch in Central Europe, whither the Nordics

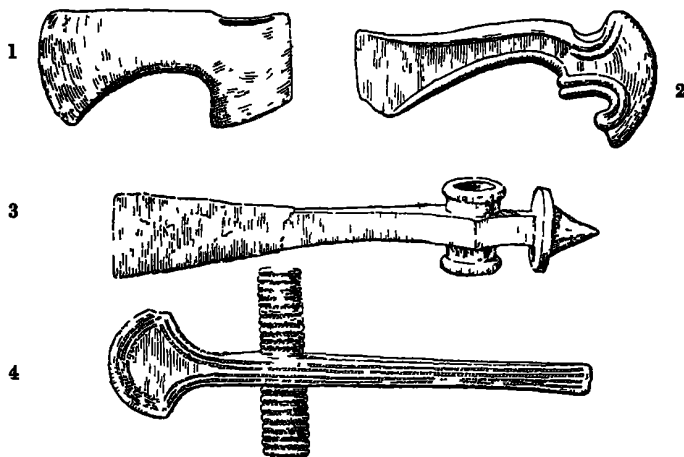


FIG. 24. Hungarian Battle axes. 1, Copper Age, 2-4, Bronze Age.

would have penetrated by a gradual infiltration. Now here in Hungary we have evidence of this infiltration. And the culture possessed by the Nordics of Hungary, shows affinities with the contemporary cultures of Illyria, Thessaly and Troy. Its ramifications can further be traced into Moravia, Silesia, Bohemia, Saxony and Bavaria. We thus have in the second Danubian period external relations which were lacking in period I. Are not the conditions postulated by Dr. Giles now fulfilled? I hardly think so.

The Danube valley at this epoch does not seem so much an original focus from which culture radiated as a secondary centre

¹ *L'Aryen*, 1899; cf. *R.E.A.P.*, 1887.

where new elements, derived from without, were elaborated. The connections with Troy, for instance, do not illustrate an influence upon Troy so much as one from Troy. At the same time the most European elements in Troy are not lineal descendants of any Danubian elements. The elaborately shaped stone battle-axes of the Troad do not seem to occur in Hungary at this date, but the first copper battle-axes do begin to appear. We get the impression that we are looking at two sides of the same phenomenon. There was perhaps an infiltration of Nordics through Bulgaria into the Troad, marked principally by stone battle-axes, and a distinct infiltration into Hungary, marked by the dolichocephalic skulls and the copper battle-axes. If the latter movement reached Hungary from the East across the Carpathians, it might have brought in its wake those elements of Transylvanian culture which appear barbarized in Danubian II. But in that case, and if the Nordics be Aryans, there is no reason for restricting that denomination to the invaders of Hungary alone since the latter did not advance to Asia Minor. They were rather but one branch of a single Nordic migration, the centre of which lay outside the Danube valley. And it would be to that centre that we should look for the Aryan cradle.

The justice of this view is demonstrated in the succeeding period, when an invasion of Nordic peoples can be traced beyond all doubt in Moravia and Bohemia. The intruders who pour in round about 2000 B.C., in several bands bring with them, ready made, a complete apparatus of civilization the prior evolution of which can be traced in detail further north or east. Rugged hunters and herdsmen conquered the lands occupied by the Danubian peasants and, unlike these, established themselves by preference on hill-tops. These mobile tribes brought with them new types of vases¹—the so-called Nordic pottery with the first wave, cord-ornamented ware with the second—strange implements, flint instead of stone celts and splendid battle-axes of stone, and sometimes heaped a barrow over their dead. Similar incursions were reaching Transylvania and Hungary about the same time and left as their monuments barrows, fresh copper battle-axes and stone ones as well, and sherds of corded ware shown by their distribution to have come from the south-east and east as well as from the north.² The Danube valley was thus occupied by

¹ *Dawn*, figs. 112-16.

² *Dologozatok*, vi, 1915, pp. 1 ff.

Nordics, and not the centre from which any group of Nordics moved northwards.

Now these Nordic invaders must already have been Aryans if the Aryans were in truth primarily Nordic; for the subsequent cultures both in Hungary and Bohemia, in so far as they were Nordic, developed out of the intrusive cultures of the third period just described. After this date there was no further intrusion of peoples till well on in the Late Bronze Age. The culture of the Danubian Bronze Age is essentially continuous with that of the last neolithic or chalcolithic epoch. The pottery of the Early Bronze Age or Aunjetitz¹ graves of Bohemia, Saxony, Silesia and Moravia is derived from the Nordic pottery crossed with types associated with the Prospectors and with the earlier Danubian II culture of Lengyel; battle-axes of stone, horn, or rarely bronze are found in Aunjetitz graves, and in eastern Hungary the typical weapon of the Bronze Age is the metal battle-axe. The introduction of regular metallurgy had not been accompanied by any further addition to the population. Traders had indeed arrived—the Prospectors who brought the bell-beakers from the west were one small band—but the stimulus in industry was supplied by trade with Troy in tin and with Crete and Greece in amber. But the people who used the metals and worked them belonged on the whole to the earlier stocks. By the latter half of the second millennium they had outgrown the leading-strings of Asia or the Aegean, and created an original series of forms; above all they evolved a superior weapon, the slashing sword, which was destined to subdue the Aegean and then the Ancient East, which hitherto had known only the rapier or the dirk (Fig. 25).

Hand in hand with these cultural transformations had gone social revolutions which led to the emergence of aristocracies of war superimposed upon the old peasant communities. In contrast to the peasant art of the Stone Age, the Danubian Bronze Age art bears the stamp of a barbaric chivalry. At the same time the social structure had been enlarged to embrace a wider horizon than the village and concomitantly therewith chieftainship and sovereignty arose. The predominance of individuals is plainly attested by the Early Bronze Age, when royal barrows, furnished with a wealth of gold ornaments and princely weapons, were raised beside the simple flat graves of the plebs. Very likely this concentration of power dates back

¹ *Dawn*, pp. 191–200; *Arch.*, lxxiv, p. 164, fig. 8.

to an earlier period when the Nordic invasions began. The battle-axes which then appeared, like the ceremonial axes of Hissarlik, may well have been emblems of authority, and there are some indications that the rugged pastoralists who at that time occupied the hills established themselves as overlords among the older and simpler peasants. Through the clash between sedentary

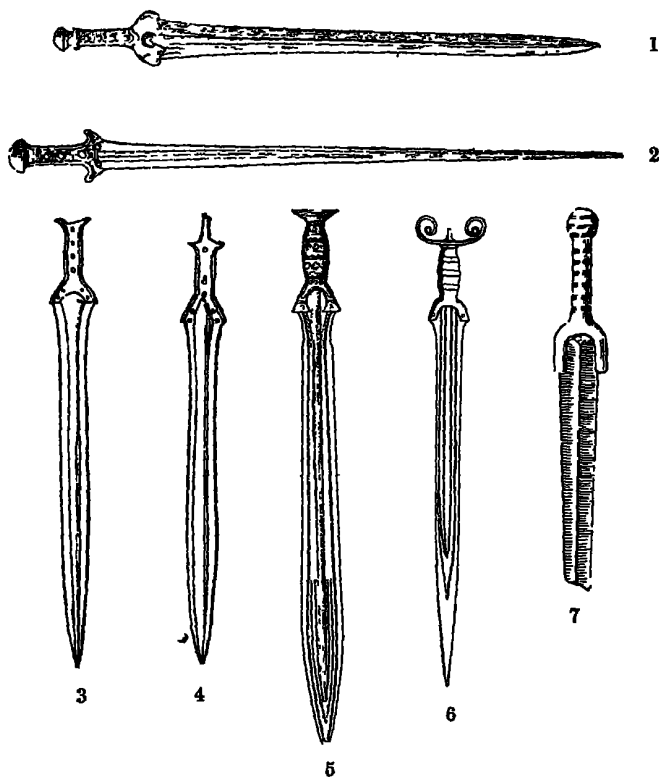


FIG. 25. Rapiers and Swords. 1-2, Minoan-Mycenaean (Crete); 3, Achaean (Mycenae); 4, Achaean (Mullana); 5, Late Bronze Age (Hungary); 6, Antennae-sword (Switzerland); 7, Mouçi Yeri (Transcaucasia).

and nomadic peoples and the social convulsions which ensued the rigidity of the agricultural communities had been broken down, the basis of life widened and the way paved for the sudden burst of industrial and artistic activity that culminated during the Bronze Age. In the ferment which produced this result one

would feign see the work of the Aryans. But before these can be identified with the tall Nordics whose advent we have described, another contemporary band of invaders must be considered.

4. *The Alpines Descent upon the Danube Valley*

During the period of disturbance other peoples had descended upon the peasantry of the loess lands of Central Europe. They were apparently mountaineers coming from the highlands of the west and may be called Alpines without prejudice to any theories about their skulls. It must be asked whether they were not Aryans.

The original habitat of the new-comers must have been the highland zone, and they were themselves the descendants of that pre-neolithic people whom we came to know in the last chapter. They had inherited, as we then saw, the habit of building their habitations on rafts or piles, on the shores of lakes (p. 126), and had acquired some of the neolithic arts from the Danubian peasants, whose territories they now were to invade. Thus equipped they created the well-known neolithic civilization of the Swiss lake-dwellings, while others among them in the Rhine valley, Baden and Bavaria, built fortified settlements on hill-tops and evolved the cultures called, after the type stations, Michelsburg and Altheim respectively.¹ These neolithic cultures were belated in comparison with Danubian I, but their authors, at once pastoralists, agriculturalists and hunters, had made great advances in social organization. The erection of pile or platform villages upon the lake shore would involve co-operation in social labour. The land settlements were fortified with a ditch and a moat and the huts arranged in regular rows, all of which implies a collective direction and a deliberately co-ordinated effort. This definitely social character may, like the architecture which embodies it, have been a heritage imposed upon the Alpines by the stringent conditions of life in pre-neolithic times.

By the third period of culture in the Danube valley, the creators of this highland civilization, although split up into a multiplicity of cultural groups, began to expand. That was inevitable. The population of the narrow mountain valleys has always been overflowing, whether as raiders, mercenaries or waiters. So stray

¹ *Dawn*, pp. 252-8.

groups of the prehistoric hillmen from South-west Germany reached Bohemia¹ about the same time as the Nordics. From Switzerland a descent was made upon the lakes of Upper Italy. Ceramic remains from several sites in Lower Austria and probably Moravia too betoken the presence of a branch of the same stock come from the East Alpine slopes. In the Middle Danube area pile-dwellings were planted, at an as yet undetermined date, along the banks of the Danube and the Theiss and on the lakes of Carinthia, Carniola, and Styria. By the Late Bronze Age the habit had spread to Bosnia and the classical authors related how in their days such structures were inhabited in Macedonia.

Now there are good reasons for considering this Alpine zone as in a sense pre-eminently Aryan. Thence started the Celts from somewhere between Thuringia and Istria. The Italic emerge on its southern fringe and the structure of their *terremare* is evidence that some of their ancestors had lived in pile-dwellings (p. 71). Again there is an unmistakable affinity between the pottery of the Bosnian lake-dwellings and that of the *terremare* on the one hand and of the Early Iron Age of Macedonia on the other. The latter can be regarded as proto-Dorian, if not proto-Hellenic, just as the former has been classed as Italic. Incidentally the same types, among which curiously elaborated handles are typical, can be traced far across South Russia to the Dniepr and beyond in the full Iron Age in Scythian barrows.² Remoter parallels are quotable from all parts of Hungary by the Middle Bronze Age, and persist into the Hallstatt period. Thus a considerable number of the Aryan races in Europe can be connected with the group of Alpine cultures. Even wider connections could be established if we could accept Taylor's view³ that the physical type of the original Aryans was that of Ridgeway's Celts, tall, blonde and brachycephalic, one branch of which stock is represented by the British round-barrow men; for the type may have been evolved in the highland zone of Europe.

It is not, however, really easy to establish wider cultural connections from the highland zone to the east or the north. In the first place no positive assertion can be made about the prevailing burial rite; for no early burials belonging to the lake-dwellers of Switzerland, Upper Austria, Carniola or Bosnia are known,

¹ *Ibid.*, p. 185.

² *Izvestia. Imp. Arch. Komm.*, xxxv, pp. 66 ff., figs. 2, 16, 19.

³ *The Origin of the Aryans*, pp. 105 f.; see below, p. 161.

and the same remark applies to the inhabitants of the Bavarian land-stations of the Altheim type. On the other hand the allied Michelsburg people in the Rhinelands and even in Bohemia always buried the dead unburnt in pits under their huts, which were then destroyed. It is not therefore permissible to claim these Alpines of Central Europe as the original cremationists whose existence was envisaged as a possibility a few pages back. At the same time all these Alpine cultures belong to a relatively late date, and have borrowed largely from other groups, so that it is hard to say how much of their content is original.

Nor does Alpine civilization in its earliest phase correspond well with that deduced for the Aryans. Highland country broken up by valleys and precipices is not where one would look for an early acquaintance with the swift horse, a pre-eminently Aryan animal. And as a matter of fact his bones have not been found in the oldest stations in Switzerland. On the contrary we should be inclined to look for some evidence of the Aryanization of the Alpine zone.

Now among all the peoples of the European highland region, there is evidence of a Nordic admixture and that anterior to the period of their demonstrable expansion. Beside the Michelsburg settlements in Wurtemberg and Baden often rise barrows, containing cord-ornamented pottery and battle-axes, that may mark the sepulchres of Nordic chiefs. In the Bavarian Altheim settlements and in the villages on the Upper Austrian lakes, numerous stone battle-axes have come to light (cf. Fig. 27, 5) the history of which is to be sought further north and east. Here, as at Troy, they may be the symbols of the authority borne by Nordic chiefs. Similar axes occur moreover in Upper Italy¹ both in the *terremare* and before. The pottery from the Michelsburg hill stations and land stations in Lower Austria again includes types reminiscent of the Nordic fabrics which we have met intruding into the Danube valley, and the oldest lake-dwelling on Laibach Moor in Carniola actually yielded a cord-ornamented beaker. The crescent-shaped handle itself, so distinctive of the Italian *terremare* and the late Bosnian lake-dwellings, may be derived from or at least influenced by earlier or simpler types appearing in a Nordic context in Bohemia, Moravia and Galicia. The porched house of the Michelsburg folk which so strongly recalls a Greek *megaron* (Pl. VIII, 1) is considered by Reinerth to be of Nordic

¹ *Dawn*, p. 266.

origin.¹ Thus on the eastern slopes there is abundant cultural evidence for contact between the Alpines and the Nordics. In Switzerland itself craniological evidence is also forthcoming; not only do we find intrusive barrows with pottery and artifacts of Thuringian and Rhenish types, penetrating as far south as Canton Zurich, not only do the later pile-settlements even on the Lakes of Geneva and Neuchâtel contain Nordic battle-axes of stone, but further, characteristic dolichocephalic skulls from such later villages bear witness to an infiltration of Nordics among the originally brachycephalic Alpine population. As we shall shortly see, many anthropologists are inclined to regard the tall brachycephals as the results of crossing between the Alpine and the Nordic stocks.

Hence in the late neolithic period a Nordic element among the inhabitants of the highland zone must be admitted both on cultural and anthropometric grounds. We have already seen that such an element constitutes the bond of union between Central Europe and other areas. Therefore it will perhaps not be overbold to see in it, also in the Alpine regions, the source of the Aryan element. That is, we might regard the Alpines as Aryanized by admixture with or conquest by these Nordics.

A whole chapter in the pageant of European prehistory has now been unfolded before us. We have witnessed the opening up of the Central European plain to food production by simple peasants, the Danubians. We have watched rude hunters in the highland zone, acquiring neolithic arts from these Danubians and founding the cultures of the lake-dwellings and hill stations. We have traced upheavals and invasions with the aid of rude artifacts left by nameless peoples and seen how such invasions affected the highlands and the plain alike. And we have observed a most significant change—the transformation of a peasant culture, diffuse but essentially conservative and unprogressive, into the nucleus of a civilization pregnant with potentialities of development and expansion. Out of the clash of diverse cultures and different racial elements with contrasting economic organizations and social traditions, the barbaric rudiments of States were generated. Within the skeleton of these, we discern the womb, fertilized by trade with south and west, whence at least two historic nations, the Italici and the Celts, came forth to conquer

¹ H. Reinert, *Der Wohnbau der Pfahlbaukultur*, 1924, pp. 11 f.; for a criticism of this view see Boethius in *B.S.A.*, xxiv, pp. 161 ff.

and Aryanize a large part of the continent. And as the driving force therein we could recognize one element which we also met at Troy and in the Aegean. Thus, though we have not found the Aryan cradle, we have a clue which guides us to that region upon which linguistic and ethnological data seem alike to converge, the great plain of North and East Europe. On it the Nordic race was admittedly characterized and thither we now repair.

CHAPTER VII

THE THEORY OF A NORTH EUROPEAN CRADLE

1. *The Aryans as Blondes*

The great majority of investigators from Omalius de Halloy and Latham onwards, who have accepted the doctrine of an European cradle-land, have located it somewhere on the great plain that extends from the North Sea to the Caspian. Not only does this region fulfill the conditions postulated by linguistic palaeontology better than any other, it was also the area of characterization where the tall blonde stock, the European race *par excellence*, was evolved.¹ And all advocates of a cradle in Europe who have appealed to anthropological results at all, have conceived of the original Aryans as blondes.

The pioneers of the European theory devoted much ingenuity to showing that peoples of tall stature, fair hair, light skin, ruddy complexion are or were to be found wherever Aryan languages are or have been spoken. They had, of course, to concede that to-day these physical characteristics have almost entirely vanished among many peoples who are linguistically Indo-European. Even in Europe the typical Greeks, Italians and Spaniards are short, dark Mediterraneans. But such phenomena can be explained by racial admixture. The tall blonde Aryans in such areas would have been only a conquering minority. Their physical characters, evolved in a cold climate, had only a low survival value, were recessive to use the Mendelian terminology, in the new environment. But much evidence could be adduced to show that in regions linguistically Indo-European, where blondes are now virtually extinct, such types had existed in antiquity.

De Lapouge² for example pointed out how the Achæan heroes are described as *ξανθοί*,³ that among the Romans, Sulla, Cato and others seem to have been fair, while such names as Ahenobarbus, Fulvus, Flavius and Rufus imply features in complete contrast to the typical Mediterranean. In Indian literature the word

¹ Haddon, p. 151.

² *L'Aryen*, pp. 187 ff.

³ Cf. Giles, *C.A.H.*, ii, p. 22. But even though this word may not mean "golden" haired, it does imply a contrast to the dark Mediterraneans.

for caste is *varna*, "colour," already in Vedic times, and since the Pandavas in the later epics are described as tall and fair, it may be concluded that the distinction intended was that between swarthy Dravidians or pre-Dravidians, *dasyus*, described even in the Rigveda as black-skinned (*kriṣṇavarṇa*), and fair Aryans. We have already noticed how white-skinned slaves are mentioned in Babylonian documents just about the time when the appearance of the horse and the advance of the Kassites suggested the presence of Aryans on the Iranian tablelands (p. 24). From a study of the Persians depicted on the sarcophagus of Sidon and other monuments, de Ujfalvy¹ deduced that this branch of the Iranian race included Nordic blondes. Chinese writers describe ruddy complexioned, blue-eyed, fair-haired peoples in Central Asia at the time of the maximum dispersion of Iranian speech just before the beginning of our era, and ancient paintings from the buried cities of the Tarim basin² depict distinctively European blonde types beside the native Mongoloids. The Iranian Alans again were tall and fair according to the Roman writers. But in addition to these vestiges of genuine blondes of seemingly European type in the Aryan zones of the Ancient East, the same type still survives to-day among various peoples of Indo-European speech in parts of Asia where they have been sheltered by remoteness from racial admixture or favoured by a climate comparable to that of Europe. Such blondes are the Iranian Galchas first studied by de Ujfalvy in 1878. The Kurds of the highlands north of Irak are again tall, fair and blue-eyed (Pl. VIII, 2), and von Luschen³ has drawn attention to the coincidence between their habitat and that of the Indo-Iranian Mitanni chiefs 3,500 years ago. Again round the ancient Persian capital of Persepolis a few individuals with blue eyes and chestnut-coloured hair⁴ seem to betray at least an infusion of genuine blondes in Iranian Persia.

These examples ancient and modern could be multiplied, but enough has been said to show that the blondes constitute a racial link of the kind which has been sought between Europe and Asia and Northern Europe and the Mediterranean. If we accept this racial link as identical with the linguistic, the theory of an Aryan cradle in Europe receives confirmation, since everyone

¹ *L'Anthr.*, 1900, pp. 23-56 and 193-234.

² Feist, p. 498 and frontispiece.

³ *J.R.A.I.*, xli, pp. 242-3.

⁴ Haddon, p. 102.

agrees that such blondes were characterized somewhere in the European area.

Most partisans of that hypothesis who have gone thus far go further and regard the original Aryan type as that of the blonde race par excellence, *Homo europaeus nordicus*, the tall dolichocephalic Nordic. To this, however, there are notable exceptions. Canon Isaac Taylor¹ pointed out two facts; not all Nordics can be regarded as Aryan—many Finns belong to that stock—and many Aryan blondes are and were brachycephalic. To the latter type Taylor assigned the British round-barrow men who were certainly brachycephalic and very likely both Aryans (Celts) and fair. Starting out from this British material Taylor contends that the first Aryans were tall, blonde, but short-headed. This is the type represented among the ancient Celts and the modern Slavs² and he detects it among the Umbro-Latini too. As is well known Professor Ridgeway has elaborated the argument in the case of the Celts and extended it to embrace the Achaeans of Greece as well. Recent research has shown that the Cretan Sphakiotes, who may be pure descendants of the Dorians, belong to the same brachycephalic group.³ Furthermore some of the Asiatic blondes⁴ who have been welcomed with such éclat by the anthropological supporters of the Nordic hypothesis turn out to be as distinctly brachycephalic as the Slavs. Finally even in Germany, Russia and Scandinavia, the very regions whence the believers in Nordic Aryans derive their most powerful arguments, a brachycephalic element existed in neolithic times.

Thus with the evidence at his disposal, Taylor made out a very strong case for brachycephalic Aryans, and the later results which I have here inserted only strengthen his position. His conclusions were briefly as follows. The European brachycephals fell into two divisions, short and dark on the one hand, tall and fair on the other. Both branches were in the last resort Asiatic in origin. The former division would include the ancestors of Finns and Basques, the second would have become specialized in northern central Europe and with its complexion would have changed its speech, becoming Aryan. On the other hand the Nordic long-

¹ pp. 231 ff.

² Taylor describes the Lithuanians too as brachycephals, but this seems a mistake. Cf. p. 167, note 3.

³ *B.S.A.*, xvi, pp. 257 ff.

⁴ E.g. the Galchas, but not the Kurds.

heads were not originally Aryans, but only became Aryanized through contact with the brachycephals. Taylor points out with especial satisfaction how on the lips of Nordic Teutons the Aryan tongue was distorted,¹ witness the celebrated soundshifts (p. 7). It is only the last point which concerns us here, the details of Taylor's theory, the Asiatic origin of the brachycephals, their kinship with Mongols, the relation of Finnish and Basque, etc., are all somewhat antiquated, as the reader will perceive.

Nevertheless even the kernel of Taylor's thesis is, if not unsound, at least uneconomical. On the one hand we wonder why the Asiatic invaders should only have begun to speak Indo-European in Europe. On the other hand most anthropologists now incline to regard the tall blonde brachycephals, Denniker's Vistulans and the round-barrow men who invaded Britain, as the product of hybridization between Nordics and darker brachycephals.² In fact Taylor himself has to admit actual contact between tall dolichocephals and tall brachycephals in the period of the Aryans' co-existence. Is it not more reasonable, asks Zaborowski,³ to ascribe the change, admitted by Taylor, from pre-Aryan to Aryan speech precisely to those superadded dolichocephals? An affirmative answer would not be necessary, could a specific culture be ascribed to the tall blonde branch of the brachycephalic stock. But these appear as a relatively homogeneous mass only in a late stage of European pre-history and no peculiar culture can be assigned to them. Their artifacts and burial rites everywhere show mixed characters and the element common to all is, in each case, that normally associated with Nordics. That is most conspicuously true of the invaders of Britain.⁴ Their pottery and some of their metal utensils show the influence of the Prospectors. On the other hand their typical vase was not the bell-beaker (p. 99) but rather a cord-ornamented beaker decorated in the style of a bell-beaker; they used stone battle-axes and buried under barrows and not in flat graves like the Prospectors. Now all these features, the cord-ornament, the battle-axes and the barrow to mark the grave, belong to a purely Nordic stock, well-known in Thuringia and South Germany (p. 174). It is to this folk that our round-barrow men must owe their tallness and the Nordic peculiarities observed in the con-

¹ pp. 231-2.

² Haddon, pp. 27 and 29.

³ *Rev. Ec. Anthr.*, 1898.

⁴ *Dawn*, p. 293.

formation of their skulls as well as many elements of their civilization.

We may then regard the tall brachycephalic blondes as ethnically¹ and culturally mixed. We may accordingly identify that ingredient to which they owed their tallness and fairness and such a large element of their culture too with the Aryanizers who taught the brachycephals Indo-European. To the Nordics we now return, but perhaps in the light of the foregoing discussion we should add the proviso that, at least by the time of the Aryan dispersion, it is improbable that the Nordic or any other stock was strictly pure.

Now certain arguments extraneous at once to anthropology, archaeology and philology have been adduced to fortify their claim. The pioneers of the Nordic hypothesis and many of their disciples have ascribed to the Nordic race as such a physical superiority corresponding to the linguistic pre-eminence of Indo-European speech and have sought to deduce from the skeletal build of the Nordic the psychological characters which they regard as peculiarly Aryan. Penka in Germany and de Lapouge in France waxed lyrical in praise of the virtues of the tall blondes, and these panegyrics are still echoed by more popular writers in this country, Dean Inge for example, and above all in Germany. According to Penka the Nordic race was "ever-conquering and never conquered", it was "spiritually and physically aristocratic". A passage of de Lapouge's eloquence is worth quoting:

"La supériorité sociale de l'*Homo Europæus* s'accuse de toutes façons. Il occupe les plaines laissant les hauteurs à l'*Alpinus*. Il affixe dans les villes, dans les centres d'activité, partout où il faut plus de décision, d'énergie. Plus une couche sociale est élevée, plus on le rencontre en grand nombre. Il prédomine dans les arts, l'industrie, le commerce, les sciences, et les lettres. Il est le grand promoteur du progrès."²

It seems to-day unnecessary to quote further from the rhapsodies of those who have been called the "anthroposociologists" or to criticize their premises. The correlation between cranial contours and intellectual characters, if any, has yet to be discovered. No serious anatomist to-day would attempt to deduce from a

¹ Recent researches suggest that though the factors determining the inheritance of skull-form are exceedingly complex, brachycephalism tends to be a dominant character in a cross between long heads and short heads.

² *L'Aryen*, p. 399.

skeleton the spiritual aptitudes or achievements of its one-time owner. The measure of truth which underlies such fables must await exposition in a later chapter. As a contribution to the identification of the Aryans the fantasies of the anthroposociologists are quite worthless.

Not only are they worthless ; they are positively mischievous. They have induced their votaries to postulate all sorts of migrations, for which there is as yet not a particle of evidence. To buttress the Nordic's claim to be the ruling race *par excellence*, attempts have been made, and are still being made, to prove that the earliest dynasties of China, Sumer, and Egypt were established by invaders from Europe and even to-day the vision of certain prehistorians is absolutely distorted by this preconception. Such misdirected enthusiasm also injures science in another way. The apotheosis of the Nordics has been linked with policies of imperialism and world domination : the word "Aryan" has become the watchword of dangerous factions and especially of the more brutal and blatant forms of anti-Semitism. Indeed the neglect and discredit into which the study of Indo-European philology has fallen in England are very largely attributable to a legitimate reaction against the extravagancies of Houston Stewart Chamberlain, and his ilk,¹ and the gravest objection to the word Aryan is its association with pogroms.

2. *Scandinavia and the Germanist Hypothesis*

Having then agreed that the original Aryans belonged essentially to the Nordic race and that the latter was characterized on the North and East European plain, it remains to localize the cradle land. Cuno (1880), Zaborowski (1898) and others have indeed argued that the whole region from the North Sea to the Caspian should be looked upon as the continuum in which Aryan language developed. That, however, seems impossible. The primitive language appears to have been too nearly an unity to have been formed in such a vast and diversified area (p. 12). Again the Aryan people were sufficiently closely knit to have a tribal god and father of their own ; it is scarcely conceivable that a "tribe" or a series of tribes or families, diffused indifferently

¹ Lothrop Stoddard, *Racial Realities in Europe* (1924), imports this false principle into American politics.

over thousands of miles of marsh, forest and steppe, should have possessed the degree of coherence which this and other traits in the primitive Aryan culture imply. It must not be forgotten that for prehistoric man forest tracts, denser than to-day, offered serious obstacles to intercourse and locomotion. While it is possible that in pre-neolithic times stray families of proto-Nordic hunters wandered over a large part of that immense plain, in the search for the Aryans it is clear that we must look for a more restricted area where a homogeneous culture was evolved and whence its diffusion can be traced.

Now two points on the plain have from the very first attracted the attention of philologists ; of the two pioneers of the European hypothesis, Omalius d'Halloy selected North-central Europe, and Latham, Volhynia and the Ukraine. They showed extraordinary prevision ; it may at once be said that in the present state of our knowledge the cultural conditions are fulfilled only in one of those two directions. Yet many other points have been singled out both by philologists and anthropologists. Poesche in 1878 hit upon the sources of the Pripet, the Rokitno Swamp, as the most likely spot. He was guided by a mistaken anthropological conception ; confusing the Nordics' blondeness with albinism and erroneously believing that the latter abnormality is due to a marshy environment, adding that it was at his time common around the Rokitno Swamp, he located the original home of the Nordic race and so of the Aryans there. All his premises being wrong, his theory is of only academic interest. In any case no cultural group is known that originated around the head waters of the Pripet. The same latter defect is inherent in theories which set the cradle in East Germany (Hirt) or Poland. No neolithic or Early Bronze Age culture originated in either of those regions ; we can clearly trace other cultures coming thither from the Danube valley, from Scandinavia and possibly from South Russia, but none of these crystallized out into an independent local culture of sufficient antiquity and importance to fulfil the requirements laid down for the Aryan cradle.

The region between the Nieman and the Vistula recently proposed by Professor Bender¹ seems to have played an equally secondary rôle in prehistoric times. It has indeed the special advantage of being inhabited to-day by the Lithuanians, a people

¹ *Op. cit.*, p. 55.

who have preserved Aryan speech across the ages with quite exceptional purity and who belong to the Nordic race. At the moment this territory is but little explored, and some recent researches¹ have suggested the possibility that it was more like a centre of culture than has been generally supposed. Nevertheless the balance of evidence available to-day suggests that, densely wooded save for a few dunes, the haunts of pre-neolithic hunters, these regions received neolithic civilization but late, and were in no sense centres of population. Culture and presumably colonists came thither with the stamp of long development already upon them either from Scandinavia or South Russia. It is in fact to one of those areas that, in the present state of the evidence, we must turn to seek our Aryans. The former certainly and the latter probably were centres of population before the dawn of the New Stone Age, and early developed autochthonous cultures, and from them civilization and civiliziers were radiated far and wide.

At the present moment the Scandinavian theory is the most attractive, having been expounded with a wealth of detail and a complete mastery of the archaeological data by such profound students as Kossinna, Schliz and Schuchhardt. The founder of the Germanist school, as we may term the advocates of a Scandinavian cradle for the Aryans, was Carl Penka. He appealed at once to history, philology and anthropology in support of his then heretical views. Anthropologically the Nordic race was traceable in the earliest remains of human habitation in the North; it is represented there at all epochs of history and pre-history, and to-day the Scandinavians preserve the type in a purity nowhere else to be equalled. In other regions such as South Russia, where the skulls from ancient *kurgans* were predominantly Nordic, or as in the Mediterranean lands and India where language demonstrates the presence of Nordics, the primitive type has given place to brachycephals or Mediterraneans. Hence only in the North, where alone the conditions for its survival have been found, could its area of characterization have lain.

The history of Scandinavia again is said to be continuous. From the time when it was first occupied by pre-neolithic men after the retreat of the glaciers, there is no trace of any foreign conquest

¹ Leon Koziowski, *Młodsza epoka kamienna w Polsce* (1924). Rough flint implements of the type known as "Campignian", belonging generally, but not exclusively, to a pre-neolithic period, are common in Lithuania and evolve locally to neolithic forms.

or invasion. At the same time the North and not Asia has been the veritable *officina gentium*. From the beginning of recorded history we see young peoples—Teutons and Cimbri, Goths, Langobardi, Burgundians, Normans—pouring down from the cold lands to conquer and rejuvenate the effete Roman Empire. The formation of the Celts, Romans and Greeks should be regarded in the light of that analogy, the whole of prehistory will become the record of the successive swarmings south, east and west of Aryans cradled amidst northern snows. To strengthen his argument Penka did not hesitate to appeal to Homeric myth, citing the Cimmerians shrouded in continuous night and the tall Laistrygonas on whom perpetual day shone as Greek reminiscences of their subboreal home.¹

Linguistically Penka gallantly maintained that the Indo-European phonetic system was preserved in a purer form in Teutonic than in any other Aryan tongue.

The general effect of these arguments, despite exaggerations in secondary points, is undeniably very powerful. The greatest weakness lay on the linguistic side. The thesis that Teutonic is the purest Indo-European language is quite untenable; it is enough to point with Fick, Taylor and Bender² to the celebrated sound-shifts. Such phonetic dislocations imply that the Teutons were much mixed with non-Aryan blood. But lest that be used, as it is by de Michelis, to dissociate the Aryans from Nordics altogether let us recall that one of the purest of all Indo-European tongues is that still spoken by the Nordic³ Lithuanians. But not only is Teutonic manifestly degenerate from a phonetic standpoint, Scandinavia and the culture of its earliest inhabitants do not correspond very satisfactorily to the picture drawn with the aid of linguistic palaeontology of the earliest homeland and primitive civilization of the Aryans. Scandinavia is essentially a maritime region and the earliest men there dwelt on the shore and lived by fishing. While the negative argument that the sea is not named in the Indo-European vocabulary is of doubtful validity, it is notorious that early Aryans even in a maritime region eschewed a fish diet (p. 84). Amber was early and universally used all along the Baltic coasts and in North Germany at a very remote date, yet no name for the gum exists in the

¹ Let us remember that Ridgeway too draws similar though less far-reaching conclusions from these passages in the *Odyssey* (*Early Age*, p. 358).

² *Op. cit.*, p. 49.

³ Haddon, pp. 64-5.

Indo-European languages. Though the early presence of the horse in the North has now been demonstrated, he was the small stout forest horse to which the epithet swift was scarcely applicable (pp. 83, 88). Finally, while there seem to be Aryan words at least for copper, the knowledge of metal only reached Scandinavia late and the Germanists all hold that the expansion of the Aryans began while a purely stone-age culture still reigned among them. Accordingly Professor Kossinna is obliged to regard *ayos* as a loan word borrowed after the dispersion (cf. p. 79 above).

As a matter of fact the disciples and successors of Penka have tended to dispense with the support of linguistic palaeontology; they rely on different arguments which seem to them so convincing that extraneous help is unneeded. They contend that all the Aryan races of history can be traced back to a centre on the Baltic with the aid of archaeology and that this is the only possible common focus of Indo-European speech. For the examination of their contentions it is convenient to begin with the system of Professor Gustav Kossinna¹ which may be regarded as in some respects the most authoritative. I shall then endeavour to set forth succinctly the theory which he has stated with such a profound mastery of the archaeological material, but I shall omit the mass of very highly technical detail which makes his writings so perplexing to the layman.

When the retreat of the last glaciers rendered northern Europe habitable, some descendants of the palaeolithic reindeer hunters from the West settled, about 10,000 B.C. on Kossinna's chronology, upon the shores of a series of lakes filling the depression which subsequently became the Baltic. Their chief centres would have been in Scandinavia, but relics of similar tribes are found from Holderness in Yorkshire to Latvia. These people, called by Kossinna the *Dobbertin*² folk but better known in this country by the name of *Maglemosians*,³ were still just hunters and fishers like their ancestors of the Old Stone Age. Like the latter they used bone and horn very largely and worked these materials very skilfully, but they also employed tiny flint flakes, what are commonly termed microliths, for arming harpoons and many other purposes,

¹ It has been stated at length on three occasions—in *Archiv für Anthropologie*, 1902, in *Mannus*, 1910-11, and in an unfinished monograph entitled *Die Indogermanen* in 1921. In each restatement sweeping changes have been introduced so that it is hazardous to infer from the *Mannus* article how *Die Indogermanen* is going to be completed. Here the latter is followed as far as it goes.

² After a site near Kiel.

³ After the site, *Maglemose* near Mullerup, in Denmark.

and possessed further hatchets and picks of chipped flint, tools which had been unknown to the later palaeolithic peoples of Europe. Both round-headed and long-headed individuals (the latter descended from the tall Cro-Magnon race of the West) were to be found among the Dobbertin population. Kossinna regards them as the ancestors at once of the Indo-Germans (Aryans) and the Finns, supposing that they spoke an agglutinative tongue from which Indo-European and Finno-Ugrian were subsequently evolved.

As the centuries passed the North Sea coasts sank and the salt water flowed into the old lakes, thus forming the Baltic. In this phase, beginning according to Kossinna about 6000 B.C., the climate was warmer than to-day; Europe in fact then enjoyed a "climate optimum" and the waters of the new sea swarmed with fish. The new and improved conditions entailed adjustments of habit on the part of the old fisher folk. The more conservative element, mainly brachycephalic, would have kept to the fresh water and perpetuated with but slight modification the bone industry of Dobbertin-Maglelose. These bone-users, some of whom now began to spread eastward, are henceforth termed by Kossinna "pre-Finns" (*Vorfinnen*), the ancestors of the Finns. The more adaptable section of the inhabitants of Scandinavia, mainly dolichocephalic, took advantage of the abundant prey afforded by the warm salt water and became a coastal population. These, called by Kossinna the *Ellerbek* folk, created the well-known culture of the Danish kitchen-middens in which it is especially the flint industry which is developed. Eventually they would have invented pottery, domesticated some of the local animals and begun to cultivate wild grains. They sent out colonists to Britain and North France who brought thither the flint-using civilization called Campignian. Others had gone eastward to Lithuania, Poland and Volhynia; Kossinna thinks they even reached Mesopotamia as Sumerians, so that the supposed affinity between Sumerian and Indo-European speech would be happily explained. None of these peoples were yet Indo-Europeans, — Kossinna calls them pre-Indo-Germans (*Vorindogermanen*)—but they were on the way to becoming Aryan.

And those who stayed at home in Scandinavia actually did make that advance at the same time as they began to polish their flint axes. Quite what the culture of the undivided Indo-Germans was like we are not told. They had embarked upon food pro-

duction, garden culture and stock-breeding, about 4500 B.C. (on Kossinna's chronology), and they could polish flint, but they possessed no metals. However, the period of Indo-German unity did not last long. About 4000 B.C., "that cleft which was to divide the *satem* from the *centum* languages sundered the population." Those who were to pronounce *k* as *s* went southward through Silesia and created the Danubian civilization which we have learnt to know in Chapter VI. These were now South Indo-Germans. In Hungary they discovered and began to exploit the local copper ores, casting among other things the curious battle-axes of Fig. 27, 3, which they eventually introduced to the Caucasus. Moreover the whole culture with painted pottery in Transylvania and the Ukraine is attributed to the eastward expansion of the South Indo-German Danubians. But they were forced to surrender their territories to the advancing North Indo-Germans; the *satem* people were driven from the Ukraine to enter Greece as Thracians, even founding the Minoan civilization, while others were swept eastward to carry the art of vase-painting to Anau and Susa.

Meanwhile the section left at home on the coasts of the Baltic and the North Sea, now termed North Indo-Germans (*Nordindogermanen*), learned the art of building dolmens transmitted to Scandinavia via Ireland from Spain. And then began a period of rapid progress in the arts and of conquering expansion in all directions. The North Indo-Germans, now warriors, pastoralists, cultivators and navigators, sent out wave upon wave of warlike colonists.

Before considering these movements, which Professor Kossinna has traced in considerable detail in his earlier works, but has not yet reached in his latest monograph, we must pause to examine certain points in the foregoing theory. The account of the evolution of the early food-gathering populations may for the moment be accepted subject to the following reservations: the origin of the Maglemose culture must be sought in the south or south-east rather than the west¹; the geological dates adopted by our author are far too high; the reference to the Sumerians is a baseless speculation and the spontaneous rise of agriculture on the shores of the Baltic seems unlikely. But no one who has read the previous pages of this book will agree to the view that the Danubians'

¹ *W.P.Z.*, xii, pp. 5-6

culture was derived from Scandinavia. As a matter of fact the German professor treats this as an axiom for which he offers no proof. "Up to date," he writes, "we have not succeeded in establishing by archaeological means a link between the North Indo-German and the South Indo-German cultures in such a way that the separation of the first from the second can be traced and a bond of union between them demonstrated. That is a painful gap in our insight into the archaeological material."¹

We have further shown that the painted pottery of the Ukraine cannot simply be derived from that of the Danube valley. The idea of the foundation of the Minoan civilization by barbarians from Thrace is a fantasy which needs no refutation in English-speaking countries and even with Kossinna's inflated dates for the North it is a chronological absurdity to derive the painted wares of Elam and Mesopotamia from those of South-east Europe. All this means that Kossinna's South Indo-Germans must at once be eliminated from the Germanist scheme. And with all due deference I would submit that they are not really needed there at all. Still other Germanists besides the Berlin professor hold similar views. Schliz made even the earliest Danubians Nordics; Schmidt, Schuchhardt and Wilke derive the painted pottery of South-east Europe from the unpainted Danubian and call its makers Thracians.

Nevertheless, though we must abandon the identification of the Danubians with South Indo-Germans and the theory of their Scandinavian origin, there remain plenty of certain or at least plausible migrations, from the North to which the spread of *satem* as well as *centum* languages can, if necessary, be attributed. In dealing with his North Indo-Germans, Professor Kossinna is in fact on much surer ground. The invading bands which he traces may be, if not North Indo-Germans, at least Aryans. And in respect of these wanderings there is a much larger measure of agreement; for the regions further removed from Germany the researches of other investigators, notably Aberg, Kozłowski, Menghin and Tallgren can be invoked. These authorities, though diverging from Kossinna on points of detail, are nevertheless animated by the same general conception. In what follows, I shall therefore attempt to give a synthetic picture of the conclusions

¹ 1921, p. 75.

of the Germanist school rather than to restrict my exposition to one single thesis.

We do find then on the shores of the Baltic and of the North Sea, this rude kitchen-midden population living in Denmark, Sweden and Norway, and contemporaneous with them remnants of the pure Maglemose-Dobbertin stock clinging to the fresh-water lakes. Even if it be admitted that the men of the kitchen-middens had made the first steps in agriculture and the domestication of animals, their life was barbarous and precarious. And for the most part they kept to the coast. A few scattered families may have wandered southward, but on the whole the primaeval forest formed an impenetrable barrier to the south hemming in the Baltic world. To this isolated circle came visitors from the sea, navigators from the south-west, seeking perhaps the source of amber. As Professor Kossinna remarks, the new arrivals need not have been very numerous, but yet they may have appeared to the rude fishers of the kitchen-middens as culture-heroes. They may even have established on those bleak coasts dynasties claiming divine honours and descent from the Sun-God, as Mr. Perry would have us believe, though through inter-marriage with the natives they would soon have been assimilated to the local population. In any case it is certain that the mariners from the West introduced to Scandinavia the cult of the dead and the megalithic funerary architecture associated therewith—first simple dolmens and then more pretentious structures termed passage graves. To the same people should in my opinion be ascribed the sudden improvement in the industrial arts and the beginnings of regular agriculture (garden-culture) and cattle-breeding.

Equipped with this new spiritual and material apparatus, the population began to force its way inland, obliged to find fresh tracts for tillage and grazing. Before 3000 B.C., on Kossinna's high chronology, pioneers spread westward along the North Sea coasts as far as the Zuyder Zee, building passage graves all over the heath-lands, and, urged by the poverty of the soil, pressed ever further southwards.¹ Eastwards more adventurous bands, driving their flocks before them and pursuing the game, followed the Vistula water-way, some to Galicia, some turning westward and reaching Silesia through Poznanian.² This band, however, did not build megalithic graves but laid their dead to rest individually in small stone cists. On the Upper Oder they

¹ *Dawn*, pp. 205-210.

² *Ibid.*, pp. 228-235.

found Danubian peasants. Sometimes they exterminated these and settled on their lands—at Nosswitz in Lower Silesia a “Nordic” village of rectangular houses was built over the ruins of a Danubian settlement. Elsewhere they mixed with the Danubians; in the great cemetery of Jordansmühl (Upper Silesia) Nordic and Danubian II graves lay side by side. But the Danubians with whom the migrants here mingled, were not the simple peasants of the first period, but the more advanced people whom we have discovered at Lengyel in Hungary with Nordic skulls (p. 150). Should we invert the account given of the genesis of that group, seek its origin in Silesia, and derive thence the Nordic element found in Hungary? That would be a bold step, and Silesian, Bohemian and Moravian archaeologists are not prepared to make the experiment.

In any case the same Nordic stream which had reached Silesia pursued its course westward towards the Elbe and the Saale, there to meet other currents; for all this time a steady expansion had been taking place southward towards Central Germany. Its monuments are the megalith graves and Nordic pottery which cover all North Germany and penetrate ever further south along the Saale and Elbe highways. But it must be remembered that the Nordic cultures in Germany are very far from homogeneous. Some peoples buried their dead collectively in megalithic tombs, others in regular cemeteries of separate graves; the variety of the pottery is bewildering; both long and short-headed skulls are met. We get the impression of a tumultuous flood of rudimentary clans or tribal groups in continuous interrelation. Often they were at war, for the multitude of stone weapons is innumerable. But regular trade relations subsisted between the various groups illustrated by the diffusion of amber and other commodities.

But here we must digress to examine a very puzzling phenomenon at the heart of the turmoil, in Scandinavia itself. For there, especially in Denmark, no less than three distinct civilizations are to be distinguished. First come the descendants of the Dobbertin (or Ellerbek) folk in Norway and inner Sweden, who were as yet unaffected by the civilization of the megalith-builders and lived on as food-gatherers, using bone very largely or translating bone implements into slate. Then on the coasts and spreading, as we have seen, southwards were the megalith-builders. The third group was very different to either of the foregoing.

In contrast to the megalith-builders whose sepulchres were collective tombs where the members of a family or tribe were buried together for generations or to the food-gatherers who do not seem to have observed any regular burial rites at all, the third people were interred in separate graves, one for each person, lined with stones and surmounted by a barrow.¹ The oldest of these graves in Jutland are contemporary with the dolmens on the coast and often contain a similar furniture. But in the succeeding period the separate graves constitute a quite isolated group. Not only their form but also their furniture—pottery ornamented with cord impressions, spheroid maceheads, peculiar types of stone battle-axes, and special kinds of ornaments—is utterly different to that of the contemporary collective tombs, the passage graves. Moreover, these separate graves occupy the whole of inner Jutland to the exclusion of megalithic tombs. There is no doubt that they belong to a distinct and war-like population—we may call them battle-axe folk—who had checked the expansion of the megalith-builders in this direction and who largely lived on tribute exacted from their coastal neighbours.

Who are these people? Kossinna says that they are descendants of the "pre-Finnish" Dobbertin stock in course of Indo-Germanization. Was this predatory folk generated and organized by discontented scions of the ruling houses of the "Archaic (megalithic) Civilization" on the coasts in the way that Perry² describes—that might correspond to Kossinna's "Indogermanization"? Or finally were the warriors invaders come from more continental regions as Sophus Müller, Knut Stjerna and C. A. Nordmann contend? Similar people are certainly to be met in Thuringia, South Sweden and Finland. The Thuringian barrows cluster all along the hills, dominating the Saale salt deposits and the Elbe amber trade route as if their builders had been taking toll on Central German commerce, just as their kinsmen in Jutland did on the coastal traffic. And the Thuringian barrows cover graves of similar form and furnished with similar objects³—cord-ornamented vases, stone battle-axes and spheroid mace-heads—to those of Jutland. A less strict parallelism links the battle-axe graves of Sweden and Finland to those of Jutland and Thuringia and to one another. We have

¹ *Dawn*, pp. 206, 209–11.

² *Growth of Civilization*, caps. vii and viii.

³ *Dawn*, figs. 116, 117, 100.

used the word parallelism advisedly, for it is extremely difficult to derive any one group directly from any other.

Before concluding this digression, let us state that the origin of the battle-axe folk is the crucial question for the Germanists; not only are the skulls, from the Thuringian barrows at least, typically Nordic but it is to the battle-axe folk that several cultures which can be identified as the work of Aryans are directly linked. The round-barrow men of Britain and the proto-Celts buried in the Bronze Age barrows of Bavaria are the direct descendants of the battle-axe folk from Thuringia who lie beneath the Stone Age barrows of the Rhineland¹; even in Scandinavia and North Germany it is the civilization of the separate graves which eventually becomes dominant, absorbing the megalith culture and that of the fisher-folk so that they leave no trace behind. For the moment, however, we shall accept Kossinna's doctrine² of the local origin of this culture in Jutland, and treat the battle-axe cultures of Thuringia, Sweden and Finland as derived therefrom. With this assumption we can trace more closely the expansion of the several waves of Nordic tribes.

The tumultuous bands who pressed southward through Central Germany did not first penetrate south of the heights round Magdeburg; further south lived the Danubian peasants. But there came a time when the rough Nordics entered the Danubian province. At first they advanced by slow infiltration, and individual families or groups were admitted to membership of Danubian communities. The presence of genuine Nordics among the Danubians when they had at a relatively late date colonized the Rhineland (p. 141) from Thuringia could be thus explained. But ultimately the barbarians from the North fell upon the peasant communities and finally overlaid them—we have already described the process. And even before the central wedge had crossed the Danubian frontier on the Elbe and Saale, the more easterly band of invaders, whom we left in Silesia a few pages back, had been advancing southward into Moravia and westward to the Elbe. Some of these same migrants must have reached the eastern slopes of the Alps; for stone battle-axes like those found in the Austrian lake-dwellings and the land stations of

¹ I hold that the barrows of the "Tumulus Bronze Age" in the South German highlands belong to descendants of these "neolithic" people, some of whose interments must be contemporary with Early Bronze Age graves in the valleys.

² This view is ably sustained by Menghin in Hoernes, *Urgeschichte*, pp. 738 and 767.

Bavaria have been met in the cist graves of Galicia (Fig. 27, 5, cf. p. 156 above). The other branch of the same band had, as we saw, proceeded eastwards into Galicia and beyond.

A second wave¹ of peoples penetrated still further into South-east Europe. Starting from Denmark, as Kossinna, now thinks, or from Central Germany as he held in 1910 and Åberg subsequently argued, they spread to the Dniestr valley and the Ukraine and possibly even reached the Caucasus; the monuments of this invasion are in the first place globular amphorae,² and it is certain that such vessels from Eastern Galicia and the Ukraine are identical in form and decoration with those found in Central Germany. To the same migrant hordes Kossinna attributes the erection of the megalithic tombs found between the Oder and the Vistula. In 1902 he ascribed the "dolmens" of the Black Sea coasts to a like body of Nordic invaders. Though this suggestion has not been repeated in subsequent articles, it is certain that some sort of connection between the Caucasian "dolmens" and part of the Nordic megalithic culture exists; two peculiar double dolmens on the Kuban in the Caucasus are identical in form with one at Baalberg in the Saale valley and contain very similar vases.³ Though the Caucasian tombs were furnished in addition with metal objects which show Mesopotamian influence, it is not inconceivable that they were built to the order of some Nordic chief from Germany. And later on similar curious megalithic tombs were built south of the Caucasus on the Caspian coasts. Here if we liked we might see the vanguard of Nordic hosts advancing on Iran to become Indo-Iranians.

Even wider was the range of the nomadic warriors who buried their dead in separate graves under barrows with cord-ornamented vases. Westward they spread from Thuringia to the Rhinelands where they stood as overlords among the hill population. Mixed with Prospectors they set out to invade Britain as the round-barrow men (page 162), while others remaining behind in the Rhineland took to burning their dead (page 145), invaded Switzerland with their battle-axes and corded vases (page 157) and in the highlands of South Germany formed the nucleus of the Bronze Age barrow-builders to whom the north-western Hallstatt civilization may later on be ascribed.⁴ At the same time

¹ The three waves of invasion are described with maps in *Mannus*, i-ii.

² *Dawn*, fig. 114.

³ *Dawn*, figs. 63, 1 and 62.

⁴ The continuity between the (Middle) Bronze Age and Early Iron Age

a similar people had reached the coasts of the North Sea in the Stone Age and there had superseded the megalith culture of Holland by their own. To the south we have already seen how the second wave of Nordics as conquerors of the Danubian peasants introduced cord-ornamented pottery into Moravia and Bohemia while the ceramic evidence revealed similar intruders entering Hungary and Transylvania from the north and the south-east (p. 151).

Eastward the battle-axe folk travelled even further. In South Russia, where they represent the third wave of the Indo-Germanic exodus, Kossinna has traced them to the Black Sea and the Don; the barrows there contain stone battle-axes and vases ornamented with cord-impression just as in Jutland or Thuringia, and the corpses belonged to true Nordics. The flint celts and stone battle-axes which appear as strange intruders among the vase-painters of Bulgaria might be assigned to a branch of the same stream, and Åberg¹ has derived the ceremonial weapons of the lords of Troy from the Danish axes through Russian types (it is certain that axes of distinctively East European type closely akin to those from Silesia were found at that city).

Yet another migration has been traced by Professor Tallgren,² who regards the wanderers as Indo-Germans, though Kossinna calls them "Finns". In the valley of the Upper Volga are several cemeteries of separate graves lined with stones much like those of Jutland; they contain flint celts, necklaces of teeth, vases not very different from those of the Swedish battle-axe graves and battle-axes which Tallgren now regards as descended from the Danish. This civilization is called the "Fatyanovo culture". According to Professor Tallgren it was due to the advance of warlike Nordic tribes from Scandinavia, perhaps through East Prussia or Finland where battle-axe cultures are also known, to Central Russia. Locally this author finds no continuation for the Fatyanovo culture, but in the Caucasus, in the brilliant copper age of the Kuban, it would be propagated further. No doubt the wealth of the Kuban graves comes from Mesopotamia, but as the spoils of Mesopotamia only. "As in the great migrations of the first centuries of our era, Nordic barbarians

populations here is proved by the pottery (Behrens, *Bronzezeit*, p. 276). But the Central Hallstatt culture belonging partly to Illyrians (Menghin, *op. cit.*, p. 841) pushing up from the south-east produced mixtures and displacements in the population (see Keller and Reinerth, *Thurgau*, p. 76).

¹ *Das nordische Kulturgebiet*.

² "L'âge du cuivre en Russie centrale" in *S.M.Y.A.*, xxxii; cf. *Dawn*, pp. 224-6, figs. 108-9.

had occupied the seats of the Oriental kings and buried in their tombs the plundered 'treasures.'¹ Here then we would have a stream of Nordic Aryans, crossed, if you will, with another current coming across the steppes, but well on their way to the Ancient East where they would emerge as Mitanni kings, Hittites, Persians or Hindus.²

Finally in Scandinavia and North Germany itself the civilization of the Bronze Age, which must belong to Teutons, is a direct continuation of that of the Stone Age, fertilized indeed by trade with Britain, Bohemia, Hungary and Italy, but developing without a break in population or culture.

Here then we have in outline a picture of the expansion of Nordic civilization and its ruling race from Scandinavia and Germany. The events of prehistory faithfully anticipate the great migrations of the first centuries of our era. But these migrants who gravitated towards the centres of antique culture and conquered them in the late Stone Age were not yet Germans but Indo-Germans, Aryans. Where we have followed their wanderings, we have found them eventually emerging as Celts, Italic, Hellenes, and Indo-Iranians. As for the Finns, whose linguistic relation to the Aryans is an essential part of the theory of Penka and Kossinna, they are easily identified. From Norway to the Urals we know a rude neolithic culture characterized by bone implements, or imitations thereof in slate, round-bottomed pots, and a naturalistic sculpture.³ These artifacts are held to betray the kinship of their makers with the Dobbetin-Maglelose folk and consequently their western origin. But confined to the forests and swamps of the frozen North this population remained long in the food-gathering stage of culture, despite a rudimentary system of barter and contact with the battle-axe folk. These rude hunters may well be the ancestors of the Lapps and Finns, though the latter only developed into a specific people at a much later date in the Ural region. Thus the relation of Finns to Aryans would be satisfactorily explained. We should further be in a position to answer an objection raised by de Michelis and others to the hypothesis of a North (or East) European cradle: "Why," they ask, "granting the peculiar virtues of the Nordic race and its

¹ Tallgren, in *Finskt Museum*, 1924, p. 25.

² Tallgren, adopting a conservative estimate, dates the Kuban copper age between 2000 and 1500 B.C., *Studia Orientalia Fennica*, 1925, pp. 340 ff.

³ *Dawn*, pp. 219-222.

Aryan speech, were the Finns not Aryanized?" We might now reply: Because they were relegated to the inhospitable forests and swamps, and such sub-arctic regions and their savage denizens exercised no attraction on the domineering Aryans who preferred enjoying the fruits of others' labour to themselves opening up the pathless woodland.

As thus presented the Germanist doctrine is the most comprehensive and consistent synthesis of Indo-European peoples that has ever been offered. It is the only doctrine the extant expositions of which can pretend to combine the results of recent archaeological research with the data of philology. At the same time it is one of the fairest and certainly the most economical account of the development of a peculiarly European civilization yet propounded. Indeed, if it can prove its validity in the realm of archaeology and ethnology, it will probably have to rank as an accurate solution of the Aryan question. In these respects, however, it is to-day not quite unassailable. Some of the objections are of a highly technical nature; for a discussion of these I refer the reader to my *Dawn of European Civilization*. Here I shall limit myself to a few more general points.

Firstly in the sphere of ethnology, the bases of the theory are not so stable as might be wished. The skulls on which Kossinna relies to prove the Nordic character of his Maglemose-Dobbertin folk are by no means certainly dated; in any case the Nordic race can scarcely be derived from the western Cro-Magnon stock, but had eastern or Central European antecedents.¹ It can nevertheless be regarded as generally probable that a sort of proto-Nordic element was present in the North in the days of the Maglemose culture and of the later kitchen-middens, as it had been in the last phase of the Old Stone Age in South Germany.² On the other hand the bodies interred in the early dolmens, as Kossinna himself points out, belonged according to Karl Fürst to individuals who, although dolichocephalic, were short of stature, i.e., to members of that same Eurafian race which built the other dolmens in Western Europe and the long barrows in Britain.

In the second place the civilization of Denmark and Scandinavia at the epoch of the early dolmens is not wholly explicable either as the product of Western and South-western inspiration or as the result of a local and spontaneous evolution. The pottery,

¹ *W.P.Z.*, xii, pp. 8-9.

² E.g. the skull from Ober-Cassel (Magdalenian), Keith, *Antiquity*, i, p. 108.

especially curious little flasks with a clay ring or collar round the neck (collared flasks),¹ and battle-axes and other objects found in the dolmens have no prototypes in the realm of the megalithic culture further south and west. At the same time the subsequent evolution of arts and industries in Sweden, Denmark and North Germany, was far more rapid and brilliant than in the megalithic provinces of France or Spain. But if the objects from the Scandinavian dolmens cannot be regarded as introduced and inspired from the West, they can still less be regarded as the spontaneous inventions of the local native authors of the kitchen-midden culture; the continuation of the latter is to be found in the "dwelling places" of South Sweden belonging to a backward race of food-gatherers. Their pots, for instance, do carry on the tradition of the kitchen-middens, as those from dolmens and separate graves do not.

Now Sophus Müller has suggested that the curious vases, such as the collared flasks, found in the Danish dolmens which are so hard to explain came in fact from the South-east; in Silesia and Galicia they are not uncommon and are found in separate graves sometimes accompanied by perforated stone battle-axes of a type found in Danish dolmens.² Might we not regard such objects from dolmens as borrowed from the people who buried their dead in separate graves?

Thirdly the culture of the separate graves in Denmark raises a very puzzling problem. Kossinna as we saw attributes these interments to descendants of the aboriginal "pre-Finnish" population surviving from times anterior to the oldest dolmens. Scandinavian archaeologists are not altogether averse to such an explanation as far as the oldest separate graves, contemporary with the dolmens, are concerned. But when we come down to the epoch of the passage graves, the majority of competent authorities, Sophus Müller, Knut Stjerna and C. A. Nordman, look to an invasion to account for the battle-axe folk whose separate graves occupy the interior of Jutland to the exclusion of the collective megalithic tombs. In the case of similar battle-axe graves in Finland there is in fact no possibility of doubt that they were dug by intruders and the same may well be true of the corresponding interments in Sweden. All this is very hard to reconcile with Kossinna's hypothesis, for the same "pre-Finnish"

¹ *Dawn*, pp. 205 ff. and fig. 98.

² *Ibid.*, fig. 112.

population to which he attributes the Danish burials was available also in Finland and Sweden, where it did not develop into a battle-axe folk but was overcome thereby.

If then we must admit invaders even in Denmark, whither should we look for their homeland and starting point? Some might point to Thuringia. But the Thuringian barrows with cord-ornamented pottery seem rather parallel than prior to the Danish separate graves. Nor is a local origin of the Thuringian culture really discoverable, though Götze, Schliz and Schuchhardt think differently; there too it looks as if we had to do with intruders, probably a band of the same stock as had invaded Denmark. But if this be true it is fatal not only to a large part of Kossinna's special theory, but to the whole idea of a Scandinavian origin for the Aryans; for it is with the separate grave folk, wielders of battle-axes, and not the megalith-builders that the European cultures wherein we would detect Aryans, are to be connected. That is true not only of the proto-Celts in South-west Germany, but even of the Teutons themselves, since it was the separate grave culture that eventually obtained the mastery in Scandinavia by the beginning of the Bronze Age.

Finally there are very grave chronological obstacles in the way of regarding the battle-axes of Troy and Hungary, which seemed to us the most "Aryan" elements there, as descended from the Danish or Thuringian. With Kossinna's inflated chronology indeed there would be no contradiction in so doing, but that chronology rests on no sure foundations and ultimately leads to results highly disadvantageous to the Nordic peoples whom he wishes to exalt. On the other hand the dates given by relations through the Danube valley and through Britain with the Aegean where alone an absolute chronology is available before 600 B.C., would place the Danish dolmens not much before 2600 B.C., and the earliest passage graves with which the first expansion of the battle-axe cultures should coincide, about 2200 B.C. Plainly that will not allow the Nordics from Scandinavia to have reached the Troad before 2200 B.C.

No doubt these objections are not insuperable. They may all be eliminated as a result of further investigation, and in that case the Germanist theory would probably be acceptable. But in the interim we are at liberty to seek an explanation of the unintelligible phenomena outside Scandinavia and in so doing to look for an Aryan cradle that harmonizes better with the data

of linguistic palaeontology. Indeed, no one can fail to be struck by the discrepancies between the picture of Aryan culture sketched in Chapter IV and that derived from a study of the antiquities of Scandinavia. We come then to the hypothesis first propounded, very cautiously, by Professor J. L. Myres, and developed more recently by Mr. Harold Peake. We propose in a word to invert all the eastern and south-eastern movements traced on the principles of Kossinna and Tallgren in the present chapter and, following a hint given by Sophus Müller, to derive the battle-axe folk of the North, who were so evidently Aryan, from South Russia.

CHAPTER VIII

THE ARYANS IN SOUTH RUSSIA

Having surveyed all other regions of Europe we turn to the South Russian steppes. The climate and physiographical features thereof, as Otto Schrader so convincingly argued, correspond admirably to the characters of the Aryan cradle as deduced by linguistic palaeontology. And the earliest connected remains of post-glacial man there likewise reveal a culture ¹ which harmonizes to a remarkable degree with the proto-Aryan culture described by the philologists. The remains in question are derived almost exclusively from graves containing contracted skeletons covered with red ochre (ochre-graves) and surmounted by a mound or *kurgan*. The people here interred were generally tall, dolichocephalic, orthognathic and leptorhine, in a word Nordics. There was, however, at least a small minority of brachycephals present in the population.

The material from the oldest *kurgans* is poor and rude, yet it is relatively uniform over the whole area from the Caspian to the Dniepr. This cultural uniformity would perhaps allow us to infer the currency also of a single language in the sense explained on p. 11. Again the strict observance of the same peculiar burial rites over the whole area might betoken a community of religious ideas among all the *kurgan*-builders which would also have been expressed in the recognition of one or more common deities. It would be tempting to call that common language Indo-European and the common deity *Dyeus*, since the furniture of the graves reveals a culture extraordinarily similar to that described in Chapter IV.

In the first place these Nordics of the steppe were pastoralists; since the bones of animals are found in the *kurgans*. The remains include not only sheep and cattle but also the bones of that peculiarly Aryan quadruped the horse. Though the exact race does not seem to have been determined, it may be assumed

¹ The evidence on which our knowledge of this culture is based is summarized in *Dawn*, chap. x. Add now Tallgren's articles in *S.O.F.*, 1924, and in *Götze-Festschrift*, 1925.

from the general nature of the country that the animal in question was related either to the swift desert horse as found by the Americans in Transcaspia (p. 109), or the steppe horse of Przybalski¹ and

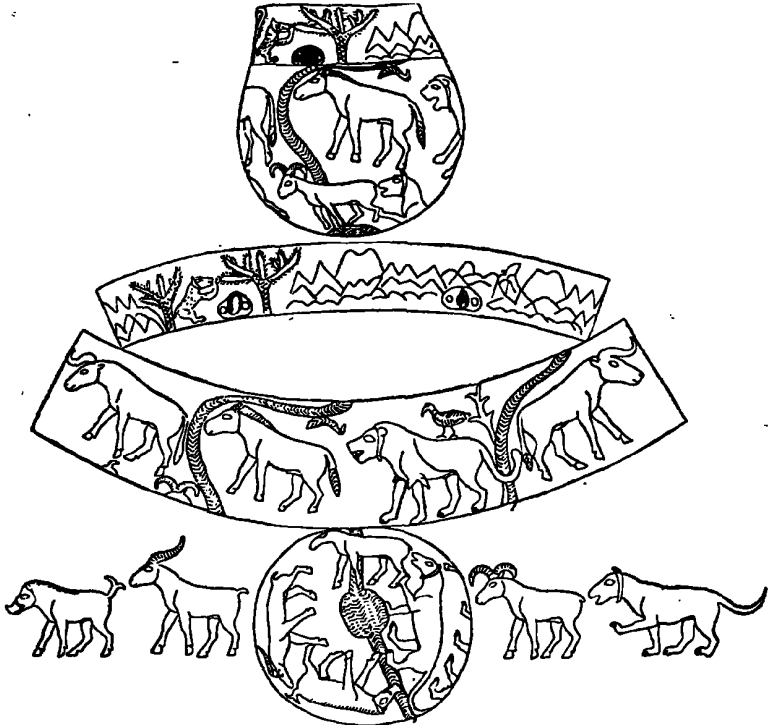


FIG. 26. Silver vase from Maikop depicting Przybalski's horse and other animals in a Caucasian landscape.

not the stout German forest horse. The ochre-grave folk further possessed wheeled vehicles like the Aryans, since a clay model of a wagon² has been found in one such grave. This particular wagon was designed to serve also as a habitation, and so confirms Peake's inference from the poverty of the graves that our people were partly nomadic like the Scythians and Getae, described by classical authors. However a plurality of interments at different levels in the same barrow betokens a continued occupation

¹ The latter is represented on the silver vase from Maikop, Fig. 26.

² *Dawn*, fig. 64.

of certain districts for a longer or shorter time. Moreover, if not from the first and everywhere, the prehistoric inhabitants of South Russia did practise a little agriculture; for grain has been found in some *kurgans*. In fact, at a mature phase of their development, some of them began to settle down in regular villages in the more fertile valleys and on the coasts.

Again the Nordics were here in a chalcolithic phase of culture. In the oldest graves indeed implements and weapons of stone, flint and bone predominate, but almost everywhere small articles of pure copper (p. 85) are to be found, many of them obviously importations. Silver is also fairly widely distributed; and indeed is more common here than anywhere else in Europe at the same epoch; gold is met only in the Kuban valley. Of course the metal objects are in an immense minority, save in the Kuban region. Among the tools besides flat celts of flint or copper, bone prickers and quadrangular copper awls deserve especial mention. The South Russian armoury corresponds closely to that deduced for the Aryans. Perforated axes of stone or copper (*peleku*) are particularly common and some of them are demonstrably imported from Mesopotamia (p. 87). Flint arrow-heads indicate an acquaintance with the bow as clearly as our equations on p. 92. Flint and copper points are widely distributed and these—especially the copper blades—could equally have been attached to the end of a long pole for use as pike-heads, or fitted with a short handle to form daggers, reminding us of the change of meaning between Sans. *śaru* "spear" and Goth. *hairus* "sword" (p. 85).

This concordance between the linguistic and the archaeological data is itself very striking, but we might go considerably further. Philology suggests contact between the undivided Aryans and the Sumero-Akkadians. Just so the industry of the steppe graves bears upon it the unmistakable imprint of Mesopotamian civilization in the creation of which the Sumerians played the leading rôle. The earliest metal types from South-east Russia, concave chisels, spear-heads, perforated axes, belong essentially to the Asiatic as distinct from the Egyptian, Minoan or West European series. That implies that metal reached the steppe from the Mesopotamian region and we know that one Indo-European word for copper is derived from the Sumerian (p. 87). Again the Aryan word for axe was borrowed from the same direction. Not only are the copper axes from South Russia obviously allied to types in

use by the Sumerians from the IVth millennium B.C., but one grave at Maikop on the Kuban contained a battle-axe shaped like a hoe with the blade at right angles to the shaft (Fig. 27, 2). This weapon was unquestionably an import from Mesopotamia, since the type is not met elsewhere outside the Tigris-Euphrates valleys, where it was in use from about 3500 to 1100 B.C. Moreover clay figurines of naked women are found, although extremely rarely, in ochre-graves; these bear a distinct likeness to models of the goddess Ishtar found at Assur and elsewhere in Mesopotamia. Now it has been suggested that this divine name is concealed in the Indo-European word for "star" *ester* (p. 87) and the ideogram for Ishtar in Babylonian was precisely a star.¹ Thus the connections with Mesopotamia postulated by philology for the Indo-Europeans are proved to have been a reality among the early nomads of South Russia.

On the other hand, if we agree with Pokorny that the word *ayos* "copper" comes from *Alasya* and indicates intercourse between the Aryans and the Aegean peoples, traces of such connection are not wanting in South Russia. At least the later ochre-graves near the mouth of the Don imitate in shape the "pit-caves" (a sort of chamber tomb) in use in the Aegean by the IIIrd millennium and contain ornaments, such as phallic beads, that prove trade with the Cyclades. Finally the assumed connection between the Aryans and the Finno-Ugrian peoples would be as easily explained on the South Russian hypothesis as on the Scandinavian, for the same rude hunting folk who made the Swedish "dwelling place" culture, were spread far and wide through Central Russia, and there is plenty of evidence for contact between the two areas. On the one hand the barbaric pottery characteristic of the northern forest belt extends southwards to the edge of the steppe, on the other we find the same pottery in Central Russia, associated with daggers, copper battle-axes and idols of Babylonian type² that can only have come from the south, across the steppes.

Can we then call these "neolithic" people of the steppes Aryans without qualification; or were they just a branch of that stock as the Germanists contend? Professor Myres, Professor Haddon and Mr. Peake all incline to the former hypothesis without,

¹ Delaporte, p. 140.

² *Dawn*, p. 221 and fig. 106.

however, offering any body of detailed evidence in refutation of the contrary view. Their thesis plainly implies in the first place the existence of a pre-neolithic population in South-east Russia, and secondly that this population, having acquired or elaborated the neolithic civilization described in the preceding paragraphs, sent out bodies of emigrants to carry that culture to the rest of Europe.

The first point is capable of proof. Mr. Peake has suggested that the ochre-grave folk were descended from the Solutreans who had hunted the horse in western Europe in the Old Stone Age. Now the Solutrean phase of the Old Stone Age is in fact well represented in the Ukraine, as well as in the Caucasus. And although nothing exactly parallel to the later phase represented in France by Magdalenian industry has yet been found in this direction, evidence for a continuous occupation of the southern plain of Europe is rapidly accumulating. Not only is that presupposed in the migration from the east postulated by some authors to account for the establishment of the Maglemose culture on the Baltic; there is even less ambiguous evidence for a drift of people from the same quarter at a still earlier date, corresponding roughly to the last phase of the reindeer age in France. The earliest remains of human handiwork yet discovered in Scandinavian lands include pigmy flints arrow-heads.¹ In form and technique these are quite foreign to the microlithic industries of Western Europe, but they are characteristic of the earliest microlithic culture on the sand-dunes of Little Poland.² This industry therefore was introduced into Scandinavia from the east in pre-Maglemose times. Moving further west, it just reached the coasts of Yorkshire³ contemporaneously with the Maglemose culture. So there must have been an overflow of people from the south-eastern plain in the wake of the last glaciers. There must consequently have been people in Poland and *a fortiori* in the more habitable regions of South Russia at an earlier date. And, as a matter of fact, other pigmy flints have been discovered on the banks of the Desna, Dniepr and Don, in the Crimea and on the Kirghiz Steppe.⁴ The latter are parallel to the Tardenoisian

¹ At Lingby in Jutland and at other sites in Denmark and Norway, *W.P.Z.*, xii, pp. 1 ff., fig. 1, 1-5.

² Kozłowski's Chwalibogowice type, *Dawn*, p. 11, fig. 7.

³ Recently discovered by Professor Kozłowski during a visit to England in 1925 among the flints from Holderness.

⁴ *Russ. Antrop. Journal*, 1924, pp. 211 ff. (with English resumé).

industry of France (assigned to an epoch intermediate between the Old Stone Age and the New) but in view of analogues in Mesopotamia, India and even Mongolia may well belong to an independent group.

Hence the presence of pre-neolithic men on the eastern portion of the European plain is demonstrated and it is clear that they were at this time drifting westward. They might be Haddon's proto-Nordics;¹ the Nordic skull from Ober-Cassel and the Nordic elements in Maglemose and the kitchen-middens would mark outposts of their post-glacial advance westward. We would in fact have a sparse population of proto-Nordic hunters disseminated unevenly from the Black Sea to the Baltic by early post-glacial times. They would not yet be Aryans, but we might suppose that those who settled in the north became the ancestors of the Finns. The view here advocated would be that another section of this proto-Nordic stock, concentrated on the Pontic steppe, developed there the neolithic civilization of the ochre-graves and then diffused it to Central Europe. The Germanists on the contrary contend that the kernel of the ochre-grave culture was brought fully fledged from Scandinavia. It is possible to give certain arguments in favour of our view.

We have seen in the preceding chapters that the characteristic attribute and symbol of the Nordic cultures which we now recognize as Aryan was the perforated battle-axe. Now the genesis of this very peculiar weapon can be explained in South Russia better than anywhere else. Such weapons are far more unusual than might be thought. Very few peoples have hit upon the seemingly simple plan of putting the shaft of the axe through its head. The ancient Egyptians till Hellenistic times, the prehistoric inhabitants of Western Europe down to about 1000 B.C., the pre-Columbian Indians of America, the Pacific Islanders before the advent of Europeans and many other primitive peoples all used the clumsy device of tying the axe-head of stone or metal on to, or into the cleft of, a stick! On the other hand from the Alps to the Zagros proper perforated axes with a shaft-hole in the head were in use from the IIIrd millennium before our era. It would be natural to infer that this exceptional device, employed only in such a relatively limited area, was invented in one single centre and

¹ Ekholm, however (*Ymer*, 1924; *W.P.Z.*, loc. cit.), would connect the introduction of the Lingby culture with a brachycephalic race. He seems also to regard all proto-Nordics as already Aryan.

diffused thence. To-day it is reasonably certain that that centre was Mesopotamia. The recent English and American excavations at Ur and Kish have brought to light actual specimens and clay models of perforated copper axe-heads, dating from the IVth millennium B.C. Even on the Germanist chronology these are quite the earliest dated examples of such weapons.

Moreover, a good case can be made out for the belief that the idea, born in Mesopotamia, was transmitted to the rest of Europe from the North Caucasus precisely by our Nordics. Eminent Scandinavian archaeologists¹ have long recognized that the Northern stone battle-axes were imitations of a curious copper weapon with one blade parallel and one at right angles to the shaft, conventionally termed an axe-adze (Fig. 27, 3), citing well-known examples from Hungary. But this freakish implement itself requires explanation, and that cannot be found in Hungary, but only further east. The Sumerians by 3000 B.C., were using two types of copper battle-axe in one of which the blade is parallel to the shaft and in the other at right angles as in a hoe (Fig. 27, 1-2). The only intelligible explanation for the Hungarian axe-adze is to regard it as an amalgamation of the two Mesopotamian types. Now in Babylonia and Assyria this compound type is not found till about 1100 B.C., but there is a specimen from a "treasure" or tomb-group, dated by Sumerian gold vases included in it to the IIIrd millennium, found many years ago in a mound near Astrabad, south of the Caspian.² Moreover, there is another example from an ochre-grave at Maikop on the Kuban which also contained an axe of the peculiarly Mesopotamian hoe-like type. Somewhere in this corner of the world then the axe-adze might have been invented. Its translation into stone among peoples lacking copper ore would account for the Nordic weapons.³

As a matter of fact we would get, as will appear shortly, a very good distribution both for the copper prototypes and for the stone copies if we supposed that they radiated from a focus in South-east Russia. At the same time we should avoid the chronological difficulties presented by the Trojan axes if we assumed that they are the result of a parallel and contemporary evolution and not

¹ Montelius, in *AfA.*, 1899, and Knut Stjerna, *Före Hällkisttiden*.

² Rostovtseff, *J.Eg.A.*, vi, pp. 6 ff. Frankfort very properly points out that the Sumerian vases do not indicate the presence of a Sumerian *patesi* in North Iran, but are the loot brought home by some local chief, *Studies*, i, p. 85.

³ Some of the stone battle-axes from ochre graves are quite obviously imitations of copper prototypes as Professor Tallgren has pointed out (*S.M.Y.A.*, xxv, p. 126).

descendants of the Scandinavian. Here then is strong inferential evidence for the belief that the battle-axe folk of North Europe came from the South-east and not vice versa.

Of course this is far from constituting proof. A typology is a two-edged weapon unless both ends of the series are safely dated.

A second possible argument for our view is to be found in the distribution of prehistoric equidae. We have seen (p. 109)

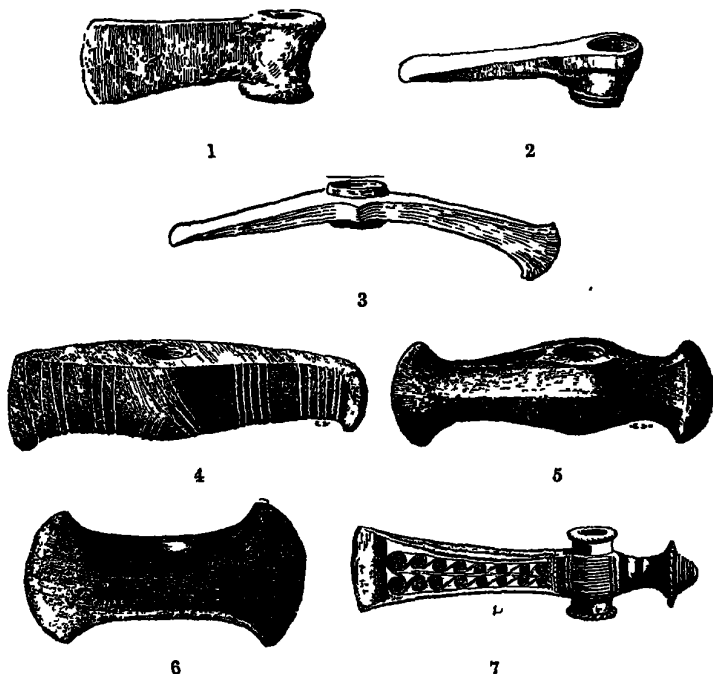


FIG. 27. The typology of the Battle-axe. 1-3, Copper prototypes: 1-2, Mesopotamia; 3, Caucasus and Hungary; 4-6, Stone copies: 4-5, Silesia; 6, Britain; 7, Bronze derivative: Scandinavia.

that the swift horse first appears tame in Transcaucasia and that this horse was the ancestor of the Bronze Age horses of Europe. Who were more likely to have introduced this animal to the western world than our nomadic people of the steppes? Mr. Peake indeed thinks that they were responsible for domesticating the beast their ancestors once had hunted. If it could be shown

that the swift horse appeared in Europe simultaneously with the battle-axe cultures, we should have a really conclusive argument in favour of our view. At the moment unfortunately all that can be proved is that remains of the swift Asiatic horse and evidence for the domestication of equidae are only found in Central Europe after the spread of the battle-axe cultures. The material available is exiguous; to determine whether the animal be domesticated

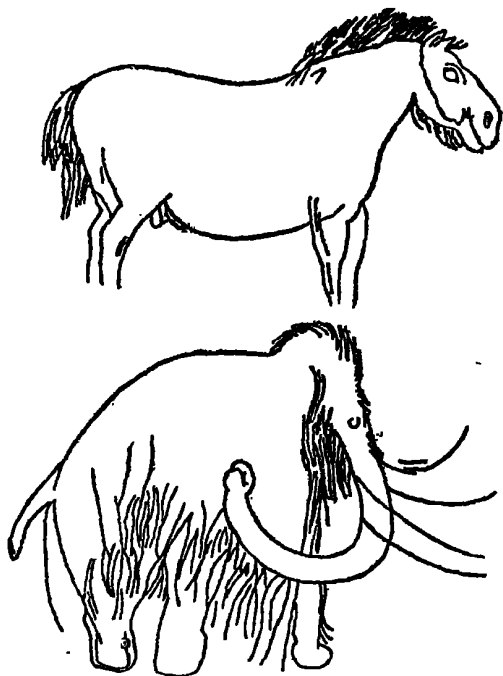


FIG. 28. Paleolithic drawings of horse and mammoth from the cave of Combarelles, Dordogne (Magdalenian).

or not is peculiarly difficult, even the distinction between the Asiatic horse and the heavier variety native to the forests of northern Europe can only be recognized by a specialist.

Bearing this in mind we may say that the descendants of the Anau horse are first certainly recognizable in Swiss lake-dwellings of the Late Bronze Age (about 1000 B.C.).¹ It is, however, likely

¹ Duerst in Pumpelly, *op. cit.*, ii, p. 429; for the chronology the finds from the station of Alpenquai, Zürich (*M.A.G.Z.*, 1924, p. 193), are decisive.

that the horses' bones found with stone battle-axes in a fortified settlement of the Copper Age near Hammerau in Bavaria¹ belong to the same breed. At the same time the earliest certain evidence for the domestication of horses—horn bits—does not take us back beyond the Middle Bronze Age in Central Europe (about 1500 B.C.); only the bit from Gross Czernosek on the Elbe in Bohemia may be rather earlier if the defective report on the excavations be accepted.² The precise coincidence desired is not therefore established. It remains possible that the Anau horse came to Europe with the vase-painters before the battle-axe cultures, and was slowly diffused from Transylvania to Switzerland and Bavaria even though he was not associated with the other domestic animals introduced into Europe at the beginning of the New Stone Age. It is also possible that the native forest horse was independently domesticated in the North.

The indications furnished by the battle-axes and the horse cannot, therefore, be regarded as conclusive in view of the mass of evidence collected by the advocates of the Germanist thesis. We may, nevertheless, examine further the implications of our theory.

The Migrations of the Aryans

We should begin with a sparse population of pre-neolithic hunters strung out widely over the steppe. In South Russia we may at least say that the conditions would be favourable for their initiation into precisely those rudiments of neolithic culture that characterize the Aryans. To the east the vase-painters would have settled at Anau. The fertile black-earth tracts on the west were early occupied by similar agriculturalists. Both or either of these groups could have acted as masters to the nomads in the arts of food-production. South of the Caucasus and the Black Sea lay Mesopotamia where a great civilization had been flourishing from the end of the Vth millennium. There is no doubt whatsoever that that civilization did influence the people

¹ *Beiträge z. Anthrop. u. Urgeschichte Bayerns*, x, p. 192; xi, p. 308 ff. The horse from Misskogel near Lesskoun in Bohemia may be Early Bronze Age (*M.A.G.W.*, xx, p. 133). The bones from O. Besseny on the Danube belong to a period when we have evidence for Nordic influence in Hungary, but have not been closely studied.

² *M.A.G.W.*, xxv, p. 40, fig. 56. From the Middle Bronze Age we have bits from the Italian *terremare*, from the settlement near Reichenhall in Bavaria (*Aufl. V.*, v, p. 396, fig. 2 h), from Denmark (*Aarbog*, 1900, pp. 235 ff.), from Sweden and from Silesia (*P.Z.*, ii, pp. 173 ff., fig. 23).

of the European steppes. Did bands of Nordics, venturing into the passes of the Caucasus, glimpse from afar that Garden of Eden and tempted by its wealth make raids to the south? Did Sumerian merchants and explorers in search of the metal, timber, stone and gems, that their own alluvial land denied them, penetrate into the fastnesses of Armenia and beyond? Did Semites, descending the Halys from their colony in Cappadocia, take ship and cross the Black Sea? All such types of contact between Europe and Mesopotamia probably were in fact established. Rather later other visitants, coming this time by sea from the south-west, brought fresh ideas to the coasts of South Russia. Argonauts from the Cyclades, anticipating the exploits of the Milesians, undoubtedly founded trading colonies near the mouth of the Don as the tombs already mentioned show. Other mariners, "Children of the Sun," who found in the gems of the Caucasus the objects of their world-wide quest might have introduced the nomads of the steppes to the idea of the megalithic tomb and of divine kingship.

So our hypothetical Nordics in South Russia would have been less isolated than their distant kinsmen on the Baltic; among them the genesis of a vigorous neolithic culture would be easily comprehensible. They could have learned the simple neolithic arts of food-production and pottery-making; they could barter furs or the products of their herds for metal weapons and tools; in default thereof they could imitate such in stone and flint. And it is admitted on all hands that the Nordics in South Russia did absorb such influences. The view here expounded differs from that discussed in the last chapter only in this respect: whereas the Germanists recognize the elements derived from vase-painters, Mesopotamians and Aegeans only as secondary accretions on a Nordic culture brought fully-fledged from Scandinavia, it requires that the culture of the ochre-graves and the Nordic culture of Scandinavia itself should be fully constituted by the factors just enumerated. Our present hypothesis also pre-supposes migrations from the steppe not only to the south-east (Mesopotamia and Iran) and the south-west (Troy and the Balkans) but also to the north and north-west; the Germanists only admit the former movements.

Let us consider these points more closely. Note first that the ochre-graves are numbered by thousands; they presumably cover a considerable space of time. As a matter of fact Russian

archaeologists have distinguished three phases of evolution in the Don-Donetz region.¹ The oldest graves are simple pits or stone cists containing very little metal and pots ornamented with linear designs produced by the impression of a cord. Next come chamber-tombs, called by the Russians "catacomb-graves", containing more metal and vases on which the cord-impressions form spirals and loops. Last of all come wooden coffins which overlap with the Iron Age.

The first phase would have on our view to correspond to the period of Aryan unity. By the second phase differentiation, marked by the growth of local styles in the pottery, had set in. Some families of pastoralists were deserting the steppe to adopt a sedentary life as cultivators in the fertile valleys that intersect it. It is in this phase that the Aegean influence is visible in the form of the tombs, and that of the vase-painters in the spiral decoration of the pottery. We might almost suspect an amalgamation between the peasants and the pastoralists, and from this time the valleys remained continuously occupied till the advent of the Scyths. Most Germanists will agree with this interpretation of the "catacomb-grave" period.

It will also be generally agreed that the Mesopotamian influence was most intense on the northern slopes of the Caucasus in the valleys of the Kuban and the Terek. Here truly royal graves contrasting in size and wealth with the poor *kurgans* of the steppe were reared. They are the tombs of chieftains who had led their followers on plundering expeditions into Armenia, Cappadocia and even Mesopotamia. The masses of gold and silver buried in these enormous barrows must partly be loot from the rich states south of the range. That is for instance manifest in the gold and silver lions and bulls that decorated the canopy under which one prince was laid to rest in the famous barrow near Maikop. These southern artifacts on the northern slopes of the Caucasus are the counterpart of the Caucasian objects which we met in North Syria in Chapter II. The raids that brought them north were the prelude to invasions. We may suspect that the ancestors of the Indians and the Iranians discovered as freebooters the roads that eventually led them to the throne of Mitanni and to the Indus valley.

¹ *Dawn*, pp. 143 f., Tallgren, *Götze-Festschrift*, p. 70, and Hubert Schmidt, *Vorgeschichte Europas*, p. 99, have recently expressed doubts as to the value of this chronological distinction.

Their advance cannot yet be followed in detail. We might suspect that the leader of the advance-guard of this invasion had wielded the copper battle-axe (axe-adze) found in a (?) barrow near Astrabad (p. 189). But one distinct, if undatable, migration round the Caucasus can be detected. It started north of the range, passed round the eastern flank of the chain and reached the Persian uplands west of the Caspian. The land-marks on its route are dolmenic tombs near Kala Kent¹ on the Baku peninsula and other sepultures explored by de Morgan in Talysh and Lenkoran.² The former group contained large spiral earrings with flattened ends of copper and beakers with analogies in the ochre-grave on the Kuban and the Dniepr. The tombs on the Caspian coasts of Transcaucasia are unmistakably allied in form to those of the Kuban valley,³ but the furniture is less unitary. Copper pins with double or quadruple heads and copper battle-axes seem derived from more northerly types, but other ornaments and weapons must be referred to some still undated Mesopotamian culture. Finally iron objects have been found in some of the tombs in question, but are, according to de Morgan, due to a later wave of intruders. Hence the evidence for a movement of peoples from South Russia towards Mesopotamia is on the whole satisfactory. It may be significant that a fine stone battle-axe—the earliest dated specimen from this region—was laid in the foundation deposit of Shushinak's temple at Susa (VIIth century B.C.).

While some nomads were settling down in the valleys and others were constituting principalities on the slopes of the Caucasus, the remainder left upon the steppe would be forced to find outlets for their increasing numbers and fresh pastures for their growing herds by means of migration, just as the Danubian peasants had spread in Central Europe. But pastoralists do not spread slowly and regularly like cultivators but move rapidly by darts. Actual migration is preceded by exploratory expeditions in the summer, and such excursions reveal to the nomad other goals than mere grazing grounds—centres of wealth to be plundered and held to ransom. The enforced expansion from the steppe seems in fact to have been guided by some such ends.

¹ *Otchet*, 1897, pp. 141 ff.; Tallgren, in *F.M.*, 1924, p. 23, fig. 10.

² J. de Morgan, *Mission scientifique en Perse*, vol. iv; *ibid.*, in *Mem. Dél. Perse*, viii.

³ The double cist with a holed-stone for the transverse slab from Djönü (*Miss.*, loc. cit., fig. 48) is obviously a decadent variant of the dolmen of Tsarevskaya on the Kuban (*Dawn*, fig. 63).

One such wave of expansion will be admitted even by the Germanists.¹ It led the battle-axe folk to Troy and the east Balkans. The Trojan battle-axes (page 133) find their nearest parallels in South Russia. The route of this Nordic band would have lain along the open steppe north of the Pontus. A landmark on its route might be recognized in the treasure of Borodino in Bessarabia² which contained ceremonial axes of noble stone closely allied to those from Troy. The axes of the Trojan treasure must in any case be attributed to a chief who had come from the north coast of the Euxine. So too the stone battle-axes and flint celts which we noticed as intrusive elements in the settlements of the vase-painters in Bulgaria may be ascribed to a branch of the same stream of invasion and would mark the Aryanization of this end of the Balkan range.

We now turn to the westward movements. From the standpoint of this chapter the Nordics advancing on the Danube valley must have crossed the black-earth belt inhabited by vase-painters till about 1600 B.C. or later. The reader will, however, recall that the culture with painted pottery fell into two distinct periods in the Ukraine and Roumania (page 106). The older villages perished in flames and were not in all cases reoccupied, while Erösd, the cultural capital of the whole region, was finally ruined. This trail of fire and destruction might mark a first onslaught by nomads from the steppes; their goal would have been the Transylvanian gold fields. Monuments of their progress might be recognized in the copper axe-adzes that have been found in or near sites of the earlier peasant villages and above the ruins of Erösd. The later Hungarian axe-adzes that have such a wide distribution in Central Europe would then be the work of native metallurgists using local ores and working to the order of the new Nordic overlords.

Such an attack from the east would further explain very conveniently the phenomena we met in discussing the second phase of civilization in the Danube valley (page 151). If we assumed that some of the invaders from the steppes pressed on across the Alt into Hungary, sweeping along with them some of the conquered peoples of Transylvania, we could understand the Nordic skulls, the horse's bones, the copper axe-adzes and the barbarized painted

¹ So Tallgren, *Götze-Festschrift*, p. 75.

² *Materials for the Archeology of Russia*, xxxiv, pp. 1-14, pl. i. But this treasure, despite the close similarity of the battle-axes in it to those from Troy II, must really be later. It included a socketed spear-head that can hardly be older than the XVIth century B.C.

pottery that we met in the cemeteries of Lengyel, O Besseny and Lucskai. This wave of invasion would have been followed by others. One would have introduced the corded-ware, which we saw in the last chapter reached Hungary from the east, and the centre of which on our present view might be located between the Dniepr and the Don. And the various types of copper battle-axes which are concentrated in eastern Hungary and the present Roumania, but which extend to Bosnia, Dalmatia and Croatia, have been ascribed by Dr. Nagy to a series of invaders from the steppes.¹

The connections between the Fatyanovo culture in Central Russia and the Copper Age ochre-graves further south are quite unmistakable. On the present thesis the former must be attributed to a movement of people up the Volga. It might even be argued that the same movement continued westward to Finland and Scandinavia.

Finally we come to the relations between South Russia and Scandinavia. The evidence for such relations is indisputable. On the view under discussion they must be explained by a multiplicity of waves and currents of migration ultimately converging upon centres of wealth—the amber deposits of Jutland, the Saale salt, the Elbe-Danube trade-routes. To unravel the complicated details of these movements here is frankly impossible. The pioneers would perhaps have been armed with polygonal battle-axes like Fig. 27, 5. After a pause in Little Poland some would have descended the Vistula and reached Jutland about the same time as the dolmen-builders. Others, going up stream, would have reached Silesia and then advanced as conquerors to the slopes of the Alps where they would have established themselves in the Copper Age hill-stations. Another band of invaders would have used a special type of globular amphora; such vases are common in Central Germany, Pomerania, Poland, Eastern Galicia and Póltava Government where they are regularly found in cist-graves accompanied by amber beads, but they are certainly connected with vessels found in an ochre-grave at Tsarevskaya on the Kuban. We should have to assume that this band was captained by a chief who had a tomb built for himself at Baalberg on the Saale in imitation of his ancestors' sepulchres at Tsarevskaya (p. 176).

But the most compact and ruthless body of invaders would

¹ *Dawn*, p. 188.

have been those who used cord-ornamented pottery. Their starting point would be near the Donetz valley where such pottery is found in the oldest class of barrows (p. 194) and whence their kinsmen would have set out for Transylvania. The northern bands would have aimed at Jutland and Thuringia. There they would emerge as the separate-grave folk and the Thuringian barrow-builders, whose subsequent wanderings westward were traced on p. 176.

Thus Kossinna's migrations would be reversed.

But is this reversal really feasible on the archaeological evidence? There are certainly arguments in its favour. It is a continuation of a drift which had begun in pre-neolithic times (p. 187). The typology of the battle-axes gives at least a satisfactory explanation for objects which are frankly puzzling in Scandinavia. It is supported by the fact that stone battle-axes of purely South Russian type have actually been found on the shores of the Baltic in Finland, Esthonia and even Denmark itself and that the concave chisels associated with the battle-axe cultures of Sweden seem to be derived from South Russian and ultimately Mesopotamian prototypes.¹ Still it would be unfair to allow the reader to infer that the vast mass of evidence patiently collected by all the leading authorities of Germany, Sweden, Poland and the Baltic States can so easily be dismissed.

A change in the direction of racial drift between pre-neolithic and late neolithic times is explicable in view of the deterioration in the climate of Scandinavia. At least by the full Bronze Age a current from Central Europe² was affecting South Russia and that continued till Scythian times. Most typological studies conducted by local archaeologists on the forms of tombs, celts, battle-axes and pottery and their distributions invariably give the priority to the Scandinavian and Central German forms.³ The association of amber with globular amphorae in Polish and Galician graves does look as if their makers had come from the Baltic. And poor bone or clay pendants from tombs on the Kuban exactly resemble in shape amber ornaments from East Prussia.⁴ Conversely the coloration of the skeleton with red

¹ Arne Europæus in *F.M.*, 1924, pp. 54 f.

² Tallgren in *Götze-Festschrift*, p. 76, n. 1, and in *S.M.Y.A.*, xxv, p. 94; cf. p. 203 below.

³ This point is admirably illustrated by the maps in Kozłowski, *Młodsza*.

⁴ Tallgren in *Götze-Festschrift*, p. 73.

ochre so characteristic of South Russia has only once been observed in the north—at Charlottenhohe in Uckermark.¹ The cumulative effect of the arguments here merely sketched is immense but not absolutely conclusive. The deciding factor must be chronology. Are any of the ochre-graves in South Russia really older than the earliest separate graves of Jutland (say 2500 B.C.)? ² Are the double dolmens with globular amphorae at Tsarevskaya on the Kuban really older than their counterpart at Baalberg on the Saale (about 2000 B.C.)?

These questions can only be finally answered when the poor remains from the South Russian ochre-graves have been fully published and thoroughly studied. Professor Rostovtseff ³ on stylistic grounds dated the Copper Age tombs on the Kuban to rather before 2500 B.C. Professor Farmakovsky ⁴ on similar grounds arrived at a date quite a thousand years later. In the last few days the author has received a convincing study of the jewelry and implements from ochre-graves by Professor A. M. Tallgren. His conclusions are that the ochre-graves as a whole belong to the second millennium B.C., rather than the third. If this be correct, if these arguments are applicable not only to the "catacombs", but also to the earliest ochre-graves, then the attempt to reverse Tallgren's and Kossinna's migrations must be abandoned. The Nordic cultures in Jutland and Central Germany will be older than those in South Russia. The latter will not then be the monuments of the undivided Aryans, but only of a branch of that stock. The Aryanization of the Danube valley, the Alps and the Rhineland will be due to an expansion from the north, not an invasion from the east. The Nordic stone battle-axes will not be imitations of copper axe-adzes but must be derived from the horn implements with a hole for the shaft already in use at Maglemose, while the Hungarian axe-adzes may be due to trade with Crete. The battle-axe cultures of Jutland and Thuringia must have been generated out of some old native element through contact with the foreign civilization of the dolmen-builders. Their cord-ornamented vases must be the

¹ Schumann, *Die Steinzeitgräber der Uckermark*, p. 11.

² These dates are based on Sir Arthur Evans' chronology for Crete and consequently on Meyer's "short chronology" for Egypt. Should the new evidence in favour of the long chronology foreshadowed by Sir Flinders Petrie prove convincing, they must be substantially increased.

³ *Op. cit.*, pp. 20 ff.

⁴ *Materials for the Archaeology of Russia*, xxxiv, pp. 51 ff.; so Tallgren, *Götze-Festschrift*, p. 76; *S.O.F.*, i, pp. 339 f. See appendix to this chapter.

continuation of an older fabric, the roots of which Sophus Müller would trace back to the pre-dolmen age in Denmark.¹

The present writer still thinks that the South Russian hypothesis, outlined in the preceding pages, may prove to be tenable; his confidence in it has, however, been shaken since he espoused it—with reservations—in an earlier work² by the appearance of the new articles by Kozłowski and Tallgren. In default of this only the Germanist theory is left. The ochre-grave folk will still be Aryans but not the Aryans.

CONCLUSION

Aryan Groups in the Bronze Age

One question raised by our investigation must be left open to be settled by further researches on the South Russian material. But the vital point has emerged with perfect distinctness. The victorious expansion of the Nordic culture, whatever its origin, is the dominant fact of European prehistory from 2500 to 1000 B.C. The path of the prehistorian who wishes to draw ethnographical conclusions from archaeological data is often beset with pitfalls. The correlation of cultural with racial groups is generally hazardous and speculative. The diffusion of types and customs is as often due to trade and cultural borrowing as to movements of population; the infiltration of a new ethnic element need leave no mark on the external aspect of a culture. No such reservations impede the interpretation of the almost miraculous advance of the Nordic cultures. In their triumphant progress they repeatedly annexed regions previously occupied by higher types of culture. And such supersession of higher by lower is only explicable in racial terms.

Whether the Nordic culture originated on the shores of the Black Sea or of the Baltic its authors grew from an originally poor and insignificant group to the dominant power in the western world. By their pottery³ and their battle-axes we can trace

¹ *Oldtidens Kunst i Danmark*, 1, p. 11. Cf. Menghin in Hoernes, pp. 736-40 and the illustrations there given.

² *The Dawn of European Civilization*, pp. 150, 206, 239, and 303.

³ The pottery is admirably treated by Menghin, *op. cit.*, pp. 734 ff.

them to the Rhine, to Switzerland, to Upper Austria, to Italy and to Hungary. They occupied the whole of the South Russian steppe and at least the one corner of Asia Minor that has been thoroughly explored. We can see them starting off across the Caucasus on the way to Mesopotamia and Iran. And the reasons for calling the Nordics Aryan are conclusive; wherever we can follow their movements in detail these Nordics formed the nuclei of cultural groups traceable in history as Aryan.

In southern Scandinavia and North Germany the battle-axe folk of the Stone Age had by the Bronze Age welded the composite population into a cultural unity; from this date the evolution of civilization in the North is self-contained and continuous.¹ It was therefore the work of the Teutons who inhabited those regions in the earliest historical times.

A kindred battle-axe folk from Thuringia had overrun the Rhineland, Wurtemberg and Switzerland during the latest Stone Age and Early Bronze Age there to conquer and mingle with Alpines, Prospectors and Danubians. Soon after the invaders reached the Rhineland, some of them, mixed with Prospectors, set off to invade Britain. But pottery and burial rites reveal that the Bronze Age barrows of the highland zone were built on the one hand by other descendants of the conquerors,² on the other by ancestors of a prominent element in the Iron Age population.³ This composite population, dominated by battle-axe folk from Thuringia, must have been Celtic, since the western Hallstatt culture is as demonstrably Celtic as that of La Tène which originated within the same area.

Further south in Upper Bavaria and Upper Austria the fortified hill settlements like Altheim and the Copper Age lake-dwellings on the Attersee and Mondsee seem to have been founded by a Nordic aristocracy ruling over an aboriginal Alpine stock; the battle-axes, like Fig. 27, 5, and the pottery⁴ suggest that these rulers had come immediately from Silesia across Moravia. A southward movement on the part of this mixed stock will perhaps best account for some elements in the *terremare* of Italy. The

¹ *Dawn*, pp. 214 ff.

² The late barrows with cord-ornamented ware in Wurtemberg are parallel to the Early Bronze Age cemeteries in the valleys; their continuity with the Middle Bronze Age barrows is shown by the pottery; vases such as Behrens, pls. x, 9, xvii, 3 and 12, xviii, 1, are plainly derived from cord-ornamented ware.

³ For the survival of Bronze Age ceramic styles into the Iron Age see Behrens, p. 218, and Schumacher in *Auzh V*, v, pl. 40 and text.

⁴ On this point see Menghin, op. cit., pp. 762-5.

intimate connection between Celtic and Italic would then be explained not only by the contiguity of their centres of dispersion but also by the Alpine element common to the speakers of both groups of languages.

Between the Elbe and the Oder the Aunjetitz culture of the Early Bronze Age resulted from a fusion of Nordics, Prospectors and Danubians; the Nordic element is betrayed both by the pottery and the stone battle-axes—of markedly East European type—found even in Bronze Age graves. From the Aunjetitz culture sprang a group of allied cultures represented by fields of cinerary urns of what is called the Lausitz type.¹ From Silesia and Poznania these urn-fields spread in the Late Bronze and Early Iron Ages into Bohemia on the west and far across Poland and Galicia on the east. Controversy still rages as to who were the authors of this culture, but the most probable view is that it was created by the Slavs.²

Whether the ochre-grave folk were native to South Russia or immigrants from the North, we can see more than one Aryan nation growing out from them. As already indicated, the royal graves of the Copper Age on the Kuban and the Terek were built by ancestors of the Indo-Iranians. From the opposite end of the Pontic steppe issued those who were to become Hellenes in the Balkans. Thus, even if the ochre-graves were not built by the original Aryans, the ancestors of the Greeks and the Indo-Iranians would alike have sojourned for a while in South Russia, and been exposed to the same foreign influences there. That circumstance might help to account for the similarity between the Copper Age of South Russia and the assumed proto-Aryan civilization; for our picture of the latter is, in many of its details, based on equations common only to Greek and Indo-Iranian.

It is perhaps premature to designate Phrygian the Trojan prince, whose dominion was symbolized by splendid battle-axes of noble stone. That he and his followers came from the Pontic steppe is in any case certain and the results of Chapter V require that he should have been Aryan. Again the result of the amalgamation between the vase-painters of Bulgaria in the Copper Age and

¹ Recently demonstrated by Baron von Richtofen, *Mannus*, 1925 (*Erganzungsband*), pp. 140 ff.

² So Pic, *Die Urnengräber Böhmens*, and, more recently, Kostrzewski, *Wielkopolska w czasach przedhistorycznych*, Posen, 1923. Kossinna assigns the Lausitz culture to the Thracian Carpodoki (*Mannus*, xi-xii, pp. 232 ff., etc.); Schuchhardt's ascription of it to Germans (*Alteuropa*) is universally rejected even in Germany.

intruders from the steppes was to make the former Thracians. At the same time other vase-painters in South Russia had been absorbed by the local Nordic population, for the pottery from the later ochre-graves (catacomb-graves) in its spiral decoration and other features betrays influence from the black-earth zone. The sedentary population resulting from this fusion seems to have remained on the coasts of the Black Sea till the advent of the Scyths. It may then be called Cimmerian. At the same time it included the same constituents as the people of Thrace proper, so it may in a sense be designated Thracian.

Here I must again insist that the habitation of the ochre-grave area was continuous till Scythian times. The Cimmerians probably formed the sedentary element dwelling on the coast and in the valleys; in the hinterland there remained more nomadic Nordic tribes. Their domain would by now have embraced Transylvania, since the vase-painters ultimately vanish from the Ukraine and Nordic barrows overlie the ruins of their villages while kindred barrows are met in Transylvania. These nomad hordes were thus in contact with the progressive bronze industry of the Danube valley and so were well fitted to act as vehicles in the eastward diffusion of Central European metal-work. That diffusion was beginning in the Early Bronze Age (about 1800-1500 B.C.) when penannular bracelets with recoiled ends of Hungarian-Bohemian type appear in catacomb graves of Tauric Government.¹ It was continued in the Late Bronze Age when a regular secondary focus of the Hungarian Bronze Age culture arose in the Ukraine and Hungarian types of socketed celts and kindred implements were spread as far as Central Russia, the Urals and Siberia.² The persistence on the steppe of a mobile population in touch with the centres of Danubian metallurgy enables us to understand the western relations of the Koban culture discussed on pp. 117 f. above. One such tribe, migrating to the Caucasus in the wake of the Indo-Iranians, perhaps under the pressure of the advancing Lausitz people, might have brought with them the purely European objects of Late Bronze Age type found in the Koban cemetery. Incidentally it may be noted that the Koban skulls are mesaticephalic and very different from the extremely broad-headed skulls of the native Transcaucasian tribes.³ It is possible

¹ Tallgren in *Götze-Festschrift*, p. 76, n. 1; for the type see *Dawn*, fig. 91, 11-12.

² Tallgren, l.c., p. 74; cf. *S.M.Y.A.*, xxv, p. 94; *S.O.F.*, i, p. 339.

³ de Morgan, *Caucase*, pp. 203 ff.

that this movement brought the Aryan nucleus of the Armenians to the northern slopes of the Caucasus.

Finally we may observe that certain copper objects of typically Russian form have been found sporadically as far east as Eastern Turkestan just as socketed celts with Scandinavian and Hungarian analogies are common throughout Siberia.¹ It is frankly difficult to say to what extent these objects were diffused by the rude hunting tribes of the northern forest which we connect rather with the ancestors of the Finns than with the Aryans. It is nevertheless possible that the Tocharians were among the tribes that drifted eastward across the mysterious steppes and deserts of Central Asia.

Thus the great majority of the Aryan nations of historical times can be shown to be descended from the Nordic battle-axe folk of the Stone Age. By the aid of pottery and weapons² they can be traced back with more or less certainty to one of two centres—South Russia or Scandinavia. The first business of future researches must be to determine which of these really has the priority. A complementary task is to unravel the cultural tangle still presented by Hungary, the north-west Balkans, and Iran. The precise links to connect the most important of all Aryan nations—the Greeks, the Iranians and the Indians—with one another and with their brothers have at present to be inferred; they must be found in these regions.

APPENDIX TO CHAPTER VIII

In view of the critical importance of the data of the ochre-grave culture in South Russia, I add a list of objects from such graves to which more or less accurately datable parallels are known elsewhere.

Maikop (Kuban)—razor (?) (*Dawn*, fig. 61, top left): cf. Mochlos tomb iv, MM. III (1700–1600 B.C.). (Seager, *Mochlos*, fig. 45.)

¹ *S.M.Y.A.*, xxv, p. 123, fig. 71; Minns, *Scythians and Greeks*, pp. 241–6.

² To infer a migration from the distribution of weapon types alone would, I submit, be rash. The diffusion of such objects is very often due to trade. Only in a few exceptional cases, particularly in early periods or when the articles are of a more archaic character than their context, such as the Trojan battle-axes, can such commercial diffusion be ignored. It is quite a different matter when we have a whole cultural complex moving about from place to place as happens with the battle-axe cultures. It is for this reason that I have been unable to follow Mr. Peake, who traces the migrations of the Western Aryans from the Danube valley by means of swords.

Tsarevskaya (Kuban)—poker-butted spear-head (*Dawn*, fig. 62; cf. Early Hittite graves near Carchemish (? 1900-1750 B.C.). (*L.A.A.A.*, vi, pl. xix, c. 4.)

Tsarevskaya (Kuban)—? dagger with bronze hilt (ib.); cf. Italian Aunjetitz daggers of Central Europe (1750-1450 B.C.).

Konstantinovka near Novocherkask (Don)—winged beads (*Dawn*, fig. 65, 2); cf. phallic beads, Paros, ? E.M. III (2400-2100 B.C.). (Ib., fig. 20, 3.)

Or cf. Egyptian "fly" ornament (*Menat*), early XVIIIth Dynasty (XVIIth century B.C.).

Same grave—"papyrus staff" amulet (also from grave IIb near Konstantinovka, Terek, Tallgren, *Götze-Festschrift*, fig. 1); cf. similar beads from Paros, same date (l.c., fig. 20, 4), or Egyptian amulets of various dates.

Novogrigoryevka (Dniepr, catacomb-grave) ? segmented bead of bone (Tallgren, l.c., fig. 13); cf. segmented stone beads Vrokaastro E.M. II (2800-2400 B.C.) or ditto, paste Assur, before 2500 B.C. (?) (Andrae, fig. 61) or ditto paste, Crete, MM. III, and later.

Same grave—copper disc with punctured ornament (l.c., fig. 12); cf. disc from Stollhof in Lower Austria, c. 1800 B.C.), or

Same grave and often in other tombs—hammer-headed pins (*Dawn*, fig. 65, 4-6); cf. Remedello, silver (? 2000 B.C.) or Kazbek, bronze (Tallgren, *S.O.F.*, i, p. 327). (1200-1000 B.C. ?) or Argive Heræum, Geometric (900-800 B.C.), (Waldstein, *The Argive Heræum*, pl. lxxx, 353-364). The last parallel is very close.

Jackowice near Kiev—helical copper earrings with flattened ends (*Swiatowit*, vi, fig. 26); cf. earrings from treasures at Troy, II, i, and from Central European Aunjetitz graves.

Tallgren further compares the hollow hemispherical "beads" of copper from Remontoye (Astrakhan) and Kru (Kuban) with rather similar hollow beads from Hungary (end of Early Bronze Age, say XVIth century). But these objects are in reality only the metal covers for buttons of some perishable substance. Beads of the type they presuppose are met at Anau in Culture I (Pumpelly, op. cit., fig. 295), and similar covers in gold in E.M. III or MM. I tholoi in Crete (Xanthudides, *Vaulted Tombs of the Mesara*, pl. lxii).

Arguments based on typological studies of battle-axes have been omitted as deceptive—note that fine stone battle-axes are actually met in Scythian graves in South Russian (*Otchet*, 1899, pp. 47-8) and in Iron Age settlements and barrows in Bosnia (*W.M.B.H.*, i, p. 40, fig. 23; iv, p. 6, fig. 11)—as have comparisons with long-lived Asiatic types, such as axes, spear-heads, and forks which are chronologically worthless. Two further points must be stressed. Although the ochre-graves are very numerous, the internal development illustrated by their furniture is so slight that it is difficult to spread them over eighteen centuries. Secondly Scythian graves quite often occur in the same group of barrows as ochre-graves, in fact in some cases the two types of interment are met in the same barrow, though the Scythian remains seem invariably to lie at a higher level.

Such considerations are far from decisive. It must, nevertheless, be conceded that their cumulative effect favours a relatively late date for the ochre-grave culture. It fits best into the general chronological framework of European pre-history as viewed from the standpoint of Central Europe if placed in the second millennium B.C. At the same time it may be that the rude products from the ochre-graves to which Bronze Age parallels from Central Europe have been cited should be looked upon as the prototypes of forms which, under the stimulus of the amber trade, were fruitfully elaborated there.

Socketed spear-heads have been found in ochre-graves in the Terek excavated in 1925.

CHAPTER IX

THE RÔLE OF THE ARYANS IN HISTORY

The reader may think that the rôle here assigned to the Aryans is an extremely modest one. If the view advanced in the last chapter be correct, they were not the inaugurators of the neolithic civilization even in Europe nor were they as a whole the pioneers in the use of bronze or iron. The makers of the kitchen-middens on the Danish coasts have been justly termed "disgusting savages". Even stronger epithets might be applied to the other claimants to the title of proto-Aryans; for a suspicion of cannibalism clings to the ochre-grave peoples.¹ Even in barbarian Europe the material culture of the Nordics was not originally superior to that of the Danubian peasants or the megalith-builders; in Transylvania they appear frankly as wreckers; in the Ancient East and the Aegean they appropriated and for a time impaired older and higher civilizations.

It was perhaps something to be able to rise from a state of wretched savagery even to overcome more civilized tribes. Not all savages know how to take advantage of the gifts of traders as the Nordics did on the Baltic and in South Russia. But what was their positive contribution to the capital of human progress? We may at least say that they were not merely destroyers. They knew how to profit by and improve on the achievements of their victims. From the fields they had wasted choicer blossoms grew.

To appreciate that we should have to proceed by way of contrast. Only a few points can be suggested here. In Hither Asia civilization had reached an exceptionally high level by the IVth millennium before our era. As the earlier achievements of the Sumerians gradually become better known and provide a standard of comparison, we begin to feel how relatively trifling were the advances made during the next two thousand years. The metal work of the First Dynasty of Ur reveals a perfect mastery over elaborate technical procedures. The chief types of tool unearthed in the ruins of Assyrian cities had been already in use under the early kings of Kish. From an aesthetic standpoint the copper heifers

¹ Tallgren, in *Götze-Festschrift*, p. 69, n. 1.

and shell inlays from A-anni-padda's temple at Tell el 'Obeid (about 3200 B.C.) are already masterpieces breathing a delicate feeling for life unsurpassed till the Persian period. Even the marvellous lions and horses on the Assyrian bas-reliefs represent a comparatively insignificant advance. Such improvements in arts and crafts as are detectable in Assyrian civilization are generally attributed to the influence of the Hittites, among whom some sort of Aryan inspiration was certainly at work. In the political domain progress had been more substantial at least in the IIIrd millennium. The Semite Narâm-Sin had made a step in the direction of unity, and Hammurabi carried his work a stage nearer completion. But Hammurabi's empire only imposed peace and political solidarity on the disunited Orient for a brief period and his wise laws, themselves largely derived from much older statutes, were in the sequel altered for the worse. The Assyrians, who were the ultimate heirs of Babylonian sovereignty, added nothing to the political capital of mankind. Their empires were indeed vaster than anything that had preceded them, but they rested upon naked force and unmitigated cruelty and failed to confer on the subject peoples durable peace or lasting security in return for crushing tributes preceded by pitiless devastations. The Assyrians forged a terrible engine for plunder and extortion; for a governmental structure to shelter trade and intellectual intercourse we have to await the Aryan Darius. Finally the religious ideas current throughout the Ancient East remained utterly primitive and showed not the least development in the direction of moralization or genuine monotheism till the VIth century. The sole exception was in the reign of Amenhotep IV in Egypt, and it has been pointed out that the world's first heretic was brought up at a Court where Mitannian princesses played a prominent part and his cult of the solar disc has been thought to reflect Aryan inspiration.

The accession to power of the Iranian Achaemenids brought in its train an aesthetic, political and religious revolution. No doubt the Persians had the benefit of the experience of their predecessors. The transformation achieved is none the less startling. Achaemenid art is characterized by a sobriety and verisimilitude unknown in Hither Asia since the Sumerian period, and yet incorporated all the technical improvements of the intervening centuries. Most striking is the lively individuality of the human figures as contrasted with the stiff and expressionless types of the Hittites, Babylonians or Assyrians. This seems an

essentially Aryan trait. It is further very significant that the Persians should at once have proceeded to create a simple and almost alphabetic syllabary out of the clumsy and incredibly complicated cuneiform script which Sumerians, Hittites, Assyrians and Chaldaeans in turn had been content to use with no sensible modification for two thousand years. The Persian Empire was not only infinitely wider than even the greatest domains conquered by a Sargon or a Sennacherib. It was organized with statesmanlike genius by the great Darius and for two hundred years brought peace to the war-scarred lands of the Near East. Under its shelter merchants and philosophers could travel unhampered from the Aegean to the Indus; its royal roads were arteries along which not only military force but also the scientific and religious inspiration of the Ancient East flowed to Greece and Rome. That enlightened and prudent organization, contrasting so strongly with the plundered wastes dominated by Assyrian despots, was planned by Aryan princes and administered by Aryan governors. Its official religion, Zoroastrianism, was inspired by genuinely moral conceptions and was international in its appeal and monotheistic in its essence even though that internationalism and monotheism may in a sense reflect the imperialism of its royal votaries.

In Hellas the work of the Aryan invaders is less easily recognizable. The Minoans had created a civilization which was truly European and an art which, at its best, surpassed any contemporary product of the East. But that civilization seems to have lacked the vigour for expansion; it was already in its decline when the Achaeans overthrew it. To Egypt the Minoans brought tribute or gifts; the Achaeans slashing swords. Minoan merchantmen reached the Delta and the Levant; men of war were captured by the Hellenes. Minoan art reached its zenith by 1600 B.C.; in the Second Late Minoan Age conventionalization had set in to lead to decadence in the Third. That decadence was not arrested by the infiltration of Achaean dynasts, but they at least inspired new decorative principles which bore abundant fruit in the VIth century. The metopic style in ceramic art provided a corrective to the luxury and exuberance of Minoan decoration which still retained something Oriental. The Aryan interest in humanity provided the potter with a theme in which, after the rude attempts of the warrior-vase and the Dipylon, his classical successors were to achieve supremacy.

But it is in continental Europe that the work of the Aryans as

founders of Western Civilization is most readily apparent. The west and north of our continent had been occupied by the megalithic peoples. The stupendous size of these monuments and the skill employed in their erection betoken a relatively high civilization in their builders. If Mr. Perry be right, the founders of this civilization were equipped with all the material and intellectual resources of the Egyptians of the pyramid age. Yet in France and the Iberian peninsula this civilization shows not a trace of internal development, not a vestige of progress. Though the number of the monuments was multiplied indefinitely, their furniture remained rude and barbaric. Despite a favoured situation in metalliferous regions and the fertilizing influences born along the western trade routes, the megalith-builders continued to use flint and stone or at best copper when other peoples were working bronze and iron. It is scarcely possible to point to a single fruitful type of tool or ornament which originated in the megalithic regions of France or Portugal. It seems as if these people were wholly absorbed in the cult of the dead and as if superstitious observances monopolized and paralysed all their activities. Complete stagnation ruled in industry, and to find parallels to their culture we have only to visit the Pacific Islands which have been exposed to a similar influence. This civilization which stagnated on the Atlantic coasts for a thousand years or so, from the latter half of the IIIrd millennium B.C., was not European; Western civilization was brought to the West by the Celts from Central Europe towards the end of the IIrd millennium!

The prehistory of Britain is very different. Soon after 2000 B.C. a battle-axe people conquered the territory previously occupied, as in France and Portugal, by the megalith builders. With the advent of the invaders a period of rapid and original development set in. The rich and varied furniture of the intruders' round barrows is in striking contrast to the monotonous poverty of the grave goods from the older long barrows. We know now that the battle-axe wielders were admixed with Aryans, and the truly Western civilization which henceforth ruled in Britain was obviously promoted by them.

In Scandinavia the contrast to France and the Iberian peninsula is even more fundamental. Here, too, men built megalithic graves, but their furniture here is totally different to anything discoverable further west. And besides the megalithic tombs were other graves covering the remains of a people, who, whether they were come from

South Russia or represented a section of the pre-dolmenic population, were, we believe, Aryan in character. It was these who inspired the higher developments even in the megalithic culture of the North. The interaction of the two types of civilization was the mainspring of a rapid progress. And ultimately the division was overcome; the Aryans imposed their authority and their culture—partly, if you will, a borrowed culture—on the whole region, welded the disparate racial groups and the scattered clans into a national unity in which western and eastern ideas were blended to an European whole and called forth a progressive society no less brilliant in trade and art than in war. The gulf between French and Scandinavian culture at the beginning of the IInd millennium is enormous. The superiority of the former is the measure of the contribution made by the Aryan element to European civilization.

In the Danube valley the tale is not very different. The early peasants had reached no mean level of culture. The material additions introduced by the Nordic infiltrations and conquests were of secondary importance. Often indeed these intrusions actually caused a set-back to material civilization. But the first culture was essentially a peasant civilization and as such unprogressive and rigid. Left to itself it might have remained on the level of a totemic society in Melanesia or North America. In out of the way corners, Danubian I culture did actually persist for a long time in a fossilized condition. But just where the Nordic invasions had been most persistent we find a Bronze Age art and industry which are truly European in their originality. The ferment which transmuted the societies of agricultural clans into the heroic tribes of the Bronze and Iron Ages, thus opening the way to initiative and individuality, we regard as Aryan.

Thus the Aryans do appear everywhere as promoters of true progress and in Europe their expansion marks the moment when the prehistory of our continent begins to diverge from that of Africa or the Pacific.

Perhaps disappointment has now given place to bewilderment in the reader's mind. How precisely did the Aryans achieve all this? It was not through the superiority of their material culture. We have rejected the idea that a peculiar genius resided in the conformation of Nordic skulls. We do so with all the more confidence that, by the time Aryan genius found its true expression in Greece and Rome, the pure Nordic strain had been for the most part absorbed in the Mediterranean substratum: the lasting gift

bequeathed by the Aryans to the conquered peoples was neither a higher material culture nor a superior physique, but that which we mentioned in the first chapter—a more excellent language and the mentality it generated. It is particularly significant that where, as in Mitanni, the Indo-European language was not retained, the effects of an infusion of Aryan blood did not come to fruition.

At the same time the fact that the first Aryans were Nordics was not without importance. The physical qualities of that stock did enable them by the bare fact of superior strength to conquer even more advanced peoples and so to impose their language on areas from which their bodily type has almost completely vanished. This is the truth underlying the panegyrics of the Germanists: the Nordics' superiority in physique fitted them to be the vehicles of a superior language.

BIBLIOGRAPHICAL NOTE

PERIODICALS

The following abbreviations have been used in citations:—

- AfA.* . . . *Archiv für Anthropologie* (Brunswick).
A.M. . . . *Mitteilungen der kaiserlich deutschen archäologischen Instituts, athenische Abteilung.*
Ant. J. . . . *Antiquaries Journal* (London).
Arch. . . . *Archæologia* (London).
'Αρχ. Δελτ. . . . *'Αρχαιολογικὸν Δελτίον* (Athens).
B.P. . . . *Bullettino di paleinologia italiana* (Parma).
B.S.A. . . . *Annual of the British School at Athens.*
B.S.J. . . . *Bulletin of the British School at Jerusalem.*
B.S.R. . . . *Papers of the British School at Rome.*
C.Q. . . . *Classical Quarterly* (London).
C.R. . . . *Classical Review* (London).
'Εφ. 'Αρχ. . . . *'Αρχαιολογικὴ Ἐφημερίς* (Athens).
F.M. . . . *Finskt Museum* (Helsingfors).
Glotta . . . (Göttingen).
I.F. . . . *Indogermanische Forschungen* (Strasburg).
I.J. . . . *Indogermanisches Jahrbuch* (Strasburg).
J.A.O.S. . . . *Journal of the American Oriental Society* (Boston).
J.E.A. . . . *Journal of Egyptian Archæology* (London).
J.H.S. . . . *Journal of Hellenic Studies* (London).
J.R.A.I. . . . *Journal of the Royal Anthropological Institute* (London).
J.R.A.S. . . . *Journal of the Royal Asiatic Society* (London).
K.Z. . . . *Kuhn's Zeitschrift für vergleichender Sprachwissenschaft* (Berlin).
L.A.A.A. . . . *Liverpool Annals of Anthropology and Archæology.*
L'Anthr. . . . *L'Anthropologie* (Paris).
M.A.G.W. . . . *Mitteilungen der anthropologischen Gesellschaft in Wien.*
M.A.G.Z. . . . *Mitteilungen der antiquarischen Gesellschaft in Zürich.*
M.D.O.G. . . . *Mitteilungen der deutschen Orient-Gesellschaft* (Berlin).
Mannus . . . (Berlin).
Mem. Del. P. . . . *Mémoires de la déléation en Perse* (Paris).
O.L.Z. . . . *Orientalische Literaturzeitung* (Berlin).
P.S.B.A. . . . *Proceedings of the Society of Biblical Archæology* (London).
P.Z. . . . *Prähistorische Zeitschrift* (Berlin).
S.O.F. . . . *Studia Orientalia Fennica* (Helsingfors).
S.M.Y.A. . . . *Suomen Muinaismuistoyhdistyksen Aikakauskirja* (Helsingfors).
Syria . . . (Paris).
W.M.B.H. . . . *Wissenschaftlichen Mitteilungen aus Bosnien und Herzegowina* (Vienna).
W.P.Z. . . . *Wiener prähistorische Zeitschrift.*
W.V.D.O.G. . . . *Wissenschaftliche Veröffentlichungen der deutschen Orient-Gesellschaft* (Berlin and Leipzig).
Z.D.M.G. . . . *Zeitschrift der deutschen Morgenlandgesellschaft* (Berlin).
ZfE. . . . *Zeitschrift für Ethnologie* (Berlin).

BOOKS

Works frequently cited as authorities alone are here included. On the other hand, without attempting to give a complete bibliography of the literature of the Aryan controversy, some of the older works of especial interest for the history of the question are given below, even though they be quite out of date from a scientific point of view.

- Åberg, Nils . . . *Das nordische Kulturgebiet* (Uppsala, 1918)
- Allen, T. W. . . . *The Homeric Catalogue of Ships* (Oxford, 1921).
Homer: The Origins and Transmission (Oxford, 1924).
- Bechtel, F. . . . *Die griechische Dialekte* (Berlin, 1921 f.)
- Bender, H. H. . . . *The Home of the Indo-Europeans* (Princeton, 1922).
- Behrens, G. . . . *Bronzezeit Süddeutschlands* (Mainz, 1916).
- Cambridge Ancient History* (cited C.A.H.).
- Cambridge History of India* (cited C.H.I.).
- Chadwick, M. . . . *The Heroic Age* (Cambridge, 1912).
- Chantre, E. . . . *Mission en Cappadoce* (Paris, 1883).
Recherches anthropologiques dans le Caucase (1885-7).
- Childe, V. Gordon . . . *The Dawn of European Civilization* (London, 1925).
- Dechelette, J. . . . *Manuel d'archéologie préhistorique celtique et gallo-romaine* (Paris, 1908-1914).
- Delaporte, L. . . . *Mesopotamia: Babylonian and Assyrian Civilization* (London, 1925).
- Feist, S. . . . *Kultur, Ausbreitung und Herkunft der Indogermanen* (Berlin, 1913).
- Fick *Vorgriechische Ortsnamen* (Göttingen, 1905).
- Forsdyke, E. J. . . . *Catalogue of Greek and Etruscan Vases in the British Museum*, vol. i, i (London, 1925).
- Frazer, Sir James . . . *Lectures on the Early History of the Kingship* (Cambridge, 1910).
- Giles, P. . . . See C.A.H. and C.H.I.
- Gotze-Festschrift . . . *Studien zur vorgeschichtlichen Archäologie Alfred Gotze . . . dargebracht . . .* (Leipzig, 1925).
- Haddon, A. C. . . . *The Races of Man* (Cambridge, 1924).
- Hall, H. R. . . . *The Ancient History of the Near East* (London, 1913).
The Oldest Civilization of Greece (London, 1901).
- Hirt *Die Indogermanen* (Strassburg, 1905-7).
- Hoernes, R. . . . *Urgeschichte der bildenden Kunst in Europa* (Vienna, 1924).
- von Ihering, R. . . . *The Evolution of the Aryans* (trans. London, 1897).
- Keith, Sir Arthur . . . *The Antiquity of Man* (London, 1925).
- Keller and Reinert . . . *Urgeschichte des Thurgaus* (Frauenfeld, 1925).
- Kossinna, G. . . . *Die Indogermanen* (Würzburg, 1921). (See also note on p. 168.)
- Kretschmer, P. . . . *Einleitung in die Geschichte der griechischen Sprache* (Göttingen, 1896).
- de Lapouge *L'Aryen* (Paris, 1899).
- Latham *Elements of Comparative Philology* (London, 1862).
- Macalister *Excavations at Gezer*.
- MacDonell, A. A., and Keith *Vedic Index of Names and Subjects* (1907).
- Menghin, O. . . . See Hoernes.

- Meyer, E. *Reich und Kultur der Chetiter* (Berlin, 1914).
- de Michells, E. *L'Origine degli Indo-Europei* (Turin, 1903).
- Minas, E. H. *Scythians and Greeks* (Cambridge, 1911).
- Moret and Davy *From Tribe to Empire* (London, 1925).
- de Morgan, J. *Mission au Caucase* (Paris, 1889).
- Mission scientifique en Perse* (Paris, 1894).
- Prehistoric Man* (London, 1924).
- de Mortillet *Formation de la nation française* (Paris, 1897).
- Müller, F. Max *Bibliographies of Words and the Home of the Aryans*
(London, 1888).
- Pargiter *Ancient Indian Historical Tradition* (Oxford, 1922).
- Peako, Harold *The Bronze Age and the Celtic World* (London, 1922).
- Peet, E. *The Stone and Bronze Ages in Italy and Sicily* (Oxford,
1909).
- Penka, Carl *Origines Ariacæ* (Vienna, 1883).
- Die Herkunft der Arier* (Vienna, 1887).
- Penrose, Harland *The Peloponnesos in the Bronze Age* (*Harvard Studies in*
Classical Philology, 1923).
- Perry, W. J. *The Growth of Civilization* (London, 1923).
- Pittard, E. *The Races and History* (London, 1925).
- Petrie, Sir William
M. Flinders *A History of Egypt* (London).
- Poesche *Die Arier* (Jena, 1878).
- Pumpelly, R. *Explorations in Turkestan* (Carnegie Publications, No. 73).
- Randall-MacIver *Villanovan and Early Etruscans* (Oxford, 1924).
- Ridgeway, Sir William *The Early Age of Greece* (Cambridge, 1901).
- Ramsay Studies* *Anatolian Essays and Studies presented by Sir William*
Ramsay (1924).
- Rostovtzeff *Iranians and Greeks in South Russia* (Oxford, 1922).
- Sayce, A. H. *Introduction to the Science of Language* (London, 1880).
- Schrader, O. *The Prehistoric Antiquities of the Aryan Peoples*. Transla-
tion by Jevons (London, 1898).
- Reallexikon der indogermanischen Altertumskunde* (1st
edition, 1902; 2nd edition edited by Nehring in
progress; letters A to M have so far appeared).
- Sergi, G. *Gli Ari in Europæ in Asia* (Turin, 1902).
- Taylor, Isaac *The Origin of the Aryans* (London, 1889).
- de Ujfalvy *Les Aryens au nord et au sud de l'Hindoukouch*
(Paris, 1896).
- Vendryes *Language* (London, 1925).
- Wilke, G. *Stidwesteuropäische Megalith Kultur und ihre Beziehungen*
zum Orient (Würzburg, 1912).
- Zaborowski *Articles in Revue de l'école anthropologique de Paris,*
especially 1898.
- Zimmer, H. *Alindisches Leben* (Berlin, 1870).

INDEX

- Achæans, 44-8, 50-6, 59, 63, 74, 77, 86, 144; in Hittite records, 47; in Egyptian records, 75-6
 Æolic dialect, 43, 46, 60
 Afghanistan, 31
 Agriculture, Aryan, 83, 139, 143; discovery of, 103, 169; diffusion of, 114, 127, 129, 136, 139, 172, 185
Ahhiyava, 47
Airyānam vaējāiñ (Aryan homeland), 38, 95, 109
 Alans, 5, 160
 Albat Hills, 67, 71
 Albinism and blondeness, 165
 Allen, T. W., on Homeric question, 44, 45, 60
 Alloys, invention of, 111, 134
 Alpines, 154
 Amber, 90, 122, 167, 172, 197; trade, 55, 124, 135, 152
 American Indians, comparisons with, 148, 188
 Amorites, 26, 76 n.
 Anau, 28, 40, 84, 88, 100, 103-15, 130, 170
 Anglo-Saxons, 83
 Animism, 80
 Anthropologists, 163, 211
 Arabs, prehistoric comparisons with, 100
 Arcadians, 43, 46, 60
 Architecture, Hittite, 28; Phrygian, 65; Roman, 68; *see also* Brick House, Megaron, Palace, etc.
 Aristocracies, formation of, 162
 Armament: Hittite, 39; Vedic, 30; Achæan, 51; Aryan, 85
 Armenian language, 6, 7, 27
 Art: Ceramic, 103, 140; Early Iron Age, 119; Bronze Age, 152, 211; Indian, 35; Minoan, 56, 208; Scythian, 38
 Aryan languages defined, 5-6
 Aryan peoples defined, 4, 95
Aryas, *see* Indo-Iranians
 Asiatic languages, 17, 22-3, 29, 38, 63, 95, 132, 134
 Assur, 16, 113, 132, 186
 Assyrians, 16, 28, 37, 124, 208-9
 Astarte, *see* Ishtar
 Atreus, 47, 50
 Aunjetitz culture, 152, 202
 Australian aborigines, burial customs of, 148
 Autran cited, 47, 53
 Avesta, 36, 95; *see also* Gāthās, Zend Axes, 30, 87, 121, 130, 185
 Baalberg, 176, 197
 Babylonia, *see* Mesopotamia
 Baluchistan, 34, 105
 Bantu peoples, comparisons with, 11, 80
 Barrows, 31, 35, 52, 72, 146, 151, 162, 174, 183 ff.
 Basques, 100, 161
 Battle-axes, 29, 61, 66, 133, 142, 151, 156, 162, 174, 180, 185, 188-91, 201, 210
 Beech, Aryan name for, 89
 Bell-beakers, 99, 146, 162
 Bender, H. H., on Aryan cradle, 89, 165, 167
 Birch, 26, 89
 Birds, figures of, 124
 Blondes, Libyan, 76, 102; in ancient writers, 159 f.
 Blue-eyed peoples on ancient monuments, 26, 76, 160; in modern Persia, 160
 Borrowing: linguistic, 79, 85, 87, 90, 168; cultural, 106, 192
 Bosch-Gimpera cited, 98
 Bow, use of, 30, 185
 Bracelets, stone, 113
 Brachycephals, defined, 97; cradle of, 106, 125
 Breast-plates in Homer, 51
 Brick architecture, 28, 34, 110, 132
 Bridle-bits, 119, 192
 Britain, 102, 137, 145, 160, 169, 175, 201, 210
 Bronze, invention of, 98, 134
 Brooches, 48, 52, 55, 61, 65, 70, 77, 119, 121
 Brunnhofer on Indo-Iranian period, 32
 Burial rites, *see* Cremation, Megalithic tombs, etc.
 Camp, Roman, 67
 Cannibalism, 207
 Canoes, dug-out, 86, 141
 Cappadocia, 16, 20, 23, 28, 105, 112, 132, 190
 Cappadocian tablets, 24, 90, 132
 Carians, 58, 132
 Carchemish, 21, 27, 130, 145
 Casson, S., cited, 48, 115 n.
 Caste and colour, 160

- Cato, fairness of, 159
 Cattle, domestic, 82, 109, 139, 183, 193;
 as standard of value, 83
 Caucasus, 26, 38, 65, 101, 118-24,
 176 ff., 194 ff.
 Celtic languages, 6, 8, 67
 Celts, 8, 117, 144, 155, 161, 201
Centum and satem, languages, 7-8, 20,
 24, 79, 95, 170
 Chadwick cited, 46, 52, 55
 Chariot, 18, 27, 30, 41, 86
 China, prehistoric remains from, 103,
 188
 Chinese annalists cited, 41, 160
 Christian, V., views of, 17, 35, 76 n.,
 102, 106, 108, 147
 Chronology, 199 n.
 Cimmerians, 26, 39, 203
 Clay, on Kassite names, 18
 Climatic changes, postglacial, 90, 96,
 105, 125, 141, 143, 168, 193
 Commerce, *see* Trade
 Conditions governing prehistoric settle-
 ment, 105, 115-6, 125, 141, 169,
 195
 Copper: used by Aryans, 85, 87, 168;
 name in Basque, 101; use in Europe
 and Asia, 99, 103, 130, 141, 170,
 185
 Cord-ornamented vases, 151, 156, 162,
 176, 192, 198
 Cosmic Order, concept of, 5, 20, 36
 Costume: Hittite, 27; Persian, 38;
 Minoan, 57
 Crafts, Aryan, 85
 Cremation, 31, 34, 41, 51-3, 68, 70, 77,
 98, 144-8
 Crete, 42, 45, 57 ff., 98, 100, 110, 127,
 129, 132, 138, 152, 193, 199; *see*
 also Minoan
 Culture heroes, 45, 172
 Cuno on Aryan cradle, 164
 Cyprus, 43-4, 47, 57, 60, 87, 132

 Daggers, varieties of, 100, 130, 185
 Danaëans in Egyptian texts, 72
 Danubians, 83, 127-9, 139-44, 146, 170,
 173, 175, 202, 207, 211
 Dardanians, 64, 133
 Darius, 4, 23, 27, 32, 37, 41, 83, 208
 Darmsteter on Avesta, 33, 37
 Dawn Maiden, 30, 81
 Dead, cult of, 80, 101, 136, 172
 Demons and gods, 19, 36
 Desiccation of Asia, 96, 105; of Europe,
 141
 Dicing, 30
 Diffusion of languages, 11
 Dodona, 55
 Dolichocephals defined, 97
 Domestic animals, 82, 103, 109, 127,
 136, 139, 169, 172, 193

 Dorians, 43, 47, 50, 77, 148, 161
 Dragon-fight, myth of, 23, 30, 33
 Duerst, on domestication of horse, 88,
 109
 von Duhn, on Umbrians, 70

 Egypt, barbarian invasions of, 24, 47,
 72 ff.
 Ekholm on Aryan cradle, 188 n.
 Elamites, 17, 37, 113
 Epics: Greek, historical elements in,
 44; theory of Minoan, 45
 Epirus, 55
 Equitation, 40, 119, *see also* Bridle,
 Chariot, Horse
 Ethnography, comparative, 79, 82
 Etruscans, 69-70, 74
 Evans, Sir Arthur, 45, 50, 199 n.
 Exogamy, 47

 Father, Sky, 5, 81
 Fatyanovo culture, 177, 197
 Feist, cited, 83, 85, 86
 Female figurines, 34, 35, 110, 128, 186
 Fick, cited, 42, 58, 59, 79, 132, 167
 Finns, 89, 161, 169, 177, 186, 188, 204
 Fishing, 84, 167
 Flora: of Aryan cradle, 88; changed
 distribution of, 89, 90, 105
 Food-gatherers, 82, 84, 98, 168, 173, 188
 Forests, influence of on settlement, 106,
 125, 141, 165, 172
 Forrer, E., cited, 21, 47, 50
 Forsdyke cited, 77
 Fortifications, 68, 86, 132, 149, 154
 Frankfort, cited, 110, 113
 Frazer, Sir James, 45, 80, 81
 Frescoes, 55-6
 Funeral hymn, Vedic, 35
 Furs, trade in, 193
 Fürst, K., on ethnology of Scandinavia,
 179
 Future life, belief in, 148

 Galchas, 160
 Garstang on Hittites, 27
 Gāthās, 6, 7, 36
 Garden-culture, 83
 Giles, views of, 8, 22, 139
 Girdles, 20, 120
 Gods: Aryan, 5, 80; Indo-Iranian, 18,
 30, 36; become demons, 36
 Goliath (Philistine champion), 76
 Grains, cultivated, 83
 Greek language, 6, 22, 43, 202
 Grooms, *see* Hellenes

 Haddon, cited, 102, 186, 188
 Hall, H. R., cited, 35, 37, 47, 63, 74, 113
 Hallstatt culture, 39, 49, 118 ff.
 Halys valley, 16, 23, 193
 Hara 'uvatis (Arrachosia), 7, 32, 37, 109

- Helbig on Italic, 69
 Hollena, 42-57, 64, 76, 109, 131, 202
 Heretic, the first, 208
 Herbic age, 30, 45-6, 50
 Hindus, *see* Indians
 Hirt, views of, 80, 165
 Hittite texts: decipherment of, 17;
 Greek heroes in, 44, 47, 64
 Hittites, 20, 27-9, 90, 131, 147, 178, 208
 Hivites, Biblical, 47, 53, 76
 "Homer," a good archaeologist, 53
 Homeric question, 39, 44, 50
 Horse, domestic, 83, 88, 109, 119, 140,
 156, 183, 189 ff.; introduction into
 ancient world, 18, 27, 29, 57, 68
 House, Aryan, 86; *see also* under
 Megaron, Wagon-dwelling
 House-father, 81
 Hrozny on Hittite, 21
 Humanism, 208
 Hunting, 84
 Huntingdon, Elworth, 105
 Hüsing, views of, 20, 35, 38
 Hymns, Vedic, 30, 81; Zend, 36, 83;
 Lithuanian, 81
 Hystaspes, 19, 37

 Illyrian, 6
 Illyrians, 50, 67, 71, 148
 Incorporating, languages, 22
 India, prehistoric remains from, 34-6,
 101, 105, 188
 Indians, 30-3, 109, 178, 194
 Indic languages, 6, 19, 95
 Indo-European, *see* Aryan
 Indo-Iranians, 7, 78, 95, 142, 176
 Indra, Indian god, 18, 30, 33, 36, 81
 Inertia of peasants, 143
 Inge, Dean, on Nordics, 163
 Invasions by barbarians, 24, 72, 195;
 by Nordic tribes, 154, 175
 Ionic Greek, 43, 46, 60
 Iranians, 6, 20, 33, 36, 42, 160, 174, 178,
 194, 208; *see also* Medes, Persians
 Ireland, 170
 Iron, use of, 29, 51, 53, 77, 102, 117
 Italic dialects, 6, 67
 Italic, 67 ff., 142, 201

 Jackson, on date of Zoroaster, 37
 Jacobi, views of, 20, 31
 Jade, Chinese, 24
 Japan, painted pottery from, 104
 Jutland, separate graves in, 174, 180,
 197

 Kassites, 18, 24, 160
 Kinship, Aryan, 81
 Kingship: Aryan, 82; divine, 101, 172,
 193; rise of, 45, 57, 134, 195
 Knossos, 28, 57
 Koban, 118 ff., 203

 Konow on Mitanni, 20
 Kossinna, views of, 85, 88, 89, 142, 166,
 168-80, 202 n.
 Kozłowski, cited, 171, 200
 Kuban, 27, 176, 177, 185, 194, 202
 Kurds, 160

 Lake-dwellings, 71, 125-7, 154 f.
 Land surface, changes in, 138, 169
 Language and thought, 1 f., 212; and
 race, 11
 de Lapouge on Aryans, 150, 159, 163
 Lapps, 178
 Latham on Aryan cradle, 159, 165
 Latin, 6, 7, 22, 67, 71
 Lausitz culture, 65, 144, 202
 Leleges, 58, 64, 132
 Lengyel, 150, 152, 173, 197
 Libyans, 73
 Ligurians, 67, 71
 Lithuanian language, 6, 166-7; deities,
 81
 Lithuanians, 165, 167
 Loot, attraction of, 174, 177, 194-5
 von Luschan, cited, 27, 160
 Lycians, 45, 64, 74
 Lydians, 45, 132

 Maces, 34, 85, 108, 111, 127, 130, 134,
 141, 174
 Macedonia, 43, 48, 54, 64, 71, 125, 130,
 148, 155
 Magic, 80
 Maglemose, 168, 178, 187, 199
 Marianna (class among Mitanni), 19, 26
 Marriage, accession to throne through,
 46
 Matriarchy, 63, 81
 Medes, 37, 41
 Mediterranean race, 55, 57, 97, 106,
 127, 146, 179
 Megalithic tombs, 34, 101, 170, 179,
 193, 210
 Megaron house, 56, 59, 86, 110, 133, 156
 Meillet on Greek language, 43
 Meister on Dorians, 44
 Menghin cited, 142, 171, 200 n.
 Mercenaries, barbarians employed as,
 47, 72
 Mesopotamia, Aryans in, 16 ff.
 Mesopotamian influence, on primitive
 Aryans, 87; on Europe, 177, 185,
 189
 Metallurgy, Aryan, 85; introduction
 into Europe, 98
 Metope style, 53, 73
 Meyer, Eduard cited, 20, 26, 37, 199 n.
 de Michelis, views of, 144-8, 167, 178
 Microliths, *see* Pigmy flints
 Migrations needed to explain diffusion
 of languages, 12; of Nordics, 167,
 173-8, 194-8, 200

- Minns, on Scyths, 39
 Minoans, 56-7, 60, 170, 186; 193, 208
 Minyans, 59
 Mitanni, 18-19, 22-3, 30, 37, 160, 177,
 194, 208, 212
 Modestov, on Umbrians, 70
 Mongols, 28, 38, 84, 96, 162
 Monotheism, 36, 208
 Moralization of religion, 36, 208
 de Morgan cited, 90, 97, 117, 195
 de Mortillet, views of, 98
 Mother Goddess, 35, 57, 63, 81, 114, 129,
 132, 141, 143
 Mycenæ, 28, 50, 56, 60, 67
 Mythology, *see* Dragon fight, Religion,
 Tradition
 Myres, J. L., cited, 106, 108, 116, 125,
 127, 147, 182, 186

 Nāsatyā (Heavenly Twins), 18, 36
 Našili (Hittite language), 21 f.
 Natural science, Aryan contributions
 to, 5
 Naturalistic art, 112, 114, 208
 Navigation, 86, 101
 Nestor's Pylos, 50, 59
 Nomadic and sedentary life, 84, 96,
 142, 153, 194
 Nordic race, 76 n., 97, 128, 141, 146,
 150, 156, 163-80, 183, 196, 211
 Nordmann, C. A., cited, 174, 180
 Numerals, Aryan, 19

 Ochre-graves, 183
 Omalus de Halloy on Aryan cradle,
 159, 165
 Oscan, 6, 67, 69 f., 74
 Ossetes, 6, 38

 Painted pottery, 25, 34 ff., 59, 103-16,
 149
 Palaces, 28, 56, 133
 Pargiter on Aryanization of India, 20, 31
 Parthians, 32
 Pastoral imagery in Avesta, 41
 Pastoralists and peasants, 151, 167,
 173, 175, 194, 195
 Peaceableness of Danubians, 142
 Peasants, 41, 58, 61, 84, 139-41, 175,
 211: psychology of, 143
 Peake, Harold, cited, 55, 69, 100, 101,
 106, 123, 127, 182, 186, 190, 204 n.
 Peet on Italic, 69, 70
 Pelasgians, 64
 Peleus, 47, 51
 Pelops, 45
 Penke, views of, 163, 166, 178
 Penrose-Harland on Achæans, 46, 60
 Perry, cited, 81, 84, 101, 106, 174, 208
 Persians, 32, 37, 41, 160, 178
 Personal names, Aryan, 83
 Petrie, Sir Flinders, views of, 75, 199 n.

 Phallic beads, 186, 205; cults, 61, 66
 Philistines, 53, 73-6, 77
 Phonetic Laws, 7, 9, 79, 95
 Phrygians, 6, 63, 79, 131, 142, 202
 Pictet, views of, 11, 95
 Pigmy flints, 168, 187
 Pigorini on Italic, 69
 Pigtales on ancient monuments, 28, 114
 Plough, Aryan name for, 83
 Poesche on Aryan cradle, 165
 Poetry Aryan art, 5, 30
 Place names: as evidence for pre-
 Aryan populations, 42, 58, 67, 132;
 transference of, 33
 Piracy, ancient, 47, 52, 73
 Pokorny, cited, 8, 87, 186
 Portraits: of Hittites, 27; of Mitani-
 nians, 26; of Persians, 41, 160;
 of northern invaders of Egypt, 72,
 160; from Tell el-Halaf, 38
 Poseidon, 60
 Predatory peoples, 174, 177, 191-5
 Priam, 63
 Prospectors, 99, 146, 152, 162, 176, 201
 Punjab, prehistoric remains from 31,
 105

 Q-Italic, 67, 69
 Quest for precious substances, 99, 101,
 193

 Race, anthropological concept of, 96;
 and language, 11
 Racial and cultural groups, correlation
 of, 200
 Randall-MacIver on Italic, 69
 Razors, 85
 Red coloration of skeletons, 183, 198
 Reformer, religious, 36
 Reindcer age, 168, 187
 Reinert on Nordic house, 156
 Religion, Aryan, 80-1; Indo-Iranian,
 7; Minoan, 56, 208; world, 5,
 209
 Ridgeway, Sir William, views of, 52, 53,
 55, 76, 144, 148, 155, 161
 Rigveda, *see* Veda
 Revolution, social, 152
 Romans, 11, 67
 Romance languages, comparison with
 Aryan, 9-12
 Rostovtseff, cited, 38, 40, 199
 Round-barrow men (Britain), 161-2,
 175
 Royal barrows, 152, 194

 Salmon, Aryan name for, 84, 88, 90
 Salt, (?) Aryan name for, 85; importance
 of, 194
 Sanskrit, 6, 94; *see also* Indic, Veda
 Sarasvati (Indian river), 7, 32
 Sardinians, 72-3

- Satem* languages, *see centum*
 Sayce, A. H., cited, 22, 47, 125
 Scandinavia as Aryan cradle, 166 ff.
 Schlegel on Aryan cradle, 94
 Schliz, views of, 128, 142, 147, 166, 171, 181
 Schmidt, Hubert, views of, 106, 142, 171
 Schmidt, J., on diffusion of languages, 11
 Schrader, O., cited, 79, 83, 86, 88, 90, 193
 Schuchhardt, views of, 166, 171, 181, 202 n.
 Script, Minoan, 56, 60
 Sculpture, 56
 Scythia, 26, 38-9, 95
 Seasons, Aryan names for, 83
 Seistan, 33, 104, 111
 Semites, 16, 23, 30, 113, 193, 208
 Separate Graves, 174, 180, 198
 Sergi, views of, 94, 97
 Sford, native name of Sardis, 74 n.
 Shakespeare, comparisons from, 64
 Shields, 29, 51
 Sickles, 40, 111, 116
 Slavonic languages, 6, 8 n.
 Slavs, 145, 161, 202
 Smith, Elliot, views of, 101, 106
 Social organization of Aryans, 81
 Star, Aryan word for, 87, 186
 Statuettes, Sardinian, 74
 Storm Gods, 30, 81
 Sun, Children of, 101, 172, 193
 Sumerian language, 22, 37
 Sumerians, 16, 22, 35, 101, 113, 134, 169, 185, 189, 193, 207
 Superstition, effects of, 210
 Survival of pre-Aryan stocks, 57, 100, 132
 Swine, domestic, 83, 114, 139
 Swords, 29, 51, 61, 69, 74, 76, 85, 119, 152
 Tallgren, A. M., cited, 171, 177, 178, 199
 Tarim River, 4, 6, 95, 160
 Tasmanian burial rites, 148
 Taylor, Isaac, views of, 11, 89, 115, 161-3, 167
 Tell el-Amarna letters, 18 f.
 Tell el-Halaf, 25, 38
Terremare, 68, 71, 131, 142, 144, 155, 156, 201
 Tenori, 74, 134
 Teutonic languages, 6, 7, 167
 Teutons, 144, 162, 181, 201
 Thracians, 7, 39, 59, 61, 131, 171, 203
 Tin, 134, 152
 Tyrns, 28, 53, 56, 60, 77, 148
 Tocharian language, 6, 8, 12, 84, 95, 109, 204
 Tools, Aryan names for, 85
 Tortoise, 88
 Town-planning, prehistoric, 54, 154
 Trade: in shells, 129, 141; ritual, 141; routes, 135, 197; beginnings of in Europe, 99
 Traders as civiliziers, 100, 101, 193
 Tradition, Greek, value of, 42
 Transylvania, 110, 116, 151, 196
 Treves, 39, 64, 65
 Trojan War, 44, 47
 Troy, 28, 29, 40, 44, 65, 74, 100, 112, 130-5, 142, 150, 177, 181, 196
 Turkestan, 6, 8, 24, 27, 28, 40
 Twins, Heavenly, 81; *see also Nāsatyā*
 Tyrrhenians, *see Etruscans*
 de Ujfalvy, cited, 160
 Umbrians, 67, 69 ff., 144, 161
 Undulation theory of differentiation of languages, 11
 Ur of the Chaldees, 35, 113, 189, 207
 Ura fields, 144, 202
 Vannic language, 17, 22, 38
 Varuna (Indian deity), 18, 19, 36, 81
 Veda, 5, 19, 30, 36, 45, 81, 84, 160
 Veneti, 6, 71, 144
 Vikings, 102
 Villages, Aryan, 82, 86; prehistoric, 139, 149, 154
 Villanova culture, 69, 118, 144
 Wagon-dwellings, 86, 184
 Waiters, 154
 Warriors, 141, 151
 Weapons, Aryan, 85
 White slaves at Babylon, 24; at Tyrns, 55
 Wilke, views of, 102, 171
 Winckler, 18
Xanthos, meaning of word, 159 n.
 Yang-Shao culture, 104
 Yorkshire, 168, 187
 Zabrowski, cited, 162, 164
 Zarathustra, *see Zoroaster*
 Zend, 6, 19
 Zeus, 44, 60, 81
 Zoroaster, 5, 7, 36, 38, 41, 83

THE BRONZE AGE

by

V. GORDON CHILDE, B.LITT.

F. R. A. I., F. S. A., F. S. A. Scot.

*Professor of Prehistoric Archaeology
in the University of Edinburgh*



CAMBRIDGE
AT THE UNIVERSITY PRESS
MCMXXX

Cambridge University Press
Fetter Lane, London

New York
Bombay, Calcutta, Madras
Toronto

Macmillan

Tokyo

Maruzen Company, Ltd

All rights reserved

CONTENTS

Preface page xi

CHAPTERS

34

I The Implications of the Bronze Age I

II Metallurgy and Trade 28

Mining and Smelting, 28; Casting and Moulds, 30; Trade in the Ancient East, 38; Bronze Age Trade in Europe, 40; Definition of a Culture, 41; Hoards, 43; Trade Routes, 46; the Climate of the Bronze Age, 48; Vehicles and Ships, 49; Writing, Weights and Measures, 53; Typological Chronology, 53; Absolute Chronology, 58

III Typology 60

Celts (Axe-heads), 60; T-axe, 67; Adzes, 67; Chisels and Gouges, 70; Axes (Shaft-hole axes), 71; Transverse Axe (Shaft-hole Adze), 72; Double-axe, 72; Axe-Adze, 74; Battle-Axes, 75; Daggers, 75; Rapiers, 82; Swords, 84; Chapes, 87; Halberds, 87; Spear-heads, 89; Arrow-heads, 93; Knives, 94; Razors, 97; Tweezers, 100; Sickles, 101; Harness, 102; Ornaments, 105; Pins, 105; Bracelets, Anklets and Collars, 117; Finger-rings, 125; Buttons, Clasps, Studs and Tutuli, 126; Ear-rings and Lock-rings, 129; Necklaces and Pendants, 132; Vessels, 135

IV The Early Bronze Age 138

Central Europe, 139; Upper Italy, 145; Spain, 146; Great Britain, 153

V The Middle Bronze Age 168

Scandinavia, 168; the Tumulus Bronze Culture, 173; the Italian Terremare, 178; Hungary, 181; the Rhône Culture, 185; Great Britain, 186

VI The Late Bronze Age	<i>page</i> 192
Sicily, 195; Sardinia, 197; the Villanova Culture in Italy, 201; the Lausitz Culture, 205; the Alpine Urnfields, 209; the North, 216; Hungary and Russia, 221; Great Britain, 224	
VII Races	238
<i>Bibliography</i>	248
<i>Index</i>	

ILLUSTRATIONS

Food Vessel from Argyllshire	<i>frontispiece</i>
Fig. 1	<i>page</i> 31
(1) Nilotic smith at work; (2) Clay nozzle from pile-village of Mörigen, Switzerland (after Ischer); (3) Egyptian goldsmiths (after de Morgan).	
Fig. 2	33
(1) Stone mould for flat celt, Scotland; (2) Stone valve-mould for spear-heads, British Museum; (3) Bronze valve-mould for palstave, British Museum; (4) Clay mould for socketed celt, Heathery Burn cave; (5) Reconstruction of a three-piece mould for bronze buttons.	
Knee-shaft of wood for hafting celts	59
Fig. 3	63
(1) Flat celt, Egypt, protodynastic; (2) Flat celt, Susa, prediluvian; (3) Flat celt, Scotland, Early Bronze Age; (4) Winged-flanged celt, Scotland, Early to Middle Bronze Age; (5) Palstave, England, Middle Bronze Age; (6) Palstave with ear, England, Late Bronze Age; (7) Two-eared palstave, England; (8) Winged celt with ear, England, Late Bronze Age; (9) Winged adze with ear, Switzerland, Late Bronze Age; (10) Socketed celt, England, Late Bronze Age.	

Fig. 4 page 69

- (1) Long flanged celt, South-western Germany, Middle Bronze Age; (2) Long winged celt, South-western Germany, Middle Bronze Age; (3) Constricted celt, Switzerland, Middle Bronze Age; (4) Bohemian palstave, Bohemia, Middle Bronze Age; (5) Northern type of flanged celt, Denmark, Middle Bronze Age; (6) Northern type of socketed celt, Denmark, Middle Bronze Age; (7) Socketed celt with imitation wings, Hungary, Late Bronze Age; (8) Flanged celt, Silesia.

Fig. 5 69

- (1) T-axe, Egypt, Old to Middle Kingdom; (2) Egyptian round-headed adze; (3) Lug adze, Sicily, Late Bronze Age; (4) Socketed gouge, Heathery Burn cave; (5) Tanged chisel, early type, England; (6) Tanged chisel, later type, England.

Fig. 6 73

- (1) Early Sumerian axe, Ur; (2) Sumerian transverse axe, Ur; (3) Copper axe, Hungary; (4) Symbolic double-axe, Rhine; (5) Axe-adze, Crete, Middle Minoan; (6) Axe-adze, Hungary, "Copper Age".

Fig. 7 77

- (1) Predynastic flat dagger with handle; (2) West European dagger, England; (3) Round-heeled dagger, England, Early Bronze Age; (4) Asiatic tanged dagger, Ur, early Sumerian; (5) Cypriote dagger from Hungary; (6) Bronze-hilted dagger, Bohemia, Early Bronze Age; (7) Ogival dagger, South Germany, Middle Bronze Age.

Fig. 8. Rapiers and swords 81

- (1) Mycenae, Shaft Graves, M.M. III, type I; (2) Mycenae, Shaft Graves, M.M. III, type IIa; (3) Mycenae, Shaft Graves, M.M. III, type IIb; (4) Crete, Zafer Papoura, L.M. III, cruciform guards; (5) Crete, Zafer Papoura, L.M. III, horned guards; (6) South-western Germany, Middle Bronze Age; (7) Hungary, Late Bronze Age; (8) Bavaria, Middle Bronze Age; (9) Hungary, Late Bronze Age; (10) Mörigen sword, Switzerland; (11) Antennae sword, Switzerland; (12) Hallstatt sword of bronze, Early Iron Age, Austria.

Fig. 9 88

- (1) Looped chape, Bavaria, Middle Bronze Age; (2) Chape, Scotland, Late Bronze Age; (3) Winged chape, Scotland, Hallstatt pattern; (4) Bronze shafted halberd, Early Bronze Age, Germany; (5) Halberd blade, Italy, Early Bronze Age; (6) Middle Bronze Age sword, Denmark.

- Fig. 10. Spear-heads page 91
 (1) Poker-butted, Ur, Early Sumerian; (2) Tanged, England, Early Bronze Age; (3) Tanged with ferrule, England, Early to Middle Bronze Age; (4) Two-eared, Ireland, Middle Bronze Age; (5) With loops in base of blade, England, Middle to Late Bronze Age; (6) With slits in blade, Scotland, Late Bronze Age.
- Fig. 11. Knives 96
 (1) Flame-shaped, Troy II; (2) Tanged, South Germany, Late Bronze Age D; (3) Bronze-handled, Bohemia, Late Bronze Age D; (4) Flanged, Bavaria, Late Bronze Age E; (5) Socketed, Alsace, Late Bronze Age E; (6) Tanged, Switzerland, Late Bronze Age E; (7) Swiss type, Late Bronze Age E; (8) Double-edged tanged, England, Late Bronze Age; (9) Double-edged socketed, England, Late Bronze Age; (10) Curved, Scotland, Late Bronze Age.
- Fig. 12 99
 (1) Minoan single-edged razor, Zafer Papoura; (2) Minoan double-edged razor, Zafer Papoura; (3, 4) Siculan II razors, earlier type; (5) Terremare razor, Upper Italy; (6) Double-edged razor, Bohemia; (7) Horse-shoe razor, South-west Germany; (8) Rectangular razor, Villanova; (9) Late Siculan II razor; (10) Double-edged razor, England; (11) Single-edged razor, Denmark.
- Fig. 13 103
 (1) Button sickle, England, Middle Bronze Age; (2) Grooved sickle, Italy, Middle Bronze Age; (3) Socketed sickle, Ireland, Late Bronze Age; (4) Hooked sickle, Transylvania, Late Bronze Age; (5) Bugle-shaped object from harness, England, Late Bronze Age; (6) Reconstruction of bit with horn cheek-pieces and wooden bar; (7) Jointed bronze bit, Swiss lakes, Late Bronze Age.
- Fig. 14 109
 (1) Roll-headed pin, Kish, Early Sumerian; (2) Toggle pin, Kish, Early Sumerian; (3) Racket pin, Ur, Early Sumerian; (4) Wheel pin, South-west Germany, Middle Bronze Age; (5) Knot-headed pin, Bohemia, Early Bronze Age; (6) Aunjetitz pin, Bohemia, Early Bronze Age; (7) Pin with bent disk head, Bohemia, Late Bronze Age; (8) Sunflower pin, Ireland, Late Bronze Age; (9) Pin with lateral loop, England, Late Bronze Age; (10) Ribbed pin, Alsace, Late Bronze Age; (11) Vase-headed pin, Bavaria, Late Bronze Age; (12) Violin-bow fibula, Switzerland, Middle Bronze Age; (13) Simple arc fibula, Italy, Late Bronze Age; (14) Hungarian fibula with looped bow, Late Bronze Age; (15) Elbow fibula, Siculan II; (16) Two-piece fibula, Denmark, Middle Bronze Age; (17) Two-piece fibula, Denmark, Late Bronze Age.

- Fig. 15 page 119
 (1) Heavy ribbed armlet, Bavaria, Late Bronze Age; (2) Gold armlet, Ireland, Middle to Late Bronze Age; (3) Hungarian armlet, with spiral ends, Middle Bronze Age; (4) Horizontally ribbed armlet, Hungary, Middle Bronze Age; (5) Hooked double armlet, England, Middle Bronze Age; (6) Spiral-ended anklet, Alsace, Late Bronze Age; (7) Ingot torque, Bohemia, Early Bronze Age; (8) Gold ear-ring, Troy II; (9) Twisted gold armlet, England; (10) Spiral-ended finger-ring, South Germany; (11) Helical wire tutulus, Bavaria, Early Bronze Age; (12) Spiked tutulus, Hungary, Middle Bronze Age; (13, 14) Gold lock-rings, Early and Middle Bronze Age.
- Fig. 16 125
 (1) Gold torque, Scotland, Middle Bronze Age; (2) Twisted gold armlet, Scotland, Middle Bronze Age (after Anderson).
- Fig. 17 131
 (1) Bronze collar, Denmark, Middle Bronze Age; (2) Bronze tutulus, Denmark, Middle Bronze Age; (3) Bronze tutulus, Denmark, Middle Bronze Age; (4) Hanging vase (tutulus), Denmark, Late Bronze Age; (5) Bronze tutulus, Denmark, Late Bronze Age; (6) Torque with alternating torsion, Denmark, Late Bronze Age; (7) Gold "sun disk", Ireland, Late Bronze Age; (8) Penannular gold ornament, Ireland, Late Bronze Age.
- Fig. 18 133
 (1) Jet necklace, Scotland, Early Bronze Age; (2) Button with V-perforation, England, Early Bronze Age; (3) Jet pulley ring; (4) Segmented bead, England, Middle to Late Bronze Age.
- Fig. 19. Irish gold lunula 137
- Fig. 20 143
 (1) Early Aunjetitz pouched jug, Moravia; (2) Aunjetitz dish; (3) Mature Aunjetitz jug, Moravia; (4) El Argar bowl; (5) El Argar goblet; (6) El Argar beaker; (7) Food vessel with shoulder groove, Scotland (after Anderson); (8) Food vessel (after Anderson).
- Fig. 21 165
 (1) Conventionalized human figures carved on rocks of Galicia; (2) Cover-stone of a kist at Carnwarth, Lanarkshire; (3) Slab from the tomb at Kivik, Sweden.

- Fig. 22 page 177
 (1) Jug ornamented with warts, Tumulus culture, Württemberg;
 (2) Cup with fretwork patterns. Tumulus culture; (3) Pannonian cup;
 (4) Pannonian cup; (5) Cup, south Hungarian urnfields; (6) South
 Hungarian urn; (7) Urn with wart ornament, terremare of Italy.
- Fig. 23 182
 (1) Hungarian battle axe; (2) Disk-head pin, Hungarian type; (3) Mush-
 room pin of Hungarian type; (4) Cylinder, Hungary; (5) Sacral ivy-
 leaf pendant, Hungary; (6) Pectiform pendant, Hungary.
- Fig. 24. British cinerary urns 188
 (1) Overhanging rim type, early; (2) Overhanging rim type, later form;
 (3) Cordoned urn, Scotland; (4) Bucket urn, Dorset; (5) Encrusted urn,
 Scotland; (6) Urn of Type 3, group 2; (7) Cornish urn; (8) Globular
 urn; (9) Incense cup with slits; (10) Incense cup; (11) Grape cup.
- Bronze figure from Sardinia 191
- Fig. 25. Late Bronze Age urns 203
 (1) Transitional type, Bismantova, North Italy; (2) Villanovan ossuary;
 (3) Urn with cylindrical neck, Württemberg; (4) Pillar urn, Tyrol;
 (5) Hut urn, Latium.
- Fig. 26. Lausitz grave group (after *Antiquity*) 207
- Fig. 27. Bronze vessels 223
 (1) Gold cup from hoard of Unter-Glauheim, Bavaria; (2) Bronze
 cauldron with T-handles, same hoard; (3) Bronze bucket with birds'
 heads, same hoard; (4) Bronze cauldron, West Scotland (after Anderson).
- Fig. 28. Bronze shield, Scotland, Late Bronze Age (after Anderson) 225
- Fig. 29. Lurer, Denmark 231
- Fig. 30. Bronze shield, Bohemia 237
- Fig. 31. Late Bronze Age trumpet from Scotland (after Anderson) 245
- MAP of Bronze Age Europe *in pocket at end*

P R E F A C E

This book is intended to take up the story of prehistoric industrial development in North-western Europe from the point at which Mr M. C. Burkitt's *Our Early Ancestors* left it. While not a sequel to that work, mine presupposes such knowledge of general prehistory and the New Stone Age as may be found there and is intended to appeal to the same class of students. On the other hand, the nature and increased complexity of the material involves difference of treatment. And for the purposes of this more intensive study some of the divisions and classifications of the Bronze Age material, foreshadowed in one preliminary chapter of Mr Burkitt's book, have needed modification on lines explained here. Otherwise, I have refrained from duplicating his work save in so far as was necessary to make this book a complete and independent whole.

The bibliography aims primarily at indicating general works from which more detailed references can be obtained. Nevertheless some articles of outstanding importance or describing phases of Bronze Age civilization not yet adequately dealt with in larger comprehensive works have been included, even when they appear in comparatively obscure periodicals.

My thanks are due to the Society of Antiquaries of Scotland and to the Trustees of the British Museum for permission to reproduce figures; to Mrs M. C. Burkitt for her skilful re-drawing of some of the figures; and to Mr A. J. Edwards for reading the proofs.

V. GORDON CHILDE

EDINBURGH

1930

THE BRONZE AGE

CHAPTER I

THE IMPLICATIONS OF THE BRONZE AGE

THE story of human culture has long been divided conventionally into three main volumes according to the material generally employed for the principal cutting implements. At first our forerunners could only make knives and axes by chipping or grinding stone, bone or ivory. The period when such tools were alone in use is termed the Stone Age and constitutes the first volume. Mr Burkitt's books cited in the Bibliography give a good summary of its contents. The second volume opens when man has learned that certain kinds of stone may be compelled by heating under suitable conditions to yield a substance which, while hot, can be modelled or even run into a mould, but on cooling retains its shape and becomes harder and more durable than stone and takes as good an edge. This epoch is termed the Bronze Age—not very happily, since the first metal used industrially to any extent was copper; only by an accident in the areas where archaeology was first extensively studied—Denmark, England and France—was the copper already mixed with tin in the majority of early metal tools. The Bronze Age comes to an end when methods have been devised for extracting economically and working efficiently the much commoner metal, iron, which then replaces copper and its alloys in the manufacture of the crucial implements.

Thanks to the Epics, the Greeks were naturally well aware that the Iron Age in which they dwelt had been preceded by one in which “men used weapons of bronze

and wrought with bronze; for black iron was not". But it is Lucretius who first expressly states that bronze tools and weapons mark a stage intermediate between the age of stone implements and the Iron Age he knew. A Dane, Thomsen, revived or rediscovered Lucretius' division early last century. And the tripartite division was soon applied also to England, France, Germany and Italy.

In these regions the system works admirably. A well-defined group of remains from tombs and villages can be assigned to a period of time when bronze was current but anterior to the adoption of iron. Yet in this sense the Bronze Age occupies a disproportionately short epoch in our series. The Stone Age had lasted a hundred thousand years or so; the Iron Age in Great Britain is already two thousand five hundred years old and seems as vigorous as ever. Against this the Bronze Age in Britain can only claim fifteen hundred or, on the most generous estimate, two thousand years. But, if in Northern Europe bronze played a leading rôle in industry for a relatively short span of years, in the Aegean area, Egypt, Mesopotamia and the Indus valley, bronze, or at least copper, had been in regular use for fully twice as long. And those three or four thousand years witnessed man's first emergence from barbarism to civilization, the foundation of the first cities, the harnessing of animal motive power, the invention of writing, the establishment of consciously ordered government, the beginnings of science, the specialization and consequent perfection of the primary industrial arts, and the inauguration of international trade and intercourse. Hence our Bronze Age volume makes up in wealth of incident for its modest bulk.

All the vital elements of modern material culture are

immediately rooted in the Bronze Age though their presuppositions may go back to the closing phase of the Stone Age (the so-called Neolithic Period). Nay more; modern science and industry not only go back to the period when bronze was the dominant industrial metal, their beginnings were in a very real sense conditioned and inspired by the mere fact of the general employment of bronze or copper. It is worth while considering briefly the presuppositions of such a general use of metal in order to make the point plain.

In the first place it implies a knowledge of the radical transformation of the physical properties of the substance by heat. The first smiths had discovered that a hard and intractable reddish substance, copper, became malleable and plastic on heating. You may even pour it like water into a vessel, but on cooling it becomes as hard as ever, assuming now the shape of the receptacle. Of course metallic copper occurs "native" in nature. By hammering, it may be shaped into imitations of the simpler forms of stone or bone tools. The Indians of Ohio employed the native metal in this way and treated it as a peculiarly workable sort of stone, hammering it without the aid of heat. But such an application of Stone Age processes to native copper does not mark the beginnings of the age of metals. There is no reason to suppose that it led directly thereto. The superiority of copper over stone or horn lies in its being fusible and malleable. It can be shaped by casting into forms the old materials could never assume, and the material in itself imposes no limit to the size of the object to be fashioned from it. A piece of stone or bone can only be shaped by chipping, grinding or cutting bits *off* it; your molten copper is completely plastic: you may use as little or as much as you want without impairing its

solidity; you may even weld pieces together indissolubly by heating and hammering.

The change in the properties of copper by heat is really very startling; it is distinctly more dramatic than the effect of baking upon potter's clay. By that process a vessel is certainly rendered durable and deprived of porosity. But the form and the texture are not superficially altered. Moreover the process is irreversible. It is a far greater leap from solid cold copper to the glowing liquid metal, yet the change can be produced as often as desired. To recognize the continuity underlying such transformations, to appreciate their practical significance and to devise means for their control demanded a power of inference and synthesis unusual in barbarians. The discoverers must implicitly make the distinction between substance and its appearances and so may justly claim a place among the founders of science.

The effective utilization of the discoveries just analysed involved the elaboration of a highly complicated technique through a series of inventions. The masters of these mysteries, the first smiths, were perhaps the first independent craftsmen. Any hunter or farmer could make a flint knife or arrow-head and grind out a stone axe-head in his spare time. His wife could stitch together robes of skins, even spin and weave, and mould and fire clay pots. The art of the smith was so complicated that prolonged apprenticeship was required. His labour was so long and exacting that it could not be performed just in odd moments of leisure; it was essentially a full-time job. And the smith's products were so important to the community that those engaged directly in food production must provide for his primary needs in addition to their own. Among primitive peoples to-day the

smith always does enjoy just such a privileged position as might be expected. In a Bronze Age village we often find one hut, but never more, that was obviously the smithy. In a Neolithic village on the contrary no certain traces of industrial specialization are often detectable.

Even more startling and mysterious were the transmutations involved in the extraction of the metal. As we have noted, metallic copper occurs in nature, but with a few exceptions, notably in North America and South Africa, only in minimal quantities. In all other regions, before copper could come into general use, the metal must be extracted from its ores—oxides, sulphides, silicates or carbonates—by a chemical process termed reduction. Copper ores are crystalline or amorphous substances, greenish blue, red or grey in colour, found in veins in old metamorphic or eruptive rocks. What could be more startling than the evocation from these greenish or grey stones, crystalline or powdery in texture, of the tough malleable red metal! Here is a complete transmutation of the very nature of a material! The process of reduction is indeed simple enough; heat in contact with charcoal will effect it. But it was a stupendous feat of generalization on the part of the barbarian to connect green crystalline stones with the tough red metal. The recognition of the underlying continuity marked the beginning of chemistry.

The discovery of silver, lead and tin would be a natural corollary. The possessors of these secrets would easily gain credit for supernatural powers among barbarians to whom all stones looked much alike. They would constitute a class or guild no less powerful than the smiths. It would be their task to search out and smelt the peculiar stones that would yield the coveted metals.

Copper ores in small quantities and of poor quality are very widely distributed. No doubt early man often exploited lodes that are so poor or have been so thoroughly worked in the past that they are no longer mentioned in text-books on mining geology. And surface lodes were certainly once plentiful. But the time would soon come when such deposits had been exhausted and the prospectors must burrow underground for their ore. Mining for flint had been practised in the Stone Age, but it was a comparatively simple matter to dig pits and cut galleries in the chalk (where the good flints occur). Metal ores are embedded in very hard rock that can only be cut with difficulty to-day. The exploitation of copper on a large scale implied the solution of delicate problems in mining engineering⁽¹⁹⁾. The Bronze Age miners of Europe knew how to split rock by kindling fire against it and then throwing water on it; they had worked out methods of timbering subterranean galleries and had devised pulley-buckets for raising the ore. A curious sidelight on the unity of early metallurgy is provided by the discovery in all ancient mines that have been examined, whether in the Caucasus, Sinai, Austria, Spain or Britain, of grooved hammer-stones (i.e. stones girt with an artificial groove to receive the binding thongs with which they were hafted at the end of a split stick).

A further chemical discovery was involved in the advanced metallurgy of the Bronze Age. The addition to copper of a small proportion of tin reduces its melting-point, minimizes the danger of flaws from bubbles in casting and increases the hardness of the cold alloy. Here was another transmutation, the combination of two dissimilar substances to produce a third different from both. The alloy can be obtained either by smelting

together the ores of tin and copper, or by melting tin (or tin ore) with copper. In the first instance the alloy may have been produced accidentally through the use of a copper ore with which tin was mixed. It is, for instance, curious that in Mesopotamia tin-bronze was comparatively common before 3000 B.C. but becomes rare after that date⁽¹¹⁾. A possible explanation is that the Sumerians had unconsciously been using a stanniferous ore the supplies of which gave out or were cut off by 3000. In any case it seems certain that by then they were deliberately trying to produce the superior metal and seeking substitutes, adding, for instance, lead. What is still more significant, by 2000 B.C. the mixture now universally admitted to give the best results, of one part tin to nine of copper, had already been recognized as the standard combination. That implies a great deal of critical examination—i.e. experiment in the modern sense—since there is nothing in nature to suggest those particular proportions.

Experiments were also made with other alloys. In Hungary, the Baltic lands, and the Caucasus antimony was sometimes used as a substitute for tin. We have mentioned the possibility of a similar use of lead by the Sumerians. Brass, an alloy of copper and zinc, has on the other hand not been found before the Iron Age.

Thirdly, in addition to the physical and chemical discoveries just described, the general use of metal presupposes regular and extensive trade relations. It is indeed true that copper ores are fairly widely distributed and that in early days poor lodes, now exhausted or at least uneconomical, were exploited. None the less the sources are definitely limited. The supplies are situated almost exclusively in mountainous regions; the great civilizations of the Orient grew up in river valleys

entirely lacking in any ores. Similarly the most populous centres of Neolithic culture in Europe, the löss lands of Central Europe, the Ukraine, and Denmark, are some way from the nearest copper lodes. Regular communications must be established between Egypt and Sinai, between Sumer and the Zagros or Caucasus, between Denmark and the Eastern Alps, Slovakia or England, before even copper could be regularly used there.

The position is still worse when bronze and not pure¹ copper is demanded; for now two foreign products are needed one of which is distinctly rare. Tin occurs certainly in the Malay Peninsula, South Africa, Khorasan, Tuscany, the Bohemian Erzgebirge, Western and Southern Spain, Southern France, Brittany and Cornwall, probably also in the Caucasus and Syria and possibly even in Central Greece. Only in the Caucasus, Bohemia, Spain and Cornwall do copper lodes occur in any proximity to the tin ores. In most cases, therefore, the use of bronze would involve trade in two distinct metals that must be brought to a single meeting-point from different quarters. The extant evidence suggests, for instance, that Central European and Scandinavian bronze-workers drew their copper from Slovakia or the Austrian Alps and their tin from Bohemia or sometimes England.

At the same time, within a given ethnic group the individual farmer must sacrifice his economic inde-

¹ Chemically pure copper could not have been prepared by the ancients and would have had no special value for them. In this book "pure" means "without intentional alloy". The accidental impurities found in all ancient copper are valuable as indicating the source of the ore used in the several regions. For instance, the high nickel content of early Sumerian and Indus copper suggests that both civilizations were drawing on the ores from Oman which show a high nickel content.

pendence and the village its self-sufficiency as the price of the new material. Each Neolithic household could manufacture the requisite knives, axe-heads and awls of flint, stone or bone; the Neolithic village need never look beyond its own domains for the necessary material—nor did, save in the case of luxury articles such as shells. But metal tools the farmer must, as we have already seen, purchase from the expert, the village smith. And the latter must, except in exceptional circumstances, import his raw materials from outside the communal boundaries. This is perhaps the essential difference between the Neolithic and Bronze Ages. The most striking feature of a Neolithic community was its self-sufficiency. The sacrifice of that self-sufficiency was only possible when certain sociological and economic conditions had been fulfilled and brought in its train a series of other political and industrial changes. That in itself would explain why the Bronze Age did not begin simultaneously all over the world or even all over Europe. Peoples develop at unequal rates, and the effective demand for and use of metal is only possible when a certain stage of development has been reached.

The development of internal and foreign commerce implied in a Bronze Age presupposes a certain degree of political stability. One of the economic foundations of the first Egyptian State was the exploitation of the copper lodes of Sinai as a State enterprise by periodical expeditions supported by the royal armies. Similarly trade must go hand in hand with improvement in the means of communication. The wheeled car and the sailing ship appear in the Ancient East as heralds of the age of metals. The same commercial needs must at least have given an impulse to the development of writing and seal-cutting. Letters and contracts dealing

with trade bulk largely in any collection of Babylonian documents. And seals served in place of a signature (for few could master the ancient scripts) as well as to put a *tabu* upon the object sealed.

The general propositions just enunciated involve some archaeological corollaries specially germane to the subject of this book. The discoveries and inventions implicit in metal-working are so abstruse and complex that independent origin at several points—in the Old World at any rate—is excluded as fantastically improbable; knowledge of the essential techniques must, that is to say, have been diffused from some centre. The uniformity of processes throughout the Ancient East and Europe at the dawn of the Bronze Age affords some positive justification for the diffusionist assumption (7). It is, indeed, quite likely that miners and smiths constituted distinct crafts or even castes, membership of which implied initiation but conferred some degree of immunity from the bondage of tribal custom. We must then envisage the spread of the knowledge of metal as a dual process: on the one hand we should expect a distribution of metal objects by trade comparable to the spread of European firearms among contemporary savages. The diffusion of metallurgical knowledge, on the other hand, must be associated with an actual spread of initiates either as prospectors voyaging in quest of ore, or as perambulating smiths seeking their fortunes by plying their trade among barbarians, or as slaves or others who have secured initiation in the original centre or one of its offshoots, returning home. These two processes must be kept distinct. The first may produce a chalcolithic age in a given region; i.e. a few metal objects may be imported and used side by side with native tools of stone and imitated locally in flint or bone.

A true Bronze Age can only arise with the advent of metallurgists or smiths.

Even so, the substitution of metal for stone tools and weapons must inevitably be a gradual process. It will take a long period of education and considerable commercial organization before the peasant farmer finds it cheaper to buy, say a bronze sickle, than to make one at home out of flint. A long interval will accordingly elapse after the introduction of bronze before it has finally ousted stone. So in Egypt agricultural implements continued to be made out of flint down to the New Kingdom or for nearly two thousand years after metal had become reasonably common. In Bronze Age settlements and graves in Europe too even well-made stone axe-heads (celts) occur. Not all stone tools therefore are Neolithic, nor is their presence incompatible with a Bronze Age date.

We must equally beware of attaching too great importance to the use of pure copper. A regular supply of tin involves, as we have seen, more extensive commercial relations than the corresponding supply of copper. The advantages of bronze would not in all circumstances counterbalance its much higher price. During the third millennium pure copper was largely used in Mesopotamia though bronze was known even before 3000 B.C., in Egypt only copper was employed, and in the Aegean bronze was rare and generally poor in tin (i.e. with less than the standard 10 per cent.). In continental Europe a large number of tools and weapons of pure copper may be assigned to a period anterior to the local Bronze Age on account of their form and context. This period may be justly styled a "Copper Age" or "the Copper Age" with some qualification, such as "in Hungary". At the same time, there are other objects of

pure copper or very poor bronze that none the less belong to an advanced phase of the local Bronze Age. The negative result of analysis in this case does not indicate high antiquity but merely an interruption of the tin supply in the region where the objects were cast—an historical event explicable in economic or political terms.

Again it is obvious that the regular use of metal would not begin simultaneously everywhere. The mystery can only be imparted to those in contact with its masters. It will radiate slowly from the centre. It will reach only those who have something to offer the smith or the prospector; these can utilize their knowledge only in so far as they control supplies of ore or can obtain the requisite raw material by trade or political action. Actually metallurgy was being practised in Mesopotamia and Egypt during the fourth millennium B.C., at the beginning of the third it had been implanted in the Aegean area whence it was diffused up the Danube valley and along the Mediterranean and Atlantic coasts. The Bronze Age in Bohemia and Britain begins about 2000 B.C., in Denmark about 1600, in Siberia perhaps six centuries later. In the Pacific islands it never began at all.

The earlier stages of this process in which the actual discovery of metallurgy took place lie outside the scope of this book, which is devoted primarily to the Bronze Age of North-western and Central Europe. Nothing comparable to the extraordinary civilizations that had grown up by 3000 B.C. in the valleys of the Nile, the Tigris-Euphrates and the Indus existed north of the Alps till Caesar came with his legionaries. No description of the Oriental cultures and no sketch of their rise could usefully be compressed within the compass of

these pages. But we ask our readers to remember, when picturing the lives of their barbarian ancestors who reared round barrows on the Downs and lived in hut-circles on the moors, that the Royal Tombs of Ur had long been forgotten, and the Pyramids were already hoary with age. The great temples of Karnak and the palaces of Knossos are roughly contemporary with our stone circles, and few, if any, of our hill forts can compare in age even with the acropolis of Mycenae. But though a worthy description is impracticable here, the Oriental and East Mediterranean civilizations exercised such a profound influence on Bronze Age Europe, inspiring and moulding her metallurgical traditions, that their authors must be at least named if the sequel is to be intelligible. Moreover, the chronology of illiterate Europe rests entirely upon archaeological synchronisms with cultural phases dated by the written records of Egypt and Sumer.

On the banks of the Nile in Upper Egypt⁽⁹⁾ a series of graves, arrangeable by typological¹ study in a regular sequence, reveals the progress in industries and arts of peasant communities down to the time, about 3400–3100 B.C., when a king of Upper Egypt, traditionally known as Menes, united the whole land under a single sceptre. The record begins at a remote period, termed the Badarian (after a site near Assiout⁽⁸⁾) when enough rain still fell in Upper Egypt for big trees to grow where now all is sand. That implies a climatic regime approximating to that ruling in North Africa during the European Ice Age, when the great belt of heavy cold air (termed an arctic anticyclone) over our glaciers diverted southward the rain-bearing Atlantic squalls (cyclones). We are therefore at latest in what in Europe

¹ Typology as used here is defined on p. 53 below.

would be the Mesolithic Age. But the Badarian villagers on the Nile were already farmers enjoying a culture comparable to that of the fellahin to-day: they could make beautiful pots, grind vases out of hard stone, weave linen, plait baskets, flake flint superbly, put a glaze on stone beads and carve ivory into combs, pins and figurines. They were also able to obtain shells from the Red Sea and malachite, probably from Sinai, by some sort of trade. They were even acquainted with metallic copper since beads and a pin of the metal have been found in their graves. The Badarians had been accustomed to paint their eyes with malachite, a carbonate of copper. The metal might have been discovered by the reduction of a little of this paint dropped on to the glowing ashes of a hearth. Still it would not be correct to say that the Badarians were metallurgists or lived in a copper age.

The same remark is true of the succeeding period, termed Early Predynastic or Amratian. The communities are now bigger, trade relations have been extended so that even lapis lazuli from Afghanistan, obsidian from Armenia or Melos, coniferous woods from Syria and gold from Nubia were available. Even copper objects are more numerous than before, but all are of perfectly simple forms that might easily have been obtained by cold working in imitation of bone and flint models.

Genuinely metallic types that presuppose a knowledge of casting are first found late in the third phase, termed Middle Predynastic or Gerzean. But now changes in pottery, dress and weapons denote the cultural subjugation of Upper Egypt to a new power, immediately centred in the unexplored Delta but very possibly Asiatic in origin. The metal objects of the

period, that are indeed very sparse, may be products of a school of metallurgy created by the (unknown) Early Predynastic inhabitants of Lower Egypt or directly inspired by some external centre in Asia. Some elements in Middle Predynastic culture certainly came from the latter quarter. In any case the clash of native African and Asiatic traditions caused a general spurt in culture, mirrored in progress and specialization in all the arts. At the same time accumulation of wealth and its concentration in individual hands are marked by the elaboration of some tombs and an increasing range in the comparative wealth of the grave goods.

In the Late Predynastic or Semainian phase the dual traditions traceable in Middle Predynastic times were fused. Moreover continued accumulation of wealth in a country, bereft of ore, building stone and timber, rendered necessary and possible an extension and regularization of trade, till Egypt was at last in contact with another civilization that had grown up in the Tigris-Euphrates valley. Concomitantly industry was further specialized to the great benefit of most crafts, though the pots of this period, being regular factory products, are far less attractive than the more individual creations of earlier times. Some favourably situated villages grew into real towns, and the chief of one of them, Abydos, that commanded one main caravan route to the Red Sea and the East, was eventually able to master the whole land to the Mediterranean coasts, founding what is termed the First Dynasty (about 3100 B.C.).

From this point the written record supplements the archaeological. We see the royal arms extended to the copper mines of Sinai and then the colonization of Byblos in North Syria to secure control of the cedars of

Lebanon. Therewith we arrive at the Old Kingdom, Dynasties III to VI, which witnessed the building of the Pyramids, but eventually collapsed into anarchy through internal exhaustion and Asiatic aggression.

The country rose again under the Middle Kingdom, Dynasties XI–XIII (2000–1780 B.C.), only to collapse once more beneath the onslaught of the barbarian invaders known as the Hyksôs.

The greatest period in Egyptian history followed the national revolt against the invaders led by the Seventeenth Dynasty and completed under the Eighteenth (beginning 1580 B.C.). The Thothmes reconquer Syria and Palestine; the Amenhoteps conduct diplomacy in quite modern style with the kings of Babylonia, Assyria and the Cappadocian Hittites. In alliance with the latter the Rameses repel the assaults of the Philistines and the Sea-Peoples from the North, some of whom at least were Europeans. But eventually these barbarians wrecked the Empire and incidentally ended the Bronze Age in the Near East.

No such clear record is yet available of the rise of civilization in Mesopotamia. The ancient records name kings reigning for fabulous years before what the Sumerians termed the Flood. Remains of the prediluvian civilization have in fact recently come to light at Ur and al'Ubaid in Sumer and at Kish farther north, covered thickly by the clay left by a huge inundation⁽¹¹⁾. They disclose already highly civilized communities living in towns or at least large villages. The splendid painted pottery from these levels connects the oldest culture of the Mesopotamian plain with a great province covering the whole Iranian plateau and extending eastward perhaps to the Indus. Its best known representative is the "first city" at Susa in Elam⁽¹⁰⁾. The prediluvian culture⁽⁸⁾,

of unknown antiquity and antecedents, boasted all the arts of Early Predynastic Egypt with the addition of mature metallurgy. Copper was not only known at Susa I, it was freely used for axe-heads and even mirrors fashioned by casting.

In Mesopotamia, upon the eight feet of sterile clay left by the Flood above the prediluvian houses, stand the foundations of the oldest historical cities, built by a literate people known to us as Sumerians. These folk, distinguished by language and dress, lived in City States, normally autonomous but each striving for, and sometimes securing, the mastery over all the rest. Palaces and graves recently uncovered at Kish reveal the advanced civilization ruling under the first dynasty to attain to hegemony after the Flood. Even more startling are the Royal Tombs recently explored at Ur and perhaps in some cases even older than the historical First Dynasty of Ur, dated round about 3100 B.C. By that date, in any case, the Sumerians enjoyed a settled polity and had attained a level of industrial skill far ahead of First Dynasty Egypt. In particular they used metals to an extent and with a skill never dreamed of on the Nile till New Kingdom times. Egypt possessed abundant supplies of good flint, and that material was used there exclusively in agriculture and very generally by the poorer classes as a whole till quite late. The alluvial plain of Mesopotamia had nothing similar to offer its occupants and so, the raw material for cutting tools having to be imported in any case, the durable copper really came cheaper than flint. That implied a dependence on foreign trade even greater than Egypt's. The variety of exotic substances found in Sumerian graves and above all the discovery of seals, actually manufactured in distant India, illustrate the success with which that need

was met. Conversely, while most distinctive Egyptian metal types are peculiar to the Nile valley, Sumerian forms lie at the base of South Russian and Central European metallurgy.

The early Sumerian period, thus inaugurated, is often termed pre-Sargonic; for a well-defined era ends when a Semitic prince, whose name has been simplified to Sargon, made his city, Akkad or Agadé, supreme throughout Mesopotamia. He is said even to have reached the Mediterranean. After the collapse of his empire, civilization largely stagnated in Iraq; in particular no fresh metal types were created. Historically a new era is marked by the rise of Babylon to the hegemony under Hammurabi's dynasty (First Dynasty of Babylon, *circa* 2100 B.C.). Thereafter Babylon remained the political capital of an united Babylonia for close on fifteen hundred years.

West of the "prediluvian" cultural domain began a province, centred in Anatolia and once perhaps embracing Crete, characterized by dark-faced carboniferous pots imitating gourd vessels. Round about 3000 B.C. the secrets of metallurgy began to reach this area rich in ores, probably from Mesopotamia. About the same time the local potter commenced producing a red ware by baking his pots over a clear fire in an oxidizing atmosphere. One branch of this culture then occupied Cyprus⁽¹⁸⁾, attracted no doubt by the metal wealth of the island that has given its name to copper. Another branch pushed into Thrace and Macedonia. The most interesting, however, developed a higher civilization on the hill of Hissarlik⁽³⁾, a point on the Dardanelles that commanded at once the sea ways from the Aegean to the Black Sea, the Danube and the Caucasus and the terminus of the land route from Mesopotamia across

Asia Minor with its transmarine extensions into Thrace, Macedonia and Central Europe. Out of a large village (known as Troy I) at this strategic point there arose during the third millennium an important town termed Troy II on whose ruins the Homeric Troy (Troy VI) was later to rise.

The citadel of Troy II was girt with a strong wall of stone surmounted by brick battlements. Within stood palatial buildings of the so-called megaron¹ type. The citadel and its encircling walls were rebuilt twice so that three structural phases are recognizable. The last of these probably belongs already to Middle Aegean times (see p. 21). Shortly after 2000 B.C. the city was razed to the ground, but its defenders had found time to bury many of their treasures. The latter escaped the eyes of the invaders and were first rediscovered by H. Schliemann between A.D. 1873 and 1879. Our knowledge of Trojan metallurgy is almost entirely derived from these hoards⁽¹⁷⁾ which should belong to what is called the Middle Aegean Period. After the sack the site was occupied only by minor villages till, towards the middle of the sixteenth century B.C., a new and larger city arose, the Homeric Troy that the Achaeans sacked about 1200 B.C.

Metal-using civilization impinged upon Crete and the Aegean islands from two quarters, Anatolia-Syria and Egypt. Crete⁽¹²⁾ had already been occupied in Neolithic times by people of Anatolian affinities. The metal-using civilization termed Minoan begins rather before 3000 B.C. with the advent of Nilotic immigrants, possibly refugees flying from Menes when he conquered the Delta. At the same time powerful influences and very possibly immigrants from the East reached the

¹ A "megaron" is essentially a long hall with a central hearth, preceded by a pillared porch on the short side.

island, and Cretan metallurgy is largely based upon Asiatic traditions. The life of the Minoan civilization is divided into three main periods, Early, Middle and Late Minoan (abbreviated E.M., M.M. and L.M. respectively) each in turn subdivided into three phases distinguished by the Roman numerals I, II, or III.

Already in Early Minoan times Crete enjoyed a genuine urban civilization. The people lived largely by maritime trade, even building their towns on barren islets or headlands, quite unsuited to farmers but affording excellent harbours.

During the same period the stoney little islands of the Aegean (Cyclades), that had offered no sustenance to Neolithic peasants⁽¹⁰⁾ but were rich in copper, emery, marble, or obsidian, and afforded convenient halting-places on voyages across the Aegean, were occupied by prospectors from Anatolia. On them grew up a flourishing maritime culture termed Early Cycladic⁽¹⁶⁾. Its monuments, strongholds girt with walls of stone and graves of varied form, suggest a less refined and less pacific civilization than the Minoan, but one in which metallurgy flourished and where distinctive metal types were created. The islanders were in regular commercial contact with Crete, Troy and mainland Greece.

In the latter area an older layer of Neolithic peasants was overlaid by groups of more industrial and mercantile immigrants, allied to the islanders and to the Macedonian wing of the Anatolians. These new-comers occupied principally seaports and sites on land trade routes⁽¹⁴⁾ extending as far west as Levkas⁽¹⁵⁾. Their culture is known as Early Helladic and in respect of metallurgy was mainly dependent upon Troy and the Cyclades, though the use of a glazed paint was probably derived from Crete.

The Minoan, Cycladic and Helladic cultures, sharing in a common trade, were all in constant intercommunication. Hence it is possible to correlate the several stages of culture in each area and to extend the Minoan system to the whole Aegean world. Crete in particular, being in regular touch with Egypt, the phases of Aegean culture may be approximately dated in terms of solar years. The period just surveyed, termed Early Aegean, extends from about 3100 to 2100 B.C. On the islands and in mainland Greece the beginning of the Middle Aegean period is not very well defined, since no radical changes took place before Middle Aegean II times⁽¹³⁾.

The Middle Minoan period in Crete, on the contrary, witnessed the concentration of power and wealth in the hands of princes ruling in the centre of the island commanding the great road that linked the sea-routes from Egypt with those to Greece and the Black Sea. By M.M. II, Knossos, near the northern terminal of the road, was the undisputed capital of the island. Here rose frescoed palaces, often destroyed by seismic or political cataclysms, but continually resuscitated down to L.M. III. Sir Arthur Evans has rediscovered Homer's broad Knossos, the seat of Minos, and the "dancing-ground" laid out by Daedalus. And frescoes on the palace walls depict the ritual games of bull-grappling that inspired the legend of the Minotaur.

Towards M.M. II times Crete had so far monopolized Aegean trade that the Cyclades' prosperity declined and many islands were deserted. At the same time, Middle Helladic II¹, a new folk, conveniently, if

¹ Numbering the phase according to the contemporary Cretan periods. Messrs Wace and Blegen, owing to the absence of any sharp break at a point contemporary with the Cretan M.M. I, prefer to term this phase M.H. I, while admitting its contemporaneity with M.M. II.

incorrectly, termed Minyans, gained the upper hand on the Greek mainland and adjacent islands from Aegina to Levkas. They were more martial and less industrial than their Early Helladic predecessors, but far from barbarians.

Then towards 1600 B.C. a Minoan prince gained a footing at Mycenae on the Peloponnese. His remains and those of his family were found by H. Schliemann in the famous Shaft Graves, dug on the slope of the acropolis and included within the city walls. Sir Arthur Evans has, however, adduced convincing grounds for believing that the prince's body had originally reposed in the great beehive tomb, built into the hillside outside the walls and known since the days of Pausanias as the Treasury of Atreus, a tomb that Mr Wace dates some three centuries later (L.H. III) and attributes to the last monarch of a different dynasty.

In L.M. I and II Crete attained the zenith of her power, the most grandiose phase of the palace of Knossos belonging to L.M. II. During the same period the Minoan civilization was extended to the mainland. A whole series of stately beehive tombs along the western coasts and at the head of gulfs facing south as far as Volo in Thessaly and palaces adorned with frescoes in Minoan style mark the seats of the Cretan dynasts.

This imperialist expansion overtaxed the island's strength. At the beginning of L.M. III Knossos and the other palaces were sacked and not rebuilt, though the towns continued to flourish. The mainland, however, progressed. Mycenae was now the capital of the Aegean world as in Homer's lays. She was girt with a megalithic wall of "Cyclopean" masonry as were Tiryns, Athens and other citadels within which rose palaces of the megaron plan, very different architecturally from the

Cretan, though decked with frescoes of Minoan technique. A provincial variant of the Minoan culture, termed Late Mycenaean, ruled all over the mainland and extended to many of the islands and even Cyprus. Trade was more extensive than ever, and even Mycenaean vases were exported to Anatolia, Syria, Palestine, Egypt and Sicily. But about 1250 B.C., when the Egyptian records are already preoccupied with "unrest among the Isles of the Sea", these peaceful relations were broken off. The Mycenaean culture in a decadent form, L.M. III *b*, however, persisted for a couple of centuries and even spread to Macedonia. During this period we find northern types of sword and other indications of influences from beyond the Balkans. In Macedonia even a barbaric pottery, apparently of Hungarian antecedents, intrudes in and above the last ruins of the plundered Mycenaean settlements.

The Iron Age in the Aegean begins about this point without any complete break with late Mycenaean traditions, at least in Southern Greece and Crete. The metal that now replaced bronze in the manufacture of cutting implements had been used occasionally for that purpose even in the fourteenth century. The Hittite records show that it was then being manufactured in Kizwadana, an unidentified locality under the control of the Cappadocian Hittites. By L.M. III *b* times there are traces of iron-working in Macedonia, and soon after 1200 B.C. it was generally practised in Asia Minor and then in Crete and Greece.

Having now surveyed the civilized world of the Ancient East, we can conclude this chapter with a glance at the question, "Where did the revolutionary discovery of metallurgy originate?" It is, of course, theoretically possible that the properties of copper were

independently realized in Egypt and Hither Asia, or even in illiterate Spain and Hungary, and that the barbarians of Cornwall and Bohemia spontaneously hit upon the alloy, known before 3000 B.C. in Sumer and India. Practically, in the case of the Old World where the first metal-using civilizations had such wide foreign relations and were bound together by so many common traits, no one, unprejudiced by the passions evoked by a perverse diffusionism, will suggest that all the complex processes involved were elaborated separately at two or more comparatively adjacent points in Eurasia. Really the question resolves itself into one of the comparative claims of Egypt and the Asiatic cultural province designated "prediluvian".

It must be admitted and indeed insisted that by 3000 B.C. Egyptian and Sumerian metallurgy constituted two distinct schools. Any competent archaeologist could distinguish, as our Chapter III will show, between a proto-dynastic Egyptian celt, dagger or spear-head and an equally early Sumerian specimen, to say nothing of more specialized types such as pins or earrings. But as we go back, the differences tend to vanish.

In the Nile valley the conditions for the rise of metallurgy were admittedly fulfilled, even though no supplies of ore were available locally⁽²¹⁾. The copper objects from Badarian and Early Predynastic graves, the oldest samples of metal to which any sort of date can be assigned, strongly suggest that the copper ore used as eye-paint was in fact there reduced to the metallic state and the product utilized. Yet nothing from these periods proves that the process was applied deliberately or systematically, still less that the properties of metal were realized or employed⁽¹⁰⁾. Only in Middle Predynastic times do we meet implements of any size or of

a distinctively metallic character—the results of casting in a mould. And even these are rare and sporadic. Moreover, in the Middle Predynastic culture we encounter types, foreign to the earlier periods but common at all times in Hither Asia. I may instance the pear-shaped stone mace-head that replaces the Early Predynastic disk-shaped type, spouted vases and dark-on-light vase-painting. Even under the early dynasties, when metallurgy was fully understood and quite individual types were created, flint remained in common use for reasons already explained.

Now Egypt is exceptionally favoured from the excavator's point of view. It has long enjoyed a civilized government; a delightful winter climate makes it the resort of the wealthy of all Europe. The mighty stone monuments that geographical circumstances enabled the ancient Egyptians to erect and that climatic conditions have conspired to preserve, have inspired the less stupid of such visitors to serious excavations as a diversion and encouraged the rest to subsidize professional diggers. Mesopotamia, on the other hand, remote, inhospitable winter and summer, and long misruled by a corrupt Old Turkey, has only been seriously explored during the last ten years. Persia, even more inaccessible and climatically forbidding, is closed to excavation by a monopoly granted to an incompetent and bankrupt nation. And in India the British Government was content to allow the ruins of ancient cities to be used as ballast for railway lines. Under these circumstances it is difficult to compare the prediluvian culture with the predynastic or to gauge its origin, extent and antiquity. Still its highland home is rich in metals including even tin. And as far back as we can trace the culture, it was associated with genuinely metallic and often highly

developed copper implements. Descending to the alluvial plain, its authors would find copper cheaper to import than flint.

Early Sumerian metallurgy, which seems descended directly from the prediluvian, was certainly superior to the contemporary Egyptian both in extent and in the quality of its products. For example, in Sumer bronze was known and core-casting regularly employed. The marked superiority of Sumerian metallurgy over the Egyptian, at the first moment when contemporary objects from the two countries can be compared, affords some presumption in favour of the higher antiquity of the Asiatic industry. The metal work of Middle Predynastic Egypt would in that case be inspired from Asia. The force of this argument is, however, somewhat diminished by persistent uncertainties as to the precise dates of the First Dynasties in Egypt and Ur respectively and by the fact that after the Second Dynasty Egyptian civilization was on the whole, though not in metallurgy, ahead of Sumerian. The latter objection is to some extent discounted when we recall that the political unification of Egypt placed the labour power of the whole population at the disposal of Pharaoh for the execution of monumental works, that facilities for obtaining stone were great and the conditions of the soil more favourable to the preservation of delicate articles. It must be recalled that Egypt was still without wheeled vehicles though she could replace by magic images the living victims immolated in the oldest Sumerian tombs.

Approaching the question in another way, we shall find in the sequel that the majority of European metal types, referable specifically to one or other of the Oriental groups, go back quite unambiguously to prediluvian or Sumerian models. Still most daggers in Western and

Central Europe are inspired by peculiarly Egyptian forms, traceable back to Middle Predynastic times. As all specialized early dynastic forms are confined to Egypt, the diffusion of the dagger type from the Nile must go back to Middle Predynastic times. If Egypt was diffusing metallurgical knowledge so early, the value of the numerical preponderance of diffused Sumerian types as evidence for the *original* centre of metallurgy is weakened. And so the question must be left open.

CHAPTER II

METALLURGY AND TRADE

MINING AND SMELTING

A DETAILED account of the metallurgical processes employed in antiquity must be relegated to technical works, but a short description of some aspects thereof is desirable both to justify the assertions of the first chapter and to make intelligible the sequel. As to mining, we have already remarked that at first weathered surface deposits of ore, even if poor, were exploited. In the case of tin, supplies could be obtained from alluvial deposits by washing as with gold. However, it is certain that even in Europe before the end of the Bronze Age the veins of ore were followed underground by means of shafts and galleries many of which are well preserved in the Austrian Alps⁽¹⁹⁾.

The process of smelting, particularly in the case of surface ores, consisting of oxides, silicates or carbonates—the so-called oxidized ores—was comparatively simple. Heating with carbon (charcoal) suffices to effect the reduction and liberate the metallic copper. In the case of some of the copper ores, found principally in deeper workings, a preliminary roasting may be necessary to produce artificially an oxidized ore. The reduction could be quite well effected in a shallow clay-lined pit such as was used in Japan last century⁽²⁰⁾. Ignited charcoal is placed on the floor of the pit, and a conical pile of charcoal and ore in alternate layers is heaped up over it. A blast is applied through a clay nozzle when the mass will be reduced in about an hour. The metal settles to

the bottom of the hole. The slag and unburnt charcoal is thereupon raked off, and the metal dragged out in lumps when on the point of solidifying. The cakes of raw metal from European "founders' hoards" display under the microscope the peculiar structure caused by breaking the metal when it was thus on the point of solidifying. In the Tyrol remains of more elaborate furnaces built into the hillside have been found.

Tin and lead can be obtained by the same methods though the loss from volatilization is considerable. Lead ores were probably valued at first for the silver they contain: To purify the precious metal the process termed cupellation must have been applied. The silver-lead amalgam produced by simple reduction is strongly heated in a blast of air whereby the lead is oxidized, the metallic silver remaining at the bottom of the furnace or crucible.

For the production of the important alloy, bronze, two processes were available. The ores of copper and tin might be smelted together or the two metals fused together. The former process may have been first employed. In the true Bronze Age, however, the extant evidence points to a deliberate mixture of the two metals. Another alloy used in antiquity was electrum, consisting approximately of two parts gold and one part silver. It was used in Troy, the Caucasus, Mesopotamia and Hungary. Since the native gold of Transylvania, Pactolus and elsewhere is strongly argentiferous, electrum may well be a natural alloy.

The raw metal from the smelters was probably not generally cast into ingots. The material from the bottom of the furnaces was rather broken up into cakes of convenient size before it had set hard. However, ingots were sometimes at least cast. From Cyprus and Crete we have a number of ingots of copper, probably Cypriote,

cast in the form of a Minoan double-axe and sometimes stamped with a character of the Minoan script. Similar ingots are depicted among the tribute brought to Eighteenth Dynasty Pharaohs, and one has been found in Sardinia. In Central Europe copper was apparently traded in the form of neck-rings or torques. Hoards consisting exclusively of such torques, made of pure copper, have been unearthed particularly between the tin-producing region of Bohemia and the copper lodes of Slovakia and the Alps⁽⁴¹⁾.

CASTING AND MOULDS

The operations of the smith need more detailed description to enable us to understand the peculiarities of the metal objects that constitute such prominent documents on Bronze Age civilization. The raw metal was first melted in crucibles of clay. In Egypt these crucibles, to judge by the tomb paintings, were heated over an open fire. Actual crucibles have been found in European sites. But these exhibit the effects of heat only round the rim⁽²⁰⁾ and on the inside, so that we must assume the use of a furnace similar to that employed in Japan last century. The clay crucible was placed in a hollow packed with charcoal; sticks of ignited charcoal were laid upon it and these covered with lumps of copper. On the application of a blast the metal would melt and drip into the crucible. In either case a blast was needed to secure adequate heat so that the smith must have assistants. In Egypt down to the New Kingdom human lungs provided the current of air, and we see parties of youths sitting by the furnace and blowing down pipes! Thereafter leather bellows are depicted. The wind was conducted into the fire through a clay nozzle. Such blast pipes are regularly found in European



1



2



3

Fig. 1. (1) Nilotic smith at work.

(2) Clay nozzle from pile-village of Mörigen, Switzerland (after Ischer).

(3) Egyptian goldsmiths (after de Morgan).

villages of the Late Bronze Age, notably the Swiss lake-dwellings⁽¹⁰⁰⁾, Velem Szent Vid and other industrial settlements in Hungary (Fig. 1, no. 2).

Simple objects, flat on one face, can be cast by pouring the molten metal into a form, hollowed out in the ground or carved on a block of stone^(s). This is known as the open hearth process. A number of stone moulds for casting simple objects such as flat celts have been found in Great Britain and other countries. Moulds for flat celts are peculiarly common in Scotland (Fig. 2, no. 1).

Usually a more elaborate sort of mould was required. Even for daggers (except the most primitive flat type), spear-heads and palstaves a mould in at least two pieces must be employed^(s). A number of specimens have come down to us from the Middle and Late Bronze Age of Europe (Fig. 2, no. 2). The usual procedure was to take two corresponding pieces of stone, generally schist or sandstone, carefully rubbed flat and smooth on one face each, and to carve on each piece the negative outline of half the desired object. By combining the two a "valve mould" is obtained whose internal hollow is the exact negative of the object to be manufactured. Of course it is essential to secure an exact correspondence between the two valves and a stable union. That might be ensured by dowelling the two halves together, but often it was thought sufficient just to lash the two pieces together; ribs are sometimes cut in the back of the mould to give the thongs a better purchase.

When the valves have been fitted together liquid metal is poured in through a channel with a funnel-like mouth, specially cut for it in the mould. At least in the case of large objects, like rapier blades, fine capillaries running from the internal hollow to the edge must be cut to allow the air to escape from the enclosed space.

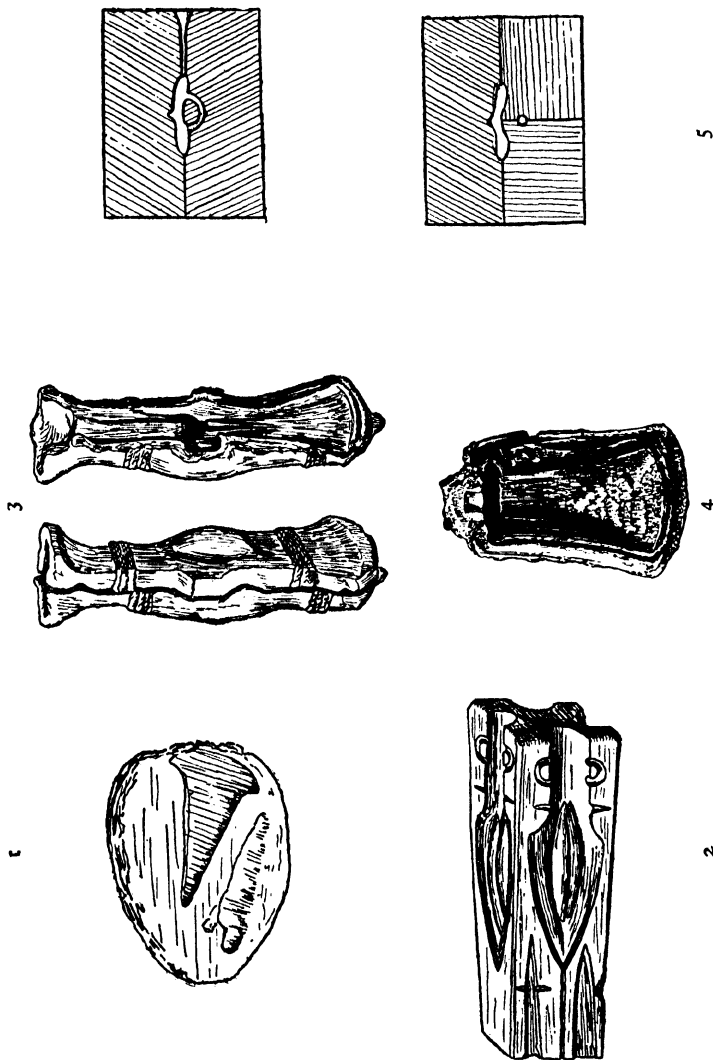


Fig. 2. (1) Stone mould for flat celt, Scotland. $\frac{1}{4}$
 (2) Stone valve mould for spear-heads, British Museum. $\frac{1}{4}$
 (3) Bronze valve mould for palstave, British Museum. $\frac{1}{4}$
 (4) Clay mould for socketed celt, Heathery Burn cave. $\frac{1}{4}$
 (5) Reconstruction of a three-piece mould for bronze buttons. $\frac{1}{2}$

Similar capillaries, in this case radiating from the inlet tube like veins, are needed to allow the liquid metal to spread evenly in casting in a valve mould large thin plates. As the two valves never fitted exactly, a little of the liquid metal will have spread into the join between the two faces. This appears on the product as a thin ridge or "seam" (Gussnaht) all round which, together with the spur or "fount" left by the metal remaining in the inlet channel, must be subsequently removed by hammering and rubbing with sand. Some traces of the seam are generally to be found on rough or rejected metal tools. Among the latter are to be seen castings spoiled through the slipping of the valves during the process. The little ridges left by the vein-like capillaries that served to ensure the rapid spread of the metal over a thin surface might be retained as decorative elements instead of being rubbed away.

More complicated moulds were needed for tools with a socket for the shaft. Axe-heads of the modern type with a shaft-hole could be produced with a two-valve mould if a clay core was introduced where the shaft-hole was to come. It was sufficient to provide a depression at the bottom of the mould to keep the core in position. There is a mould for a double-axe from Troy VI that illustrates the arrangement. The manufacture of an implement like a socketed spear-head or a socketed celt, where the tube for the shaft follows the long axis of the artifact and is essentially closed at one end, is more difficult; for the metal must flow all round the core that represents the socket. The core has therefore to be suspended from its upper end so that the metal can pass under it as well as round it. For other objects three- or four-piece moulds must have been used. None such have actually survived, but the position of the seams or

flaws due to the slipping of one part of the mould show how the several valves were arranged. Looped buttons can be cast in a tripartite mould, one piece containing the negative of the button top while two pieces with the join at right angles to the face of the first section provided the loop (Fig. 2, no. 5). Chains composed of closed annular links required four valves joining obliquely.

Nevertheless, except for quite simple implements, stone or metal moulds were seldom used for the actual casting. This was carried out rather by the *cire perdue* (verlorener Form) process. The procedure is as follows. A wax model of the desired object is first prepared. This is then dipped in a bath of clay of creamy consistency so that it becomes coated all over with an exactly fitting skin of clay which is allowed to dry on it. The whole is then enveloped in thicker clay to protect it. When this too has dried, the whole is heated so that the wax melts and runs out through an aperture left for the purpose. Liquid metal is poured by the same channel into the vacuum created. When the metal has cooled, the clay of the mould must of course be broken to allow of the extraction of the casting. Each mould can thus serve for one casting only. Hence the archaeological evidence for the use of the process in prehistoric times is mainly inferential. Only a few fragments of the actual moulds have survived. But one group of objects, representing the stock-in-trade of a Late Bronze Age smith unearthed at St Chély-du-Tarn (Lozère) in France, included a large lump of wax(4). From Egypt and Mesopotamia textual evidence for the employment of the *cire perdue* process is extant.

The *cire perdue* process sounds very complicated and laborious. But really, once the technique has been

acquired, the only part that required time and close attention was the preparation of the wax model. This could be greatly accelerated and simplified by casting the model in a mould. In point of fact, while some stone moulds of the types just described above were no doubt directly employed for making the final bronze casting, the majority of them, and probably all bronze moulds (Fig. 2, no. 3), were used not for the casting proper but for forming quickly the wax model. Models could be turned out very readily with the aid of such moulds and moreover could very easily be trimmed up and embellished so as to yield an admirable model. Difficult operations could be simplified by the use of this procedure since the model was always subject to adjustment before being coated with clay. So, in the manufacture of socketed celts, the core could be steadied during the casting of the model by a wedge under its lower end; the crack in the wax left by this could easily be filled up before the model was dipped in its clay bath. It is possible too that the marvellous curvilinear patterns that adorn Hungarian and Scandinavian bronzes were engraved, not with hammer and chisel on the hard bronze itself, but on the soft wax of the model.

The *cire perdue* process is also applicable to the casting of thin objects over a core. Metal vessels can be made by modelling a lump of clay to the required shape, coating the lump with a thin layer of wax and then enveloping the whole in a mantle of clay, leaving of course in the outer cover a passage for drawing off the wax and pouring in the metal. In the case of objects such as vases the clay core would be broken up after the casting, but in other cases it might be left in place. The Scottish National Museum possesses a sword-pommel which turns out on examination to be just a

clay core sheathed in thin bronze. It was doubtless prepared in the way just described.

Castings made on the open hearth or in a valve mould had subsequently to be trimmed up by rubbing with sand and hammering to remove the seam and other roughnesses. The edge of cutting tools and weapons, whether cast in stone moulds or by the *cire perdue* process, must be sharpened by hammering which served also to harden the metal. Hammering was moreover the only method of producing sheet-metal known to the ancients. It must be remembered that while copper and gold can be worked with the hammer while cold, bronze must be brought to a red heat before hammering has much effect.

Wire, at least in Europe, was never made by "drawing". Gold and bronze wire of a round section might be made by hammering out a rod of the metal and then rolling it to round off the edges. Alternatively a narrow ribbon of thin metal was twisted very tightly. A wire of triangular cross-section might be made by hammering a metal rod into a V-shaped groove. In Egypt there is some evidence that gold wire was really manufactured under the Middle Kingdom by drawing—forcing the metal through fine holes.

For joining pieces of metal, rivets were used throughout the Bronze Age, as to-day. The rivets had, of course, to be of softer metal than the objects to be riveted, e.g. a bronze poor in tin. In the Aegean and Spain silver rivets were often employed for riveting bronze or copper daggers. In the Ancient East soldering was also regularly used for joining pieces of gold and silver. The Sumerians also employed lead as a solder for copper. In barbarian Europe no such processes were known during the Bronze Age. That incidentally debarred the

European jeweller from using filigree work, gold wire soldered on to a solid background so as to form a pattern, a process very popular with Sumerian and Trojan goldsmiths. Brazing, the union of two pieces by heating the edges to be joined nearly to melting-point and hammering, is also said to have been practised by the Sumerians and was possibly known even to the barbarians of continental Europe. The latter certainly employed a process of casting-on (*Anguss*). When, for example, it was desired to weld together two tubes, they were placed end to end and the join surrounded by a wax ring. This was then coated with clay and replaced by a metal ring by the *cire perdue* process. The hilts of daggers were sometimes cast to fit on to the blades in the same way, the hilts being modelled in wax fitting over the blades.

TRADE IN THE ANCIENT EAST

A *sine qua non* for the free use of metal whether on the alluvial plains of Mesopotamia or on the boulder clays of Denmark was, as we saw, regular foreign trade. In the Ancient East trade by the third millennium B.C. was probably conducted on very much the same lines as native commerce in Asia to-day, save that coined money was unknown. A collection of clay tablets found in Cappadocia are inscribed with the business letters of a group of bankers and merchants settled there in connection with the metal trade. They give a lively picture of the traffic between the metalliferous regions of Asia Minor and the agricultural and industrial cities of the Tigris-Euphrates plains. Great caravans of merchandise travelled up and down the famous route that follows the Euphrates. The commerce was financed by a system of loans, secured by contracts many of which have come

down to us. Other documents from Mesopotamia, also written in the wedge-like characters called cuneiform, refer to the importation of copper from the mountainous region east of the Tigris and of metal and stone from Magan (probably Oman on the Persian Gulf). Egyptian records from the Old Kingdom onwards refer to expeditions sent by the Pharaohs across the desert to Sinai for the extraction of copper and turquoise. Contemporary inscriptions mention the importation of cedar-wood by ship from North Syria. It was to secure this trade that the Egyptians established a colony or protectorate at Byblos. Sidney Smith⁽⁷⁾ has pointed out how commercial relations between the civilized States would have involved actual transference of population as they do to-day. Craftsmen from foreign lands would gravitate to cities where political or geographical circumstances had created a market for their wares and skill and would in turn add to the riches of their adopted home.

Archaeological data faithfully reflect these commercial relations by the wide distribution of rare substances or common types. Lapis lazuli beads were worn even in prehistoric times from Baluchistan to Egypt. Obsidian was used in the prediluvian settlements of Susa and al'Ubaid as in predynastic Egypt. In Late Predynastic and protodynastic times we find a number of artistic motives and architectural devices, at all times common in Mesopotamia, abruptly and temporarily adopted in Egypt as if in imitation of Sumerian originals. Conversely in the early Royal Tombs of Ur we find the Egyptian sistrum represented. The most dramatic proof of extensive commercial relations is however the discovery in several pre-Sargonic sites in Mesopotamia of seals, differing altogether in design and fabric from the countless native seals, but identical with specimens

unearthed in prehistoric sites in the Indus valley. This is the earliest recorded instance of the transmission of manufactures over such vast distances. The transference of such instruments of commercial negotiation clearly implies an extensive trade in other articles, such as cotton, between the two distant regions. And so we see that the caravans were already crossing the Syrian and Persian deserts and merchantmen already furrowing the Mediterranean and Erythraean Seas five thousand years ago!

BRONZE AGE TRADE IN EUROPE

The conditions of trade in barbarian Europe would naturally be somewhat different. Here there were as yet no cities, but only villages of peasant farmers or meeting-places for semi-nomadic herdsman. While such had little but slaves to offer the civilized folk of the Ancient East, the tin of Tuscany and Cornwall, the gold of Transylvania and Ireland and above all the amber of Jutland and East Prussia⁽²³⁾ might well find a market in the East Mediterranean world. It is significant that the first continental centres where metal came into use lie either in the vicinity of such deposits or along routes leading thereto. Relations with the East Mediterranean centres of metallurgy are demonstrated not only by the obvious derivation of most early European metal objects from ancient Oriental models, but also by their association with Egyptian or Aegean manufactures such as glazed beads or, in Central Europe, Mediterranean shells.

The intimacy and wide extent of commercial relations between the several parts of Europe during the Bronze Age is illustrated by the number of types common to a wide area and by the diffusion of stray examples of types,

specialized in a particular area, far beyond their primary habitat. Thus at the beginning of the Bronze Age the same types of dagger were in use in Eastern Spain, Brittany, Great Britain, Upper Italy, Czechoslovakia, Southern Germany and Eastern France. The peculiar weapon known as the halberd (p. 79) was common to Upper Italy, Spain, Ireland and Central Germany. Direct interchange of goods is demonstrated by the occurrence sporadically in Wales, Cornwall, Brittany, Central Germany and Denmark of a type of gold collar, termed a lunula, common only in Ireland and Scotland⁽⁵⁷⁾. Again a form of battle-axe, native to Hungary, is represented by stray specimens from Bavaria, Mecklenburg-Strelitz, Silesia, Poland, and the Ukraine. Axe-heads of types characteristic of Britain and Italy respectively have been found side by side in Sweden.

It is therefore plain that even manufactured articles were traded between the various communities of European barbarians, to say nothing of substances like amber and jet. But it must be noted that the "communities" just referred to are more than geographical districts, and the "types" that help to define them have other functions to fulfil in the archaeologist's scheme. We must therefore diverge here to define a "culture".

DEFINITION OF A CULTURE

During the Bronze Age, as in the preceding period, Europe was divided up among a multiplicity of distinct communities or peoples. These may be distinguished from one another by burial rites, architecture, art and the types of tools, weapons, vessels and ornaments they used. The distinctive metal, bone, stone and pottery

types (artifacts), regularly found associated¹ in graves and settlements over a given geographical area, together with the peculiarities of the domestic and funerary structures in which they occur, constitute what is called a culture. In a culture thus defined there is good reason to recognize the material expression of that community of traditions which distinguishes a people in the modern sense.

Types, therefore, are symbols of cultural groups and their relations, but also, as we shall see, indicators of relative age. This dual function is not without inconvenience; for a culture, like the people it represents, is not static but can move about. It is therefore well to ask in any given case whether the appearance of a specific type in a region outside its original home is due to trade or migration. In the first case its appearance in the new region will serve to establish a synchronism with the home area; in the alternative this is not guaranteed; for a conservative people coming into a progressive area may bring with them and retain old-fashioned types.

To answer the question the following considerations are helpful. When a culture moves bodily, i.e. when the whole complex of types, fashions and habits spreads, into an area where the said forms of tools and weapons, artistic conventions and burial rites had not previously been generally current, we must admit that we are dealing with a migration. That might conceivably be a slow process throughout which some or all the types remained without material modification. In any case, the more intimate and imponderable traits of a culture, such as pottery and burial rites that could hardly be

¹ Objects are said to be associated when they are found together in circumstances indicative of contemporary use, e.g. as the furniture of a single burial or in the ruins of a single hut.

traded and would rarely be imitated and that only by immediate neighbours, will move as much as portable commodities like metal types. The reader will, moreover, doubtless concede that the supersession of a more practical type, like the shaft-hole axe, by an inferior one, such as the socketed celt, can hardly be explained by the external relation of trade or neighbourly imitation but implies something deeper such as conquest or immigration.

Conversely when stray objects properly belonging to one culture are found in the area of another associated with types proper to the latter, we are dealing with "external relations". Trade is the simplest and most natural explanation for the appearance of a Hungarian axe in North Germany or an Irish ornament in Denmark, but it is always possible that the axe was dropped by a Hungarian raider or the lunula looted from Ireland by a Danish pirate.

HOARDS

As a result of the extensive trade of the Bronze Age and its peculiar conditions, we have a class of closed finds very rare in previous epochs. In addition to grave furniture and relics from settlements we now encounter what are called "hoards" (4). These are groups of implements, ornaments or vessels buried together in the earth. Sometimes hoards have been enclosed in a vessel; occasionally there are traces of a sack or leather bag, but naturally such receptacles have seldom survived. Hoards are of various kinds: some appear to be just the personal possessions of an individual or a household and may be termed "domestic hoards". Such consist of a few tools, weapons and ornaments, comprising as a rule only one specimen of each type

and normally showing signs of use. They have probably been buried by their owner in time of danger or while he was travelling and never retrieved so that their survival is an indication of the owner's misfortune. Domestic hoards may be regarded as closed finds guaranteeing the contemporary use of all the articles deposited together. They are thus valuable for synchronizing types, but otherwise of no special interest.

Objects found together at the foot of a rock or a tree or in a spring or a swamp, may sometimes at least represent offerings made to a divinity supposed to inhabit the spot⁽⁸¹⁾. They are accordingly termed "votive hoards" and in general provide no guarantee of the contemporary use of the objects comprised in them.

The remaining hoards belong to traders and normally contain several examples of each type of tool, weapon or ornament. In the Early Bronze Age the traders' hoards consist almost entirely of new or half-finished articles. Some at least seem to have belonged to travelling tinkers, bartering metal products which they were prepared to finish off on the spot to suit the taste of the customer. So some Central German hoards contain a number of dagger- or halberd-blades to which the merchant would fit hilts as required. The same hoards often contain amber beads, showing that their depositors were engaged in the amber trade. In the Late Bronze Age some of the traders had begun to specialize in particular lines, and accordingly we find hoards consisting exclusively of swords, sickles, or vases as the case may be. But even in the Early Bronze Age there are hoards composed entirely of ingots of raw copper in the form of torques.

The contents of the foregoing commercial hoards in all probability were in contemporary use. That is not,

however, true of another group of hoards, very common in the Late Bronze Age, that seem in some cases to have been left by a class of trader. They are characterized by the presence of old and broken tools, obviously scrap metal collected for remelting, and often too of metallurgical tools, moulds and ingots of raw metal; such are termed "founders' hoards" to distinguish them from ordinary traders' hoards. The distinction is vital since the objects included in them may be of very different date, being in fact any old pieces of scrap metal. Yet some such hoards probably belong to gangs of travelling tinkers who went round the countryside repairing broken tools and collecting scrap metal at a time when the demand was peculiarly intense. Others are so large that they must represent the stock of a village smithy buried at a moment of danger or of a station in the international metal trade.

The accepted explanation of traders' hoards is that they were buried by the travelling merchant, when he saw himself threatened by some danger, with the intention of reclaiming them when the peril was past. And in point of fact when plotted on a map, they are seen to lie along natural routes and to be thickest just where danger might be expected, for instance on the frontier of two cultural provinces. Hence a multitude of hoards, whether commercial or domestic, is anything but a sign of prosperity. It was rather in times of unrest that valuables had to be entrusted to the preservation of the earth. So the majority of hoards of Roman coins, unearthed in France and Scotland, are shown by their dates to have been buried during reigns when it is known that those lands were harried by civil war or barbarian raids.

TRADE ROUTES

With the aid of maps showing the distribution of contemporary hoards and of individual types, found isolated or in other closed finds, it is possible to plot out in some detail the main arteries of the European economic system. Of all the commercial highways thus disclosed, the amber route⁽²³⁾ connecting the Baltic and the Adriatic was the most important. The ways, that diverged slightly at different periods, are clearly marked by amber ornaments, datable by their associations in graves and hoards. From Jutland the fossil resin was transmitted, during the Early Bronze Age, up the Elbe to Bohemia and thence across the Böhmer Wald to the Upper Danube at Linz or Passau. An early branch route, however, followed the Saale valley through Thuringia (where there are important salt deposits) to the head-waters of the Main and then reached the Upper Danube over the Frankish Jura. Thence in either case the Inn was followed to the foot of the Brenner. The traders used this pass to bring their goods by way of the Adige to the Po valley and the head of the Adriatic.

The large number of tools and weapons of Italian pattern found along the amber route show that the inhabitants of Upper Italy played an important part as intermediaries in the trade. Still the quantities of amber found in tombs in Greece from 1600 B.C. on leave no doubt that the Aegean market was already open. At the same time Bohemia was a very important agency, so much so indeed that its inhabitants may be said to have controlled the northern end of the route. The principal medium of barter used in the actual vicinity of the deposits during the Early Bronze Age was a gold earring or lock-ring of a type originating immediately in

Hungary and perhaps made of Hungarian gold; such ornaments have been found in very considerable numbers in Jutland as well as in Bohemia and Saxo-Thuringia. It looks as if the people of the last two regions kept to themselves the bronze work of the South and bartered to the Danish natives only the gold they got from Hungary in exchange for tin.

During the Middle Bronze Age the western branch of the central amber route along the Saale came into greater prominence, and a loop way was introduced as an alternative, following an old hill trackway across Thuringia to the Rhine near Mainz, then running upstream to the mouth of the Neckar, and traversing that gap to reach the Upper Danube near Augsburg.

Very possibly the East Prussian amber deposits were being tapped even during the Early Bronze Age. A series of hoards and stray bronzes, mostly of Saxo-Thuringian pattern, can be traced across Eastern Germany and Poland to converge near the mouth of the Vistula. Though the hoards of this date do not contain amber, they clearly denote a trade in Saxo-Thuringian bronzes which can only have been exchanged for East Prussian amber. The regular and extensive exploitation of the latter deposits, however, dates only from a late phase of the local Bronze Age, overlapping with the Early Iron Age in Austria. At that date the material was carried up the Vistula to its first elbow at Torun, thence to the Oder near Glogau and so across Silesia to the Glatz Pass. Thence the March valley was followed to the Danube. Thereafter the exact course of the route is obscure, but it seems to have traversed Styria and Carniola to reach the head of the Adriatic.

Other routes on a smaller scale have been worked out in limited areas. A glance at the map of hoards,

classified by periods appended to Behrens' *Bronzezeit Süddeutschlands*, will give a good idea of what can be determined. On the other hand, the map of hoards in Déchelette's *Manuel* tells one very little, because all hoards are shown by the same symbol without distinction of age.

THE CLIMATE OF THE BRONZE AGE

Intercourse during the Bronze Age was facilitated by the climatic conditions then ruling over our continent⁽²⁴⁾. While the earlier part of the New Stone Age had been wetter, though warmer, than the present, drier conditions set in towards the close of that period and were intensified during the Bronze Age. The result of this sub-boreal phase, as climatologists term it, was that tracts that are to-day naturally wooded became parklands or, in extreme cases, open heath or steppe⁽²⁵⁾. As the primeval forest, dangerous to traverse by reason of the bears and wolves it sheltered, and difficult to clear with expensive bronze axes, presented to our forefathers the most serious obstacle to settlement and free movement, the dry period was to most Europeans a climatic optimum. In some parts of the North European plain, however, the drought may have been so great as to be incompatible with sedentary agriculture, thus promoting popular migrations. In Ireland and large tracts of Great Britain, on the contrary, it is excessive wind and moisture that impedes the growth of timber. Here, therefore, the sub-boreal epoch was certainly a forest phase; to it belongs the upper layer (there is often an older one of Mesolithic Age) of tree trunks and stools discovered in our peat-mosses. In these islands, therefore, the sub-boreal dryness had little effect upon the area available for settlement. Only the dry uplands

were really thickly populated, and even the trade routes avoided as far as possible the wooded valleys unless a navigable river flowed along them.

VEHICLES AND SHIPS

The commercial intercourse, essential to the very existence of a Bronze Age, was expedited by a series of inventions. Perhaps the most revolutionary was the harnessing of animal motive power, the first step in the emancipation of mankind from the burden of crushing physical labour that has led to the steam engine and the petrol motor. Neolithic man possessed oxen and other tame beasts, but there is no conclusive evidence that he ever set them even to drag his plough; when he travelled he and his wife must carry the household goods as among the Australian aborigines to-day. But very early in the Bronze Age of the Ancient East the ox had been yoked to the plough and set to work in the fields, and even in Europe, by an early phase of the same period, representations of an ox-drawn plough were being carved on the rocks of the Ligurian Alps.

On sandy deserts or open grass-lands the same animal could be harnessed to draw loads on runners.¹ Effective use of the animal's tractive powers, however, involved the discovery of the wheel. Therewith mankind set foot on the road that led to the motor car. The earliest wheeled vehicles known as yet have recently been brought to light in tombs at Kish and Ur dating from before 3000 B.C.(8). The wheels are clumsy affairs, just three solid pieces of wood, shaped to segments of a circle, clamped together and tyred with leather, that

¹ There is some very uncertain evidence from Finland for the use of a sleigh, drawn presumably by reindeer or dogs, even in Mesolithic times.

turned with the axle. Otherwise the main outlines of later cars are clearly foreshadowed. The draught animals, asses or oxen, were harnessed on either side of a pole fixed to the middle of the fore axle. They were guided by reins which passed through a double ring or terret, fixed to the chariot pole. Light two-wheeled chariots are little, if at all, later than these four-wheeled carts. A model cart from the Indus valley dates from the third millennium, while by that time wheeled vehicles were also known in Crete, as is shown by a clay model of M.M. I date. Even in Spain there are quaint rock-paintings, representing a wheeled cart, that may date back to the Copper Age. In Egypt, however, wheeled vehicles were apparently unknown before the end of the Middle Kingdom. Thereafter they were introduced by the barbarian invaders known as the Hyksôs. About the same time the two-wheeled chariot drawn by horses was adopted in the Aegean area. In the Minoan and Mycenaean chariots the axle is under the body of the car, whereas in contemporary Egyptian vehicles it was in front⁽²⁶⁾. Whether wheeled vehicles were known north of the Alps during the earlier part of the Bronze Age is still uncertain. By the middle of that period bridle-bits furnish, as we shall see, evidence of the subjugation of the horse, and pendants in the form of a wheel imply a knowledge of that device.

While on the topic of the wheel we must mention another very different application of the invention, the potter's wheel⁽²⁷⁾. All Neolithic vessels have been built up by hand, aided only by a leaf or mat on which the lump of clay might stand, and smoothing tools of wood or bone. By Old Kingdom times, however, the Egyptians were utilizing a pivoted disc that would revolve readily as the pot was being shaped. It is sometimes

called the *tournette*. But by 3000 B.C. Sumerian potters were already using the true wheel that will spin fast. The lump of soft clay is placed on the centre of, or on a tray connected by a sort of axle to the centre of, a horizontal wheel. The latter can be made to rotate rapidly by the potter's foot or by an assistant. A lump of clay of the proper consistency thus set spinning almost automatically assumes a cylindrical form; all the potter's hand has to do is to give the gyrating mass the required contours. By the use of this device ten or twenty vessels can be modelled, and that more symmetrically, in the time required for building up one by free hand. On the other hand, with the adoption of the wheel, pottery tends to become a factory product and to lose much of its individuality.

Going back in the East to at least 3000 B.C., the potter's wheel reached Crete and Troy II by M.M. I times (from which dates the earliest evidence too for the wheeled vehicle in the Aegean). Soon after the device crossed to mainland Greece. But farther north and west pots continued to be made exclusively by the free hand till late in the Iron Age. There is, however, evidence that a cognate device, the lathe, was in use in Britain by the middle of the local Bronze Age (see p. 189).

Parallel to the acceleration of land transport by the use of the wheel went a great expansion of maritime intercourse. Even Mesolithic man had been able to venture on the sea in some sort of craft so as to reach the island of Oransay, and the immense voyages of the Polynesians in improved (top-straked) dug-outs, show what could be accomplished without the use of any metal tool. But no true ships certainly antedate the copper axe and chisel. Even before the union of the lands in one kingdom, the predynastic Egyptians

depicted on their vases quite big vessels with two cabins and propelled by as many as fifty oars. These boats seem to have grown out of a small raft made of bundles of papyrus lashed together, but their sides were probably already made of planks of Syrian timber tied together like the original papyrus bundles. At the same time another type of vessel with a very high prow, only known at first from Egyptian monuments, had grown up on the Persian Gulf and the Erythraean Sea⁽¹⁰⁾. These were sailing ships, so that the dwellers on those coasts had already harnessed the winds as their contemporaries on shore had subdued the strength of ox and ass. This is another mechanical invention attributable to the Bronze Age.

In the Aegean⁽¹²⁾, ships, related to the high-prowed Erythraean type but equipped with fixed rudders, are depicted from Early Minoan times onwards. Probably it was hence that hardy mariners sailed beyond the Pillars of Hercules whose ships provided the models for Scandinavian boat-builders. The latter's products have been depicted on rock-carvings in Southern Sweden. In any case the Egyptian, Aegean and Syrian ships of the third millennium were certainly capable of crossing the Mediterranean. The diffusion of megalithic tombs along the coasts of Portugal, France, Ireland and Scotland to Scandinavia may reasonably be regarded as proof that they also faced the Atlantic and the North Sea. And indeed Danish amber and English jet were reaching the western coasts of the Mediterranean even during the Copper Age. So it is fairly certain that maritime intercourse between Scandinavia, the British Isles and the Iberian Peninsula supplemented the great transcontinental land route from the North to the Mediterranean throughout the Bronze Age.

WRITING, WEIGHTS AND MEASURES

The other inventions incidental to international commerce need not be described here in detail. The necessity for contracts and accounts no doubt gave an impetus to the development of writing. Many documents written on clay tablets from Mesopotamia and Crete bear witness to this use of writing. As mastery of the art was the accomplishment of a few "scribes", the average correspondent, being unable to sign his name, would instead impress upon the soft clay a seal bearing a distinctive emblem, originally perhaps his guardian animal or totem.

A system of metrology was equally needed for trade. Various standards were used by the different civilizations of the Ancient East. In continental Europe have been found a number of symbolic double-axes, apparently Copper or Early Bronze Age in date. On being placed on the scales, it is found that the weights of such are interrelated, all being multiples of an Asiatic unit termed the *mina*. Late in the Bronze Age weights of stone and lead have been found in the Swiss lake-dwellings. In form they are quite like modern weights with a little loop for suspension; they too correspond to multiples of a *mina*⁽⁴⁾.

TYPOLOGICAL CHRONOLOGY

The intimacy of the subsisting commercial relations makes the correlation and synchronization of deposits from different parts of Europe far easier during the Bronze Age than in the preceding New Stone Age. The types of tools, weapons and ornaments, current in our continent, did not remain constant for any length of

time as they had in the Orient. They were rapidly modified in response to new inventions and changes of fashion. In the case of some tools and weapons the changes take place in a continuous and regular order in one direction, illustrating progressive advances, just as improvements are incorporated in each year's new model of, say, an Austin car. Thus the celts or axe-heads are modified along several divergent lines till all converge again upon the socketed celt. Similarly the triangular dagger grows into a short dirk, then a rapier and eventually a cut-and-thrust sword.

When the progressive improvement of a tool can thus be represented as a series of stages, we have what is termed a "typological series" (28). The presumption is that the more perfect types are later than the cruder ones, so that such a series would have a direct chronological value. This assumption is not, however, necessarily justified; for degeneration is as much a fact as evolution. A typological series can only be accepted as representing a chronological sequence when the direction of evolution has been tested by the independent dating of at least two stages. Moreover, the more rudimentary types naturally tend to persist side by side with their descendants. Hence while an advanced type indicates a relatively late date, a more rudimentary one is no such sure sign of antiquity. If you see a 1930 model Austin in a garage, you are sure that the year is 1930 or later; a 1924 model is no sure proof that you have been transported back to that year.

In several parts of continental Europe it has been possible to construct typological series illustrating the development of the celt, the dagger and sword, the spear-head, the razor, the safety-pin, etc., and to

synchronize the several stages in one series with corresponding stages in the rest. This gives a sequence of periods defined by contemporary types. Montelius, a Swede, who first elaborated this method of establishing the relative chronology of barbarian Europe, recognized six periods in Scandinavia. It is claimed that in a large number of closed finds¹ of say Period III, only a small minority of the types would belong to Periods II or IV and none at all to I or V.

Within the area served by European trade the several stages, distinguished typologically in the different provinces, can be synchronized, and we thus obtain a relative chronology, based on typology, valid for the whole of Europe. On these principles we can easily distinguish everywhere within the economic system three main periods which we term the Early, Middle and Late Bronze Ages. The last period should close with the beginning of the first Iron Age or Hallstatt period in Austria, Switzerland and South Germany, but actually in Great Britain, Scandinavia and Hungary the arrival of iron was belated so that we have a prolongation of the Bronze Age in such areas.

While the tripartite division above indicated is accurate enough for the present study and is indeed as minute as can be applied in practice to Europe as a whole, much finer divisions have been established by local specialists for restricted areas. Montelius, as noted, distinguished six periods for Scandinavia (generally represented by Roman numerals) of which the last three overlap with the Hallstatt Iron Age farther south. Sophus Müller⁽²⁹⁾ identified twice as many in Denmark. P. Reinecke⁽³⁰⁾ divides the pure Bronze Age in South Germany into four periods, lettered A to D, followed by

¹ See note on p. 42.

a phase he terms Hallstatt A, in which iron had nevertheless not penetrated beyond the Alps. Kraft⁽⁴³⁾, who follows Reinecke, therefore terms his Hallstatt A "Bronze Age E". The Early and Late Bronze Ages of Britain were each divided into two periods by Montelius⁽⁵⁹⁾, giving five in all. British archaeologists are, however, agreed that this subdivision cannot be carried through in practice and have further observed that the first marked gap in our Bronze Age comes at the beginning of what should be the Late Bronze Age⁽⁵⁵⁾; the Middle period is with us always vague and ill-defined. In France Déchelette⁽⁴⁾ distinguished four periods, but these¹ are discordant with Reinecke's Central European system which, for reasons explained below, must set the standard.

Any typological division is necessarily somewhat arbitrary and must be used with due caution. It is plainly applicable only to regions forming part of a single economic system, so that the interchange of goods and the spread of ideas is rapid and regular. The systems upon which our tripartite division is based were devised for countries lying along the central amber trade route (p. 46) where most of the leading types were evolved. We shall meet serious difficulties in applying it to other regions, such as England, which participated only indirectly or not at all in Scandinavian, Central European and North Italian progress. In the case of Spain, relations with the rest of continental Europe seem to have been broken off during the Early Bronze Age, and types of the Middle period are totally lacking. It is, therefore, likely that Early Bronze Age types remained

¹ On his Plate III (Period III) 1 and 10 are Reinecke B, and 2, 5, 11, 14, 16, 19 and 20 Reinecke C, therefore all Middle Bronze Age; while 3, 6, 7, 8, 9, 13 and 15 are Late Bronze Age, Reinecke D.

current in the Peninsula long after they had gone out of fashion in Central Europe. Trade between Western Europe and Russia only became effective in the latest Bronze Age. All the older types are virtually absent, but that by no means implies that the vast area was depopulated from the end of the Stone Age. Similarly only a few celts and daggers of Early Bronze Age type are known from Denmark because there a belated Stone Age persisted. One or two little ornaments of Early Bronze Age type from late Stone Age graves demonstrate this overlap⁽³⁾.

Again a type, not clearly imported and datable in its place of origin, can only be invoked as dating a deposit if the type in question was in effective use, and so susceptible of evolutionary modification, in the culture to which the deposit belongs. For example, in Hungary "celts" were seldom used for axe-heads, the normal axe-head having a hole for the shaft as in our modern tool. Accordingly the celt in Hungary was never improved as in other parts of Europe by the growth of flanges, wings, and then a stop-ridge. The flat celt remained in vogue, but its occurrence here is no indication of an Early Bronze Age date.

A further defect of typological chronology is the difficulty of recognizing what may be called "retardation", when synchronizing different provinces. On the theory, each improvement in the typological series originated at one point and quickly spread thence throughout the economic system. But there is no guarantee that the new type should be traded in all directions or find immediate acceptance everywhere. On a rigid application of the typological method all deposits containing types belonging to the same phase should be contemporary. Yet there are indications that

the Late Bronze Age types evolved in Central Europe (Upper Italy, Czechoslovakia, and Southern Germany) were only introduced into Britain and Hungary as the result of migrations that may have been quite gradual. Yet the scheme offers no means of checking the possible delay thus involved.

ABSOLUTE CHRONOLOGY

The foundation of the European Bronze Age in, and its continued connections with, the Aegean and the Ancient East, opens up the possibility of assigning to the relative divisions sketched above absolute values in terms of solar years. The invention of the Oriental prototypes from which the European objects are ultimately derived plainly gives a *terminus post quem* for the appearance of the latter. The range of the simpler original forms, such as flat celts, is, however, so great as to afford no serviceable basis for synchronisms. The earliest pins, ear-rings and collars current in the Danubian province reproduce exactly specialized Asiatic models. But the first two groups go back in their homeland to before 3000 B.C., which is an impossible date for the European copies. The collars on the other hand are known from Syria and Egypt first about 1800 B.C., and this, if the Oriental origin of the form be admitted, would give a reasonable upper limit for our Early Bronze Age. An approximation to a lower limit is suggested by a clay vessel from an Early Bronze Age grave in Saxony that seems to copy a peculiar sort of metal cup popular in the Aegean between 1700 and 1500 B.C. Certain Egyptian or Cretan paste beads found in tombs furnished with Early Bronze Age daggers and axes in South-eastern Spain would give a

still lower limit to the period there but that the types of bead have rather too wide a range.

Right at the end of the Middle Bronze Age a rapier of Aegean type, datable there about 1350 B.C., appears in German graves. Then, before 1200, swords, apparently of European origin and Late Bronze Age date, reached Greece and Egypt. A cross-dating is thereby obtained fixing the beginning of the Late Bronze Age between 1300 and 1250 B.C. These figures are, however, only valid for the standard region along the central amber trade route. Elsewhere we must allow for a considerable retardation as already explained.



Knee-shaft of wood for hafting
celts, cf. p. 61.

CHAPTER III

TYPOLGY

THE variety of tools, weapons, vessels and ornaments at the disposal of Bronze Age man was immensely greater than that known to his Stone Age forebears. It is the material expression of enrichment of life and extended control over nature. The enormous wealth of objects that have come down to us from this brief episode in human history renders possible a vivid picture of that phase of life. Still it is almost embarrassing to the archaeologist. Here we shall describe only the principal types of general interest, confining ourselves in the case of the Ancient East to varieties that have a special chronological or comparative value for students in North-western Europe.

CELTS (AXE-HEADS)

The most widespread, and for typological chronology the most important, family of tools is conveniently termed "celt". This designation is properly applied to axe-heads, but is sometimes extended to adzes and even chisels of comparable form. The celt, whether used as an axe or an adze, was mounted on a wooden staff or shaft, the blade in the former case running parallel to the length of the shaft, in the latter at right angles thereto. The butt might of course be fitted directly into a slit in a straight shaft, but, in the case of all the European celts whose evolution is sketched below, it is certain that the so-called knee-shaft was employed^(a). This can most readily be obtained by cutting off a suitable bough or sapling just below the point where a

branch grew out of it. This side branch was then broken off a couple of inches from its root and split. The celt was inserted in the cleft which was then bound round with sinews or wire. (Fig. on p. 59.)

Axe-heads and adze-heads of ground stone or flint had been in use throughout the Neolithic Age and indeed formed the most distinctive external trait of that epoch. The earlier metal celts very closely resemble the stone implements, some even reproducing the local peculiarities of the Neolithic celts from the same district. Nevertheless, some authors consider that polished stone celts are all really imitations of copper originals.

The simplest form of metal celt, therefore termed the flat celt, is in any case, like the stone implements, practically flat on both faces, and the sides are nearly but seldom quite parallel. Except in Egyptian examples the blade is generally slightly splayed out; this splay would be a natural result of the hammering necessary to sharpen the edge. Flat celts occur already in predynastic Egypt, prediluvian strata at Susa in Elam and in prehistoric cities on the Indus, as in the earliest metal-using cultures of Cyprus, Crete, the Cyclades and Greece. While most early Oriental specimens are made of copper, the form was reproduced in bronze at Troy and in the Aegean area generally. Simple flat celts are also characteristic of the "Copper Age" in Southern and Eastern Russia, Hungary, Italy, Sardinia, Spain and Ireland. They occur sporadically over a much wider area, even reaching Scandinavia, and are sometimes associated with stone celts (e.g. in the Rhine valley) in hoards and quite often in settlements.

By the beginning of the local Bronze Age the outlines of the flat celt were being modified in Europe. In the British Isles we meet with types whose butts are very

narrow in proportion to the wide curving blade (Fig. 3, no. 3). In Bohemia there is a variant with pointed triangular butt, probably an adze-head.

But by this time the typological evolution was already beginning. The first stage in the series is the flanged celt (*Randleistenbeil*, *hache à rebords élevées*), distinguished by ridges at the sides of either face. These flanges were doubtless in the first instance produced by the hammering on the sides that was in any case necessary after casting in an open mould(s). But they were useful in two ways, both giving the tool increased longitudinal rigidity (diminishing the risk of buckling in the sense of the blow) and preventing the head waggling on its shaft by gripping the prongs of the split branch.

That the value of such flanges was known at least to the ancient Egyptians is shown by a chisel strengthened in this way from the tomb of Hetep-heres, the mother of the Pyramid-builder Cheops (Khufu)(8), but it was apparently never applied to celts in Egypt, Mesopotamia, the Aegean area or even Hungary and Southern Russia. On the other hand, flanged celts, even of copper, occur in Italian tombs, and in bronze they are characteristic of the Early Bronze Age in Italy, Czechoslovakia, Southern Germany, Britain and South-eastern Spain. By a mature phase of that period local variations are observable. Italian specimens always have a nick in the butt formed by leaving intact part of the two jets from the casting in a valve mould (Fig. 4, no. 1); in Bohemian and Central German types the butt is triangular. In the Middle Bronze Age the foregoing types persisted with divergent local variations in certain areas. In Scandinavia, for example, the body is rather long, the sides exactly parallel, and the flanges very

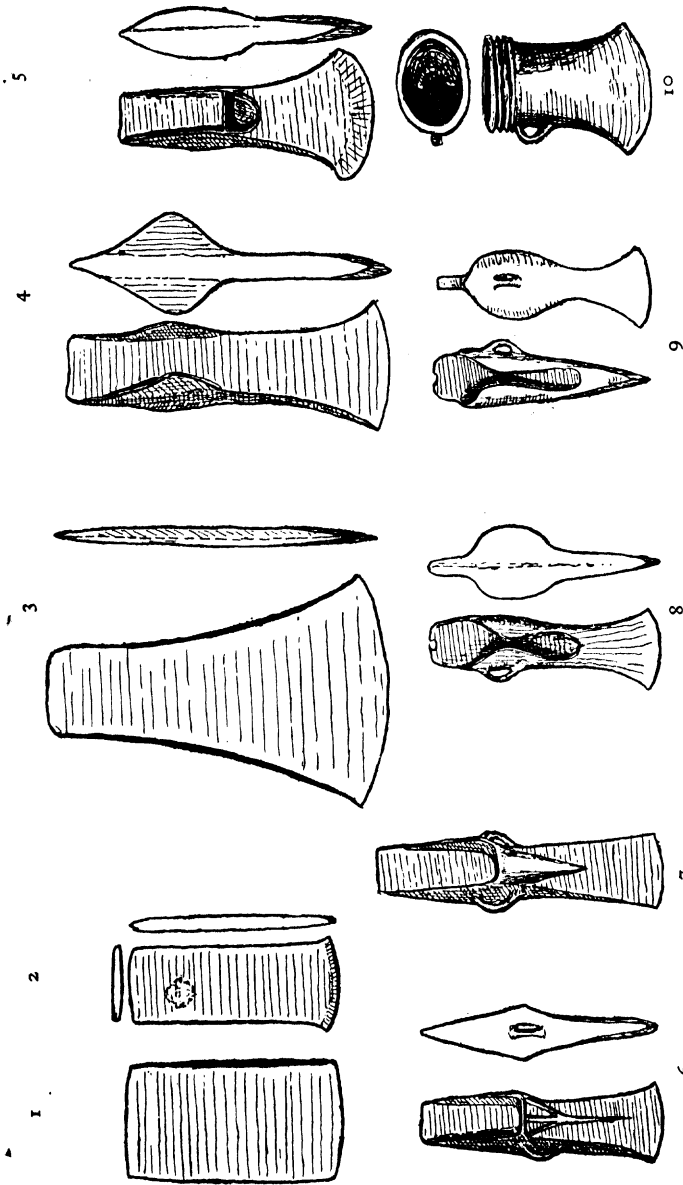


Fig. 3. (1) Flat celt, Egypt, protodynastic. (2) Flat celt, Susa, prediluvian. (3) Flat celt, Scotland, Early Bronze Age. (4) Winged-flanged celt, Scotland, Early to Middle Bronze Age. (5) Palstave, Egypt, Late Bronze Age. (6) Palstave with ear, England, Late Bronze Age. (7) Two-eared palstave, England. (8) Winged celt with ear, England, Late Bronze Age. (9) Winged adze with ear, Switzerland, Late Bronze Age. (10) Socketed celt, England, Late Bronze Age.

ALL

prominent (Fig. 4, no. 5). In Western Switzerland and the Rhone valley a type, based on Italian models, grew up distinguished by a great spatuliform blade. At the same time evolutionary improvements were being tried along three distinct lines.

Winged celts (Lappenbeil, hache à ailerons)

To diminish further the risk of side-slip a section of the flanges on either face was widened to produce wings that could be hammered round the shaft-prongs on either face. Thus arose the winged celt that was at home in South-west Germany and Upper Italy. At first the wings are in the centre of the implement (Fig. 4, no. 2); towards the close of the Middle Bronze Age they have retreated towards the butt. Then in the Late Bronze Age a loop or ear is added for the thongs that lashed the tool on to its shaft, and the section of the body below the wings is thickened, perhaps under the influence of the palstaves (Fig. 3, no. 8).

Palstaves (Absatzbeil, hache à talon)

To prevent the axe-head slipping back up the cleft of the shaft at each stroke and so splitting the kneestick, a stop-ridge was developed between the flanges to engage the ends of the shaft-prongs. The rudiments of such a stop-ridge are observable on some Early Bronze Age flanged celts both in Great Britain and in Central Europe, but the fully developed palstave belongs to the Middle Bronze Age (Reinecke C) and is characteristic of Scandinavia, North-west Germany, France and Britain (Fig. 3, no. 5). Subsequently the space between the flanges below the stop-ridge was filled up with metal in the casting. A reminiscence of the flanges is

for a time preserved in the form of decorative ridges. Especially in Scandinavia one can see very pretty examples of "reminiscent decoration". A tapering ridge is cast on each face of the palstave below the stop-ridge to simulate the prongs of the cleft shaft that had once projected downwards visibly on the faces of the tool. A rather later stage is denoted by the addition of an ear (Fig. 3, no. 6). There is a group of palstaves with two ears, one on each side, in the Iberian Peninsula, Southern France and Sardinia. A few such palstaves have been found in the British Isles (Fig. 3, no. 7), principally in the south and west. These are doubtless imports, but it is generally supposed that the palstave reached the Iberian Peninsula from Britain. It is nevertheless to be noted that implements with two lateral loops and exactly resembling the palstave in plan but flat on both faces are common in Sardinia.

Constricted celts (Böhmisches Absatzbeil)

The advantages of the winged celt and the palstave seem to be combined in a tool called by German archaeologists a Bohemian palstave. It probably grew up as follows. In Switzerland and Bavaria we find a sort of flanged celt that has been hammered so hard on the centre of each side that the body is narrowed while wings develop on either face (Fig. 4, no. 3). The classical Bohemian palstave might result from imitating the product by casting, the section below the wings being again cast solid (Fig. 4, no. 4). This form appears in Bohemia and Moravia during the Middle Bronze Age and was exported to neighbouring territories, particularly Hungary⁽⁴¹⁾.

Socketed celt (Tullenbeil, hache à douille)

The natural culmination of all the previous developments was the socketed celt. It no longer requires the splitting of the shaft-end, eliminates side-slip almost entirely and provides a surface to engage the end of the shaft. In the Late Bronze Age this form certainly ousted all its predecessors. According to Montelius it was evolved from one of them, the winged celt. It is supposed that the wings grew till they met round the shaft-prongs, forming a sort of tube divided by a septum (the body of the celt) in the middle. This was then eliminated and the end of the tube closed. It is true that some socketed celts, principally in Italy and Southern Germany where winged celts were current, exhibit semicircular ornaments cast in relief on either side (Fig. 4, no. 7). These certainly imitate wings and, on the theory, are survivals thereof. However, in Hungary and Moravia the socketed celts, instead of the wing pattern, are decorated with ridges forming a V on either face that, just as obviously, reproduce the opening of a constricted celt. And in Scandinavia there are remarkable socketed celts with imitation flanges and a tapering ridge between them on the lower part of the blade (Fig. 4, no. 6). These successfully reproduce the effect of a flanged celt, hafted, and bound round with a bronze collar. Sophus Müller⁽²⁹⁾ indeed contends that the Danish socketed celt was evolved thus out of the flanged celt with attached bronze collar without the intervention of the winged celt.

None of these *a priori* theories can be accepted. The imitative patterns invoked by Montelius and Sophus Müller were not introduced by the ancient smiths in pious memory of effete devices, but to make a new type

of tool look as like as possible the accustomed model of each region, a model with which it was in active competition. Quite possibly the origin of the socketed celt is to be sought outside Europe. There were in Mesopotamia cutting tools, adzes rather than axes, made out of a sheet of metal whose sides were folded round so as to form a tubular socket. Similar implements are known from South Russia, and in the Evans Collection at Oxford is a socketed gouge from Dalmatia formed on this principle.

The centre where European socketed celts were first made has not been exactly determined. The oldest actual examples would be some Danish ones assigned to the Middle Bronze Age. In general the socketed celt belongs to the Late Bronze Age.

T - A X E

The Egyptians, owing probably to the kinds of timber available, did not fix their axe-heads into a split stick but bound them on to a shaft by lashings round and across the head. To facilitate attachment, lugs, continuing the line of the butt, grow out of it on either side by Middle Kingdom times if not before⁽⁶⁾ (Fig. 5, no. 1). Stone axe-heads of the same form have been found in Egypt, Central Asia and America.

A D Z E S

Adzes in general follow the same lines of evolution as the foregoing types of axe-heads. The adze may be narrower and sometimes there is a difference in the slope of one face⁽⁶⁾. Take a cross-section along the length of the implement and draw an imaginary line from the blade to the middle of the butt. Then in an axe

the angles made by the two faces with this line must be equal, otherwise each blow will go crooked. In an adze no such symmetry about the major axis is necessary. The real distinction between an axe and an adze is, however, the method of hafting which can seldom be determined from an inspection of the head. Almost any form of celt could be converted into an adze by merely turning the blade through a right angle, e.g. in the case of a knee-shaft by splitting the spur at right angles to the main branch instead of in a line with it. Still in Europe the transverse hafting of the celt to make it do duty as an adze was falling into desuetude in the later part of the Bronze Age. To avoid it the smiths cast palstaves and late winged celts in which the blade was at right angles to the concave faces that received the haft's prongs (Fig. 3, no. 9).

In addition to these simple variants on the axe-head, we should note here one or two peculiar types of celt that generally served as adzes. The proto-dynastic Egyptian adzes and one or two Elamite examples have rounded heads (or butts). Under the Old Kingdom and still more in Middle Kingdom times this rounded head was separated from the body by a marked concave neck (Fig. 5, no. 2).

In the earliest Indian chisels⁽⁸⁾ the blade expands slightly till about one-quarter of its length from the butt, then contracts abruptly after a sharp shoulder only to expand again towards the edge. Some adzes of this pattern have been found in Late Minoan Crete and elsewhere in the Eastern Mediterranean region. A flat celt, developed from this type, in which the neck makes a right angle with the shoulders is common in Late Bronze Age hoards in Sicily and Southern Italy. From it grows the trunnion celt or lug-adze where the

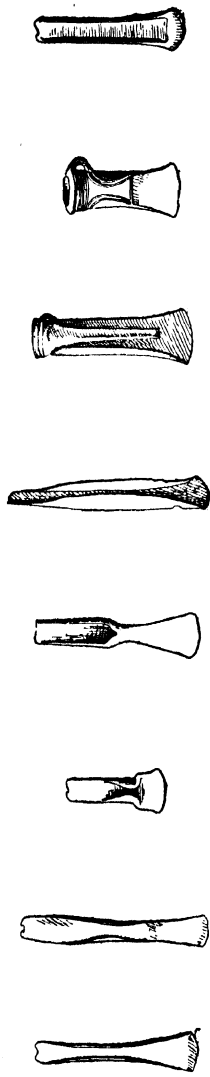


Fig. 4. (1) Long flanged celt, South-western Germany, Middle Bronze Age. $\frac{1}{2}$
 (2) Long winged celt, South-western Germany, Middle Bronze Age. $\frac{1}{2}$
 (3) Constricted celt, Switzerland, Middle Bronze Age. $\frac{1}{2}$
 (4) Bohemian palstave, Bohemia, Middle Bronze Age. $\frac{1}{2}$

(5) Northern type of flanged celt, Denmark, Middle Bronze Age. $\frac{1}{2}$
 (6) Northern type of socketed celt, Denmark, Middle Bronze Age. $\frac{1}{2}$
 (7) Socketed celt with imitation wings, Hungary, Late Bronze Age. $\frac{1}{2}$
 (8) Flanged celt, Silesia. All $\frac{1}{2}$

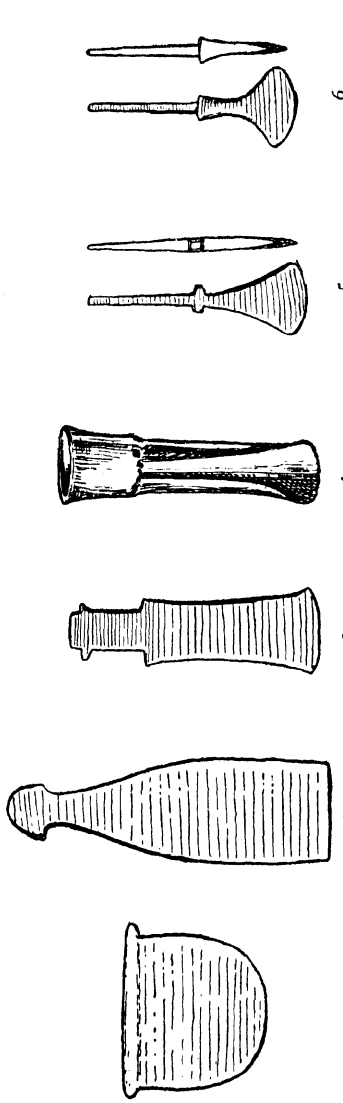


Fig. 5. (1) T axe, Egypt, Old to Middle Kingdom. $\frac{1}{2}$
 (2) Egyptian round-headed adze. $\frac{1}{2}$
 (3) Lug adze, Sicily, Late Bronze Age. $\frac{1}{2}$

(4) Socketed gouge, Heathery Burn cave. $\frac{1}{2}$
 (5) Tanged chisel, early type, England. $\frac{1}{2}$
 (6) Tanged chisel, later type, England. $\frac{1}{2}$

shoulders have become definite lugs, projecting on either side, a type belonging for the most part to the Hallstatt Iron Age. Its growth, however, interlocks with that of the Sardinian flat celts with two lateral loops already mentioned in discussing palstaves (90).

CHISELS AND GOUGES

Like the adzes, the chisels follow closely the evolution of the celt; the essential feature is the narrowness of the blade. We thus have flat chisels, flanged chisels, flanged chisels with a stop-ridge (very narrow palstaves) and socketed chisels as well as lugged chisels. Late in the Bronze Age of Italy, France and Great Britain tanged chisels appear, probably developed out of shouldered chisels such as we found in most ancient India⁽⁵⁾. The earlier variant, found even with palstaves, closely resembles the square-shouldered adze in outline, though the whole tool is naturally more slender, the tang relatively longer and more tapering, while the blade expands very markedly. In the latest Bronze Age the tang is not only narrower but also thinner than the portion below the shoulder; in fact it projects from a flat surface which would engage the end of a tubular wood or bone handle in which the implement must have been held (Fig. 5, no. 6).

Gouges are just chisels with a hollow edge. Implements of this type are known in stone from the Balkans and Russia and in flint from Scandinavia. Copper chisels with a concave blade are known very early in Mesopotamia, from Troy II and from Copper Age graves in South Russia. True socketed gouges, resembling socketed chisels with a concave blade, are very common in the Late Bronze Age all over Europe. But it will be remembered that gouges with the sockets formed by

rolling over the metal to form a tube have been found in a Dalmatian hoard. In general it should be noted that socketed chisels and gouges spread more rapidly and earlier than socketed celts (axes). For example, a lake village at Alpenquai near Zurich yielded five socketed chisels and one socketed gouge but no socketed celts; their place was taken by twenty-seven examples of the supposedly older winged type.

AXES (SHAFT-HOLE AXES)

It is curious that the modern type of axe-head that fits on to, not into, the shaft had a very limited distribution down to the later Iron Age. The expedient of providing a hole in the axe-head, parallel to the blade, was indeed known in Mesopotamia in prediluvian times⁽⁸⁾. It was also adopted in Crete and the Aegean islands, in Hungary and Russia at the beginning of the Metal Age in each area and occasionally in Scandinavia, Sicily, Southern Italy, Sardinia and Anatolia. On the other hand, this practical type of metal axe-head was, apart from stray imports, never adopted in Egypt nor yet in any part of Central or Western Europe till late in the Iron Age. Even in Hungary the shaft-hole axe was practically ousted by the socketed celt in the Late Bronze Age.

The shaft-hole axe is apparently a Sumerian invention. Certainly before 3000 B.C. the Sumerians were casting excellent axe-heads with a tube for the shaft reinforced by rings around it and a ridge at the back opposite and parallel to the blade (Fig. 6, no. 1). Of course the manufacture of such an axe required the use of a two-valve mould and a movable core; probably the ridge at the back was originally suggested by the seam, though in practice enlarged to give additional strength at a

weak point. Allied types were soon adopted also in Syria. There and in Mesopotamia a curious battle-axe with a very narrow blade was in use during the third and second millennia. The South Russian and Hungarian copper axes for the most part resemble the Sumerian in having a tubular shaft-hole clearly distinguished in profile from the blade (Fig. 6, no. 3). Viewed from above, however, it is seen that the sides of the blade (meeting naturally at the edge) form tangents to the shaft-hole. This peculiarity they share with the early Aegean axes. But such have no tubular extension round the shaft-hole and so look rather like extravagantly thick celts with a perforation joining their sides near the end. The Sicilian and some Russian types conform to the Aegean pattern. The Hungarian axes of the Middle Bronze Age, however, are extraordinarily like mature Mesopotamian types.

TRANSVERSE AXE: SHAFT-HOLE ADZE

Side by side with the weapon described at the beginning of the last paragraph, the inhabitants of the Tigris-Euphrates valleys from the earliest historical periods to the beginning of the Iron Age used an implement identical with the foregoing in respect of its tubular shaft-socket but with the blade turned at right angles to the shaft (Fig. 6, no. 2). This odd type was confined to Babylonia and Assyria with the exception of one specimen from a grave in the Kuban valley north of the Caucasus and one from Syria.

DOUBLE-AXE

The Minoans of Crete preferred an axe with two blades in the same plane and the shaft-hole midway between them. This weapon, which was possibly derived

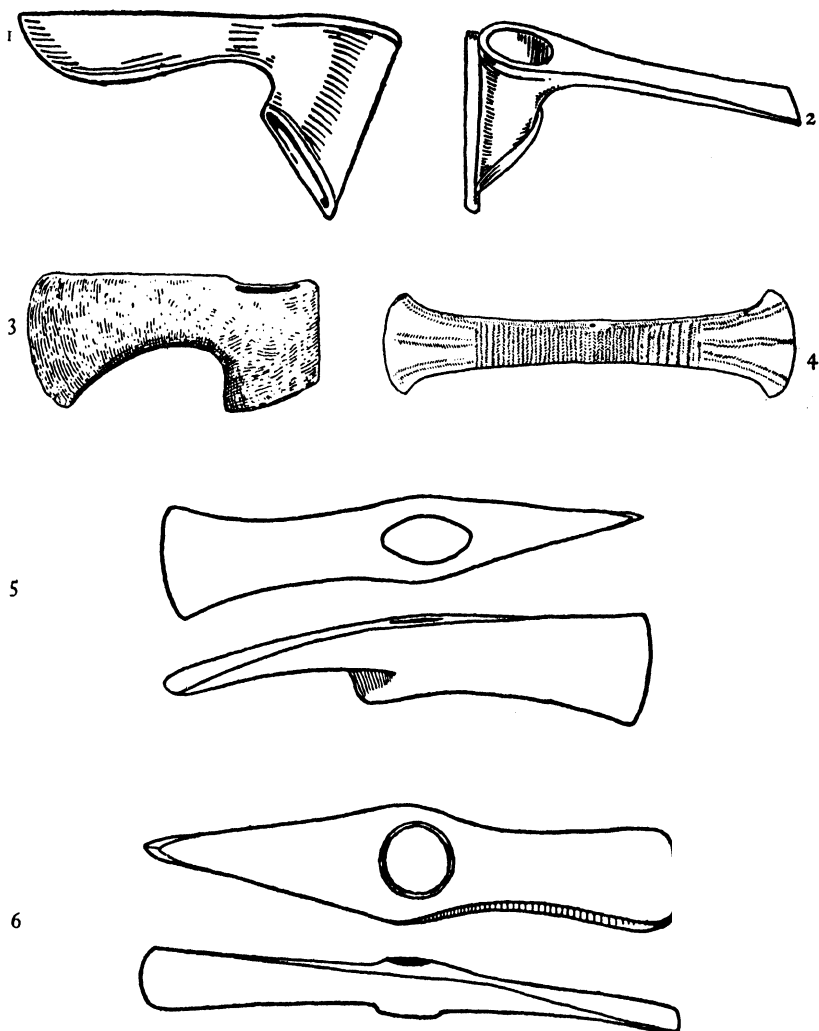


Fig. 6. (1) Early Sumerian axe, Ur.
 (2) Sumerian transverse axe, Ur.
 (3) Copper axe, Hungary.
 (4) Symbolic double-axe, Rhine.
 (5) Axe-adze, Crete, Middle Minoan.
 (6) Axe-adze, Hungary, "Copper Age". All $\frac{1}{4}$

in the last resort from Mesopotamia, became a cult symbol in the Minoan religion and was in practical use throughout the Aegean world from Early Minoan times. There are isolated examples from Hungary, South Russia and Sardinia, the latter with a tubular extension of the shaft-hole. In France, Switzerland and Germany a few double-axes of copper are known whose central perforation is too small to take a real shaft. They must then be symbolic and perhaps served as ingots or units of weight (p. 53). In the same connection we may mention an odd implement manufactured in Saxo-Thuringia during the Early Bronze Age. It resembles a double-axe in having two rather blunt blades in the same plane and a shaft-hole between them, but its edges are absurdly narrow⁽⁴¹⁾.

AXE-ADZE

In the Aegean⁽¹²⁾ we find from Early Minoan times a tool resembling a double-axe in which one blade has been twisted round till it lies transversely to the shaft and the other blade (Fig. 6, no. 5). A similar type is known from Persia and there is an example from the Kuban which, owing to the character of the shaft-tube, looks exactly like a combination of the two Sumerian axe-types on a single shaft. Axe-adzes are distinctive of the Copper Age of Hungary⁽⁴¹⁾. Here, it is said, the shaft-hole has not been made by casting but by punching through the red-hot metal. Later the implement reached Sardinia, perhaps from Hungary since the Sardinian examples all have a short tubular projection round the shaft-hole, a feature noticeable on many Hungarian specimens (Fig. 6, no. 6) but strange to the Aegean series. Contemporary with the axe-adzes in Hungary was a sort of axe-hammer that might have been

made by breaking off the transverse blade of an axe-adze near the shaft-hole.

B A T T L E - A X E S

This designation is conventionally restricted to a group of axes with spikes or knobs for the butts that are virtually confined to Hungary and Scandinavia. In Hungary there are two main types: in one the blade expands slightly towards the edge while the butt terminates in a disc. During the Middle Bronze Age this disc is flat or slightly convex; in the Late Bronze Age a large spike projects from it. The other type, confined to the Middle Bronze Age, has a very narrow blade, a long tube for the shaft and a fan-shaped butt. Both types may be richly decorated with engraved scroll patterns. The comparatively rare Danish battle-axes are considerably more massive and generally have a knobbed butt. The majority belong to the Middle Bronze Age and are ornamented with engraved spirals.

D A G G E R S

Almost more important for typological chronology than the celts are the daggers, rapiers and swords. The first-named weapons, many of which also served as knives, were current from the beginning of the Metal Age throughout the Old World. The important features in the dagger are the shape of the blade in plan, the provision made against crumpling up under the weight of a thrust (securing longitudinal rigidity) and the attachment of the hilt. The most primitive form of dagger has a roughly triangular blade that is nearly flat on both faces. Triangular daggers are as a rule extremely short, very rarely attaining a length of 6 inches. Any increase in the length must be accompanied by an

inconvenient widening of the base if the weapon was not to buckle under the weight of the thrust, unless the increased length were counterbalanced by a thickening of the blade. And, as the dagger was a stabbing weapon, the weight of the blade had to be kept down to preserve the proper balance. A considerable increase of length was, however, possible if the edges were kept parallel for some distance below the hilt before tapering off to a point. This produced the so-called ogival dagger (Fig. 7, no. 7). Both types could be cast in an open mould.

An extension of the blade without undue increase in width, thickness or weight was, however, permitted by casting a thick stout ridge running down the centre—of course in a two-piece mould. This central ridge is termed a midrib and greatly diminished the danger of buckling without affecting the penetrating power (Fig. 7, nos. 4, 5).

All daggers were provided with hilts of wood, horn, ivory or metal. Except in certain Copper Age types the hilts were affixed to the blades by rivets. The hilt, consisting either of a single piece, slitted longitudinally to slip over the blade, or of two pieces, united by nails or lashings, might be attached directly to the butt of the blade or on to a tongue-like projection of the latter, termed a tang. This gives a distinction between tanged and tangless daggers. The tang may be either wiry, in fact a sort of prolongation backwards of the midrib, or flat, but is always narrower than the butt from which it projects like a neck with shoulders on either side. The butt or heel may be either a straight line along the widest part of the blade forming the base of the triangle, or a triangular, trapeze-shaped or semicircular projection of the blade behind that line. When neither rivets nor

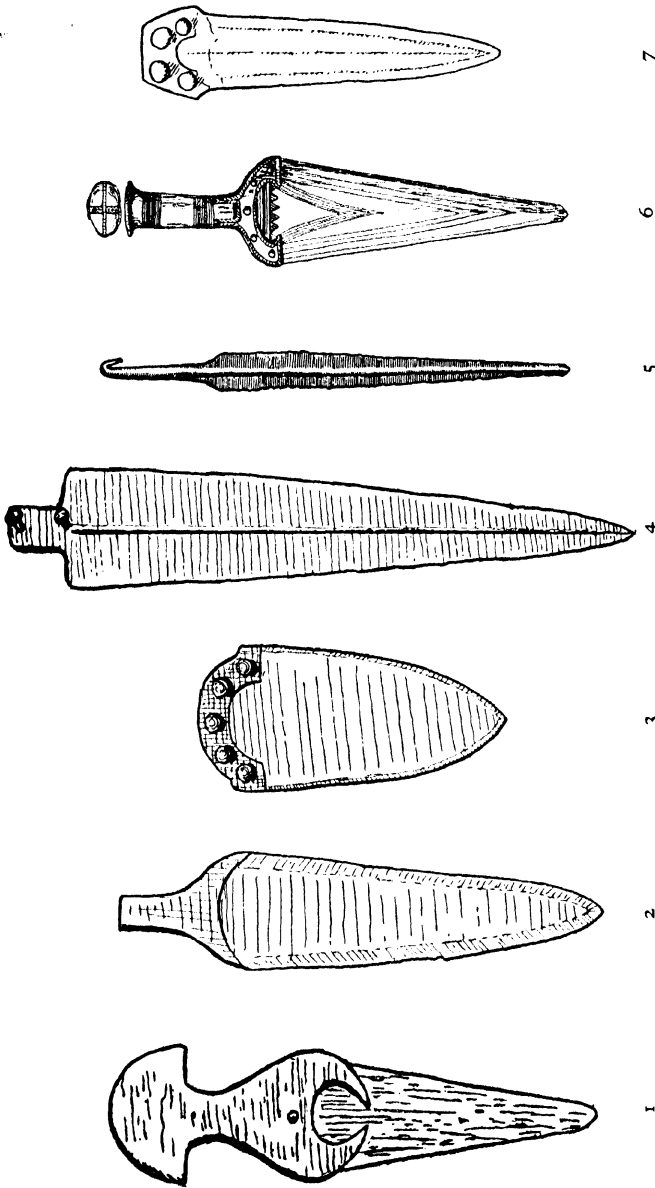


Fig. 7. (1) Predynastic flat dagger with handle. $\frac{1}{2}$
 (2) West European dagger, England. $\frac{1}{2}$
 (3) Round-heeled dagger, England, Early Bronze Age. $\frac{1}{2}$
 (4) Asiatic tanged dagger, Ur, early Sumerian. $\frac{1}{2}$
 (5) Cypriote dagger from Hungary. $\frac{1}{2}$
 (6) Bronze-hilted dagger, Bohemia, Early Bronze Age. $\frac{1}{2}$
 (7) Ogival dagger, South Germany, Middle Bronze Age. $\frac{1}{2}$

tang were employed to secure the hilt, the backward projection of the blade had to be relatively long to prevent wagging. In a curious Copper Age dagger from Western Europe (Fig. 7, no. 2) it is so long as to resemble a tang, but, since its edges form continuous lines from the base of the blade proper, this type should be assigned to the tangless class. In Egyptian tangless daggers, most Aegean types, and all continental European models the broad base of the hilt enveloped the butt on either side leaving a semicircular space in the middle (Fig. 7, nos. 1, 3, 6). This feature is traceable even on the hilts of flint blades in predynastic Egypt. It is conspicuous on bronze-hilted blades in Europe (Fig. 7, no. 6) and is recognizable on many others, whose hilts have perished, by the marks they may have left—a feature always to be looked for as soon as the blade is found. In the case of Asiatic daggers, which are nearly always tanged, no similar overlapping is observable. Often, however, a metal ferrule is fitted over the butt of the blade and the base of the hilt to mask and strengthen the join.

The earliest known Egyptian dagger, dating from Middle Predynastic times, is flat and triangular with a triangular heel, so that the blade as a whole is rhomboid. The earliest Mesopotamian daggers, on the contrary, are tanged and generally strengthened with a midrib (Fig. 7, no. 4). Very early specimens are already ogival in outline. Throughout Asia Minor as far as Troy II daggers of the same general pattern are current.

In Crete some Early Minoan daggers are flat and reminiscent of predynastic Egypt, but the midrib was soon employed, and examples with a broad, flat tang are quite early. The midrib was very pronounced also in Cypriote and Cycladic daggers. In Cyprus a very

curious form grew up in which the midrib was prolonged into a long tang bent over at the top (Fig. 7, no. 5). The type, which appeared already in Early Aegean times and lasted till the Late Mycenaean period in the island, was exported to Palestine, Syria, Anatolia and Hungary⁽¹⁸⁾. Weapons, of very similar form but with slits in the blade, as if they had been hafted as spear-heads, are known from the Cyclades and Troy II⁽⁸⁾.

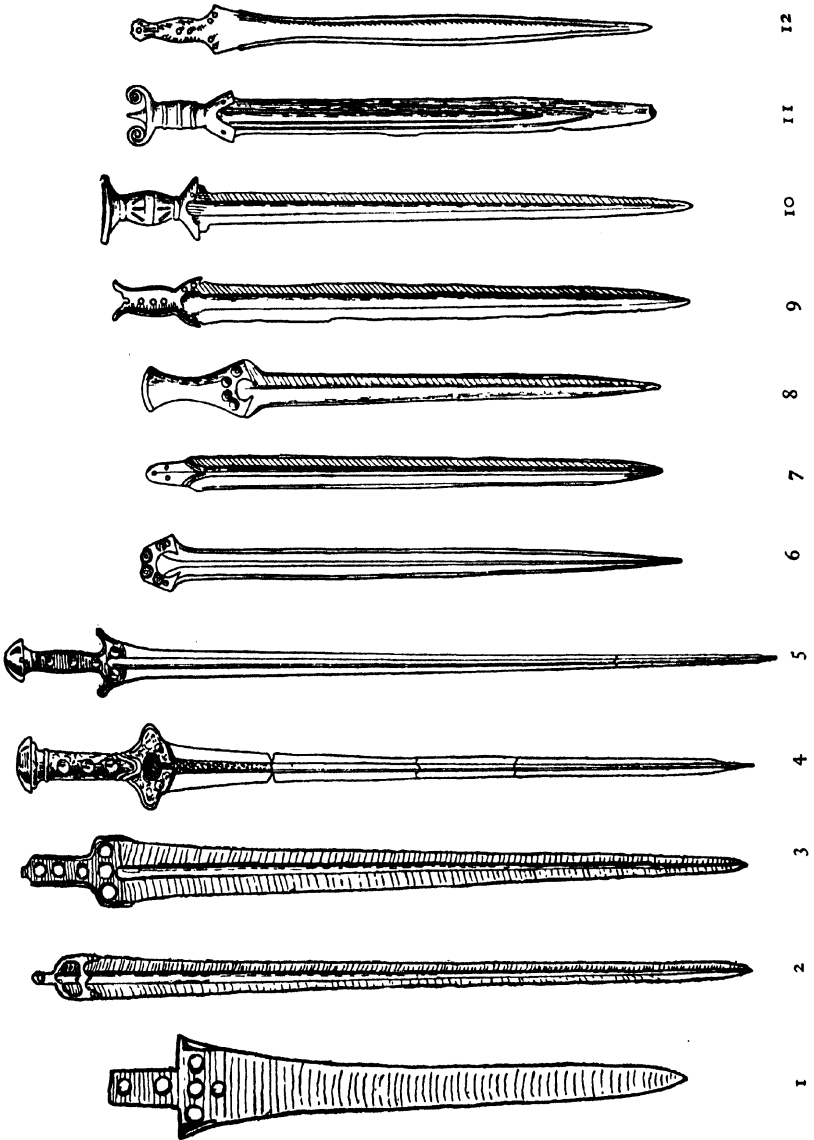
In Middle Aegean times ogival daggers were in use both in Crete and by the Minyans of Greece. In M.M. I deposits we meet a tanged ogival dagger with slight flanges round the shoulders and bordering the tang. It formed the starting-point for an important series of daggers and rapiers of later Minoan times. The flanges, of course, served to keep in place the plates of wood or ivory that formed the grip of the hilt.

The regular series of continental European daggers begins in the Early Bronze Age with a small flat triangular round-heeled blade, often adorned with groups of grooves parallel to the edges (Fig. 7, no. 3). Before the end of the period such weapons were being provided with hilts of bronze, cast separately, in North Italy, the Rhone valley and Central Europe (Fig. 7, no. 6). In Germany imitations were manufactured with hilts cast in one piece with the blades. From Brittany and England a couple of contemporary daggers have survived whose wooden hilts were studded with hundreds of tiny gold nails.

During the Middle Bronze Age an ogival dagger or short sword was evolved out of the foregoing types in the Rhone valley, preserving their characteristic decoration, rounded heel and flat section. The standard Central European type of this period, however, may have had a different origin, for it has an angular trapeze-

Fig. 8. Rapiers and swords. All $\frac{1}{8}$

- (1) Mycenae, Shaft Graves, M.M. III, type I.
- (2) Mycenae, Shaft Graves, M.M. III, type II *a*.
- (3) Mycenae, Shaft Graves, M.M. III, type II *b*.
- (4) Crete, Zafer Papoura, L.M. III, cruciform guards.
- (5) Crete, Zafer Papoura, L.M. III, horned guards.
- (6) South-western Germany, Middle Bronze Age.
- (7) Hungary, Late Bronze Age.
- (8) Bavaria, Middle Bronze Age.
- (9) Hungary, Late Bronze Age.
- (10) Mörigen sword, Switzerland.
- (11) Antennae sword, Switzerland.
- (12) Hallstatt sword of bronze, Early Iron Age, Austria.



shaped butt, and often a distinct, if generally broad and low, midrib and lacks all ornamentation (Fig. 7, no. 7). In the earlier specimens⁽⁴³⁾ the heel is relatively broad and carries six rivets; later it is narrowed down and the number of rivets reduced till in the Late Bronze Age only two survive. In the latter period, too, a few specimens with flanged tangs, inspired by Mycenaean models, appear.

RAPIERS

Rapiers, as noted, appear to be an Aegean invention. Orientals shrank from the close fighting in which alone such weapons are useful, while the continental barbarians of Europe lacked as yet the metallurgical skill necessary for their forging. The earliest known rapier, recently found at Mallia in Crete and dating from M.M. I (*circa* 1950 B.C.) is over 90 cm. long. The blade has a stout, wide midrib. The hilt, of ivory plated with gold, meets the blade in a slightly convex line (an Asiatic as opposed to Egyptian feature) and is surmounted by a long pear-shaped pommel of crystal (also very Sumerian looking⁽¹³⁾). The regular Minoan series only begins some centuries later with the Shaft Graves of Mycenae belonging to the close of M.M. III (about 1600 B.C.). By that date three distinct types are known: (I) a relatively flat blade of elongated ogival outline with a flat tang (Fig. 8, no. 1); huge tapering blades with a skewer-like midrib terminating either, (II *a*) in a round heel from which projects a short narrow tang (Fig. 8, no. 2), or (II *b*) in a square butt with wider tang, both shoulders and tang being flanged (Fig. 8, no. 3). All were balanced by heavy pommels of crystal or semi-precious stone to receive which a spur projects from the tang of II *b*. The latter's grip con-

sisted of plates, let in between the hilt's flanges and held in place by large gold-capped rivets. The grip of II *a* was supported by gold mounts fitting over the heel. These already have projections at the shoulder serving as guards to divert from the gripping hand the adversary's weapon when the rapier was parrying a thrust. A short length of the edges, just below the butt, was intentionally blunted so that the thumb and forefinger of the swordsman's hand might rest there—a feature known as the *ricasso*⁽³³⁾.

Later, the flanges on the shoulder of type II *b* were developed into lateral horn-like (L.M. II and L.M. III *a*) or cruciform (L.M. III) projections likewise serving as guards⁽³¹⁾ (Fig. 8, no. 4). Late in L.M. III *a*, too, the flange was carried right round the hilt so as to support also the pommel. One or two rapiers of the last-named variety have been found north of the Alps towards the close of the Middle Bronze Age.

The continental European rapiers that begin in the Middle Bronze Age might be regarded as mere prolongations of the ogival dagger. The early specimens have six rivet-holes for the attachment of the hilt (Fig. 8, no. 6). Such weapons, which rarely reach a length of 60 cm., are common in Central Europe and Scandinavia and even reach Great Britain. In the latter country two-piece moulds for their manufacture have actually been found. As in the case of the daggers, the butts of these weapons grew narrower as time went on, yielding in the Late Bronze Age a form with a tapering butt and three rivet-holes, well represented in Southwest Germany, Switzerland and France and occurring sporadically in Hungary and Italy (Fig. 8, no. 7). A contemporary Italian and French variant has a rod-like tang terminating in a hook rather like a Cypriote

dagger. The above series was, I believe, inspired by Aegean models. Yet in South-eastern Spain we find, associated with Early Bronze Age celts and daggers, a short flat sword that is clearly just a magnified dagger, preserving the comparatively flat section and round heel of the Early Bronze Age type⁽²⁾.

Some of the above-mentioned rapier types in Italy, Central Europe and Scandinavia are provided with bronze hilts, cast on, or cast in one piece with, the blade. Early in the Middle Bronze Age (Reinecke B) the hilts are cylindrical or, in South-west Germany, concave (Fig. 8, no. 8). Later in the same period (Reinecke C) a type with octagonal hilt, richly decorated with engraved patterns, arose in the Upper Danube basin. Contemporary Danish sword-hilts are superbly decorated with inlaid spiral patterns. Still later (Reinecke D) the hilts begin to swell out in the middle, but concurrent changes in the shape of the blade indicate that we are now dealing with a new weapon, the cut-and-thrust sword.

SWORDS

All the weapons hitherto described were designed primarily for thrusting. None the less some of the bronze-hilted types from Scandinavia and Central Europe could also be swung. A real sword that can slash as well as thrust must have its centre of gravity shifted towards the blade, while for thrusting the weight had to be in the pommel. Certain long wide blades with a bulge half-way up and a short flat tang, found in Denmark, North Germany, Western Hungary and Upper Italy, seem to be aiming at this result. But a stroke imposes much greater strain on the joint between hilt and blade than does a thrust. The short-tanged type

just described could no more grow into a reliable sword than the round- or square-heeled rapier.

True swords seem to begin in a tanged blade whose flat tang and round shoulders are bordered with flanges, as in the Minoan rapiers classed as type II *a*. The form is certainly inspired by rapiers of this family, but the northern and Italian blades in question differ from the Aegean in that the edges are nearly parallel instead of tapering, and the midrib wide and flat so as not to impede a cut (Fig. 8, no. 9). In what Kossinna⁽³⁸⁾ regards as the earliest type, appearing in Denmark according to Sophus Müller⁽²⁹⁾ in his period 2, there are no rivet-holes in the tang though there may be four in the heel; lead solder was sometimes used to keep in place the horn plates of the grip. This type occurs principally in Scandinavia, North-eastern Germany and Upper Italy. Some Central European swords with rivet-holes in the tang can hardly be later. They begin in the closing phase of the Middle Bronze Age and flourish in the Late Bronze Age. During the latter phase the blade tends to widen out to a leaf-shape—a barbarous weapon adapted almost exclusively for hacking. In late versions (Reinecke E) nicks are seen just below the shoulder to guard the thumb and forefinger resting on the blunted edge (*ricasso*) above⁽³³⁾. Others, however, say that the nicks served to prevent the blade joggling out of its scabbard. Sometimes also a spur projects from the end of the tang to hold the pommel. In some West European swords, belonging to a period subsequent to the pure Bronze Age, some of the rivet-holes are replaced by slits. In many of these West European swords the lower end of the blade has been narrowed down, apparently by filing away part of a leaf-shaped blade, with a most curious effect like a carp's tongue.

Early versions of the flange-hilted leaf-shaped sword without any *ricasso* or even marked swelling in the blade are very common in Northern and Central Europe, Styria, Carniola and Bosnia and, as already remarked, even reached Greece and Egypt before 1200 B.C.⁽³²⁾. The immense majority of the late versions, however, come from west of the Rhine, particularly from France and Britain. In the latter country they, with other exotic types, characterize the local Late Bronze Age which is really largely contemporary with the Early Iron Age of Central Europe. There, early in the Hallstatt period, our bronze swords had undergone a further modification, losing altogether the flanges round the hilt and acquiring instead a widened extension thereof to take a conical pommel. This is the true Hallstatt sword, represented by only a few stray examples in Britain (Fig. 8, no. 12).

Parallel to the flange-hilted sword go certain developments of the bronze-hilted rapiers whose blades have been assimilated to the leaf-shaped order. Two important types with a swelling bronze grip of flattened oval cross-section were developed in Switzerland. In one variant, termed the antennae sword (Fig. 8, no. 11), the pommel consists of a stout bronze ribbon bent into opposing spirals. The type is common on both sides of the Alps and is found eastwards as far as Macedonia and Slovakia, northwards into Scandinavia and westwards as far as Lincolnshire. The other Swiss sword, known as the Mörigen or Ronzano type, has a pommel shaped like an oval saucer (Fig. 8, no. 10). Both types begin in the latter half of the Late Bronze Age, Reinecke E, and last into the succeeding phase of the Iron Age. Contemporary with them in Hungary went handsome swords with a swelling grip decorated with raised bands

(representing the thongs that bound the plated hilts of the tanged swords) and surmounted with flat or saucer-shaped pommels. Such swords were exported from Hungary to Upper Italy, Eastern France, the Rhine valley and Eastern Galicia.

C H A P E S

The rapiers and swords just described were normally carried in wooden sheathes which have naturally perished. We possess, however, some of the bronze chapes in which the scabbards terminated. The Middle Bronze Age chapes resemble little diamond-shaped snuffboxes or end in a loop (Fig. 9, no. 1). The Hallstatt scabbards, on the contrary, ended in weird "winged chapes", a few specimens of which reached Britain (Fig. 9, no. 3). The type more common in Britain and France resembled the last named but was longer and lacked the great lateral wings (Fig. 9, no. 2).

H A L B E R D (D O L C H S T A B)

The halberd is a peculiar weapon, distinctive of the Early Bronze Age in certain parts of Europe. It is essentially a triangular dagger hafted at right angles to a staff. Indeed a halberd can often be distinguished from a dagger only by observing that the mark left by the haft runs across the blade. Frequently, however, the halberd blade is asymmetrical, i.e. the triangle that would enclose it is scalene and not isosceles (Fig. 9, no. 5).

The weapon is believed to have originated in Southern Spain or Portugal, since certain flint blades found on Copper Age sites there may be best explained as halberds. It is in any case a regular element in the furniture of Early Bronze Age graves along the South-east coast of the peninsula; thence it seems to have reached Upper

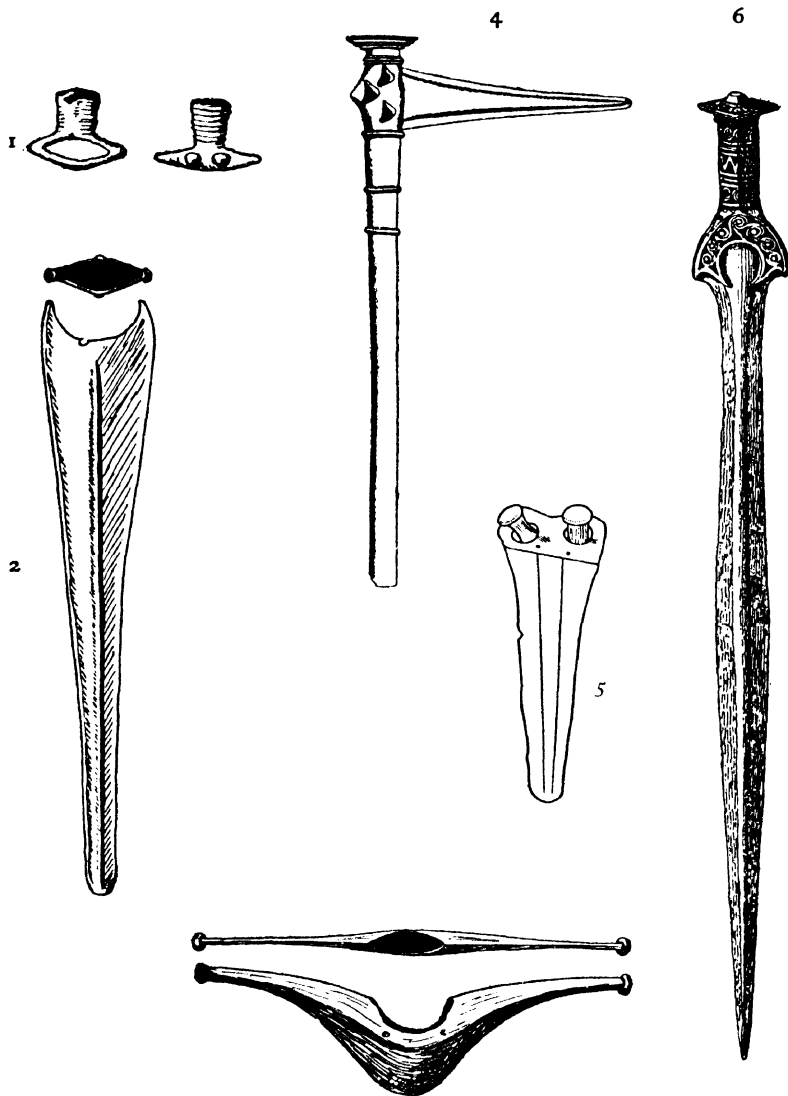


Fig. 9. (1) Looped chape, Bavaria, Middle Bronze Age. $\frac{1}{4}$
 (2) Chape, Scotland, Late Bronze Age. $\frac{1}{4}$
 (3) Winged chape, Scotland, Hallstatt pattern. $\frac{1}{4}$
 (4) Bronze shafted halberd, Early Bronze Age, Germany. $\frac{1}{8}$
 (5) Halberd blade, Italy, Early Bronze Age. $\frac{1}{4}$
 (6) Middle Bronze Age sword, Denmark. $\frac{1}{8}$

Italy, since a few specimens have been found there, and the weapon is depicted, brandished by warriors, on the rocks of the Ligurian Alps. Finally, there is one specimen, markedly asymmetrical and much incurved on the lower edge, from Shaft Grave IV at Mycenae. This halberd, though doubtless inspired by the western group, was a local product since its big rivet-heads have been gilded⁽¹²⁾.

Westward from Spain the device was transmitted across the Atlantic to Ireland. A large number of specimens, mostly of copper, are known from the island. Many have a peculiar scythe-like outline. From Ireland a few halberds reached England and Scotland. Thence the type journeyed across the North Sea and up the Elbe where it was adopted in Saxo-Thuringia. Some early halberd blades here are decorated with incised lines like the contemporary daggers. Subsequently a localized variant was created: the haft was sheathed in metal and its head enveloped in a bronze cowl into which the blade was fitted. At first the blade was attached by rivets; in later specimens the cowl has been cast on but shows imitation rivet-heads moulded on its surface (Fig. 9, no. 4). These Central German halberds found their way, presumably by trade, to Sweden, Lithuania and Slovakia. But the weapon was never adopted in Silesia, Czechoslovakia, Hungary, South-western Germany or France.

S P E A R - H E A D S

While metal was scarce, missile weapons would naturally be tipped with flint or horn points. At the same time the shorter forms of dagger could easily be converted into lance-heads by attachment to a long shaft. A blade intended specifically for a spear-head,

however, would rather have the shape of a laurel or willow leaf. Some sort of tang was usually needed to facilitate union between the blade and the shaft. In Mesopotamia⁽⁸⁾, where the shafts (or at least the fore-shafts) were normally made from hollow reeds, the tang was narrow and projected from a marked shoulder at the base of the blade that would engage the outer edge of the reed. The tang in the most popular variant is rectangular in section and tapers off below like a modern poker point. Hence the name "poker-butted spear-head" (Fig. 10, no. 1). The type begins in Sumer before 3000 B.C. and is found also in Elam, North Syria and beyond the Caucasus. In South Russia it persisted throughout the Copper Age into the belated Late Bronze Age (contemporary with the Hallstatt period⁽¹⁰⁵⁾).

In Egypt a specialized spear-head of metal first appears in early dynastic times⁽⁶⁾. The one specimen, known to the author, seems really to conform to the tanged pattern, though it is very rough, but is distinguished by a very broad ferrule of sheet copper that originally encircled both the split end of the shaft and the contained tang. But metal spear-heads are very rare in Egypt till New Kingdom times.

In the Cyclades during the Early Aegean period the shaft of split wood projected a long way down the blade, to which it was attached by thongs. A pair of slits were accordingly left in the blade to receive the bindings⁽²⁾. From the islands the type spread to Troy II and across the Greek mainland to Levkas⁽¹⁵⁾. Towards the close of Middle Helladic times this slitted spear-head gave birth to an odd form, confined to mainland Greece, in which the tip (or perhaps half the tip) of the shaft fitted into a shoe-like socket cast on one face of the blade. The principal development of the spear-head

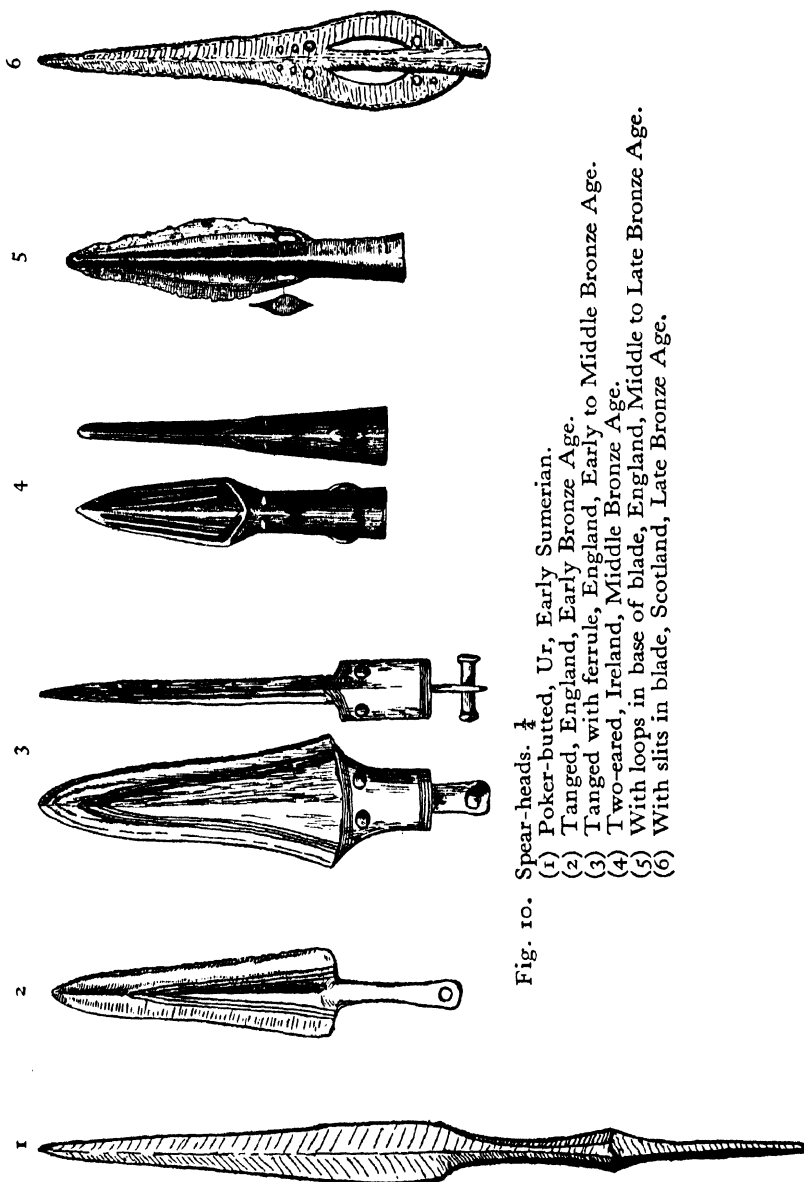


Fig. 10. Spear-heads. $\frac{1}{4}$
 (1) Poker-butted, Ur, Early Sumerian.
 (2) Tanged, England, Early Bronze Age.
 (3) Tanged with ferrule, England, Early to Middle Bronze Age.
 (4) Two-eared, Ireland, Middle Bronze Age.
 (5) With loops in base of blade, England, Middle to Late Bronze Age.
 (6) With slits in blade, Scotland, Late Bronze Age.

in the Aegean, however, starts with an Early Minoan type ending in a broad flat tang originally riveted into the shaft. During Middle Minoan times a tubular socket was formed by bending the edges of the tang round a mandril. The tube was later strengthened by forcing a cast ring over its lip.

In Britain there are some kite-shaped blades of Early Bronze Age date terminating in a long, narrow, flat tang (Fig. 10, no. 2). In at least one instance a ferrule had been fitted over the end of the shaft in which the tang was embedded so as to project over the blade (Fig. 10, no. 3). Greenwell has suggested that a true socketed spear-head then developed through casting the ferrule in one piece with the blade and suppressing the tang⁽³⁴⁾. The Arreton Down type of spear-head (so-called from a hoard found at that place in the Isle of Wight) conforms exactly to what might have been expected to result from this process. The majority of British spear-heads of the Middle Bronze Age, however, agree with contemporary continental types. The blade is shaped like a laurel leaf, and the tube of the socket (formed by core-casting) extends well into the body of the blade and is continued externally as a midrib to the point. This form of head appears in Scandinavia, Central Europe, Hungary and Italy at the beginning of the Middle Bronze Age. In the Late Bronze Age it tended to give way to a form with lanceolate blade. Both types were secured to the shaft by a pin through a hole in the socket.

In Britain evolution followed different lines, a pair of loops developing on the socket through which thongs wrapped round the shaft could pass. These thongs took the place of rivets. In the earlier examples, associated in hoards with the older group of palstaves, and so of

Middle Bronze Age date, the loops stand near the mouth of the socket (Fig. 10, no. 4). This type is purely British, the few examples from North France being certainly imports from across the Channel, though single-eared spear-heads occur in the "Copper Age" of South Russia. Later the loops approach the base of the blade and finally join on to it (Fig. 10, no. 5). Examples even of the last phase are associated with rapiers. In our Late Bronze Age the loops have become either small eyelets near the base of the blade or semicircular slits, generally in the swelling part of a lanceolate blade. The small eyelets may still have had the same functional value as the ancestral loops. They can be paralleled on Sicilian and South Italian spear-heads of bronze belonging there already to the Early Iron Age. The curious semicircular openings (Fig. 10, no. 6), however, can hardly have been designed for receiving binding thongs; there is in fact generally a rivet-hole in the socket of such spear-heads. The type doubtless originated in the British Isles though a derivation from the Early Cycladic slitted form has been suggested by Coffey (57). From Britain specimens were exported as far as Huelva in Spain (92), and the type somehow reached Central and Southern Russia. The idea was adopted and imitated there, moulds for the manufacture of the local variant having been found in the Ukraine (105).

ARROW-HEADS

Metal could only be used for arrow-heads when it was very cheap. Actually flint and bone arrow-heads remained current nearly everywhere throughout the Bronze Age. In Egypt and Crete flint lunates were employed to form transverse heads. In Middle Helladic and Mycenaean tombs we find superb hollow-based

(barbed) arrow-heads of flint or obsidian, and cruder variants on the same form are common in the Late Bronze Age urnfields of Central Europe. The finest stemmed and barbed arrow-heads of Britain and France belong exclusively to the Bronze Age. Barbed bone tips are also found in the Late Bronze Age of Italy and Central Europe.

Barbed metal arrow-heads of various patterns but always with a long tapering tang are known from Egypt, Mycenaean Greece and Central Europe during the Middle and Late Bronze Age. In the last-named area the spur-like tang gradually gave way to a tubular socket. The Early Bronze Age graves of South-eastern Spain have yielded a peculiar barbless form with broad leaf-shaped head and a long tail-like tang. It must be remembered that bronze was still used for arrow-heads quite late in the Iron Age.

KNIVES

Many flint knives of the Stone Age had probably been simply backed with wooden handles. Ground stone knives mounted in the same manner are known in Eastern Europe and Asia. A translation of such into metal would be just a strip of copper sharpened along one side by hammering. Such knife-blades with one or two rivet-holes in the back have actually been found in England, France and Central Russia, but generally in a Late Bronze Age context.

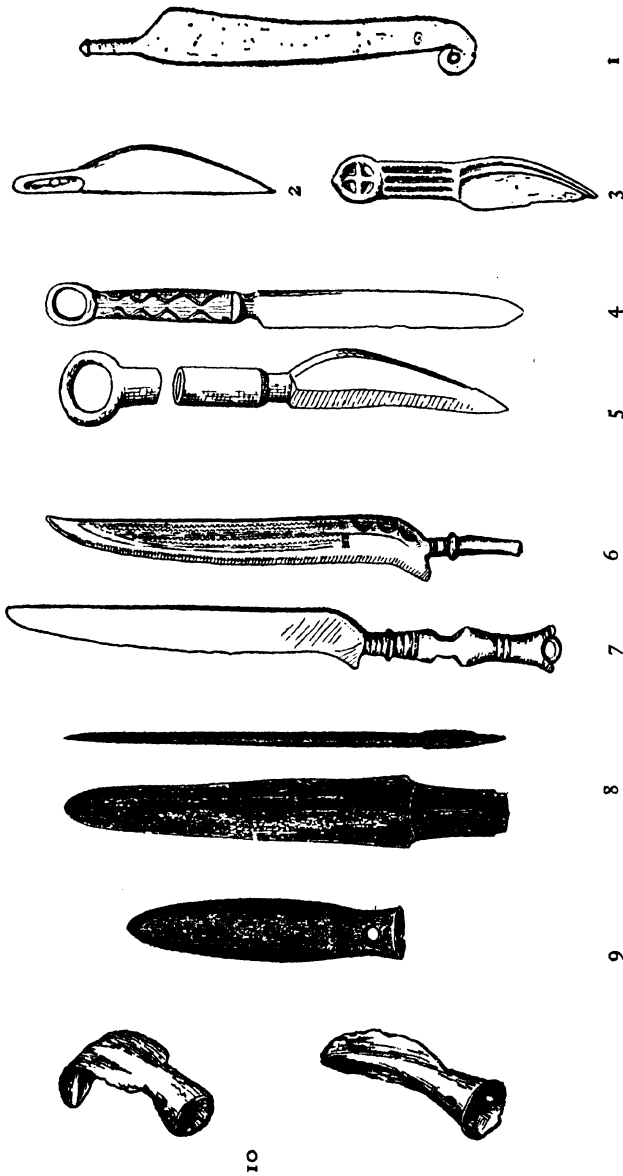
Such tools were extremely clumsy, yet it was no easy matter to attach a single-edged knife to a handle so that it should not waggle when pressure was put upon it. Hence single-bladed knives are a late feature. An early group, represented in Old Kingdom Egypt⁽⁶⁾ and Troy II⁽¹⁷⁾, solved the problem by prolonging the back

of the blade to form a narrow tapering tang on to which a tubular handle of wood or bone was fitted (Fig. 11, no. 1). In Greece such implements do not appear before Middle Aegean times. Then the hilt was attached by from three to five rivets (not all in a straight line) to a wide butt without the use of a tang⁽³⁾. Later a broad tang was used to support the handle.

In Central Europe single-edged knives appear first towards the close of the Middle Bronze Age. All have arched backs, the handle being either attached by a rivet to a spur continuing the line of the back (Fig. 11, no. 2) or cast in one piece with the blade. In the Late Bronze Age the variety of types is multiplied. The blade is either straight or recurved. The handle may be of bronze terminating in a loop and inlaid on either face with horn plates held in position by a series of metal tabs; alternatively a wooden handle was fitted into a tubular socket (Fig. 11, no. 5) or, as in the previous period, on to a long spur (Fig. 11, no. 6). In Switzerland was manufactured the curious variant of the latter group, with a section of solid metal where the ball of the hand rested, shown in (Fig. 11, no. 7). The type, that belongs to Reinecke's phase E, was exported as far as Silesia, Hungary and Central France⁽⁴¹⁾.

In Great Britain single-edged knives are virtually unknown. But it must be remembered that the short daggers could be, and doubtless were, used as knives. They are indeed often termed, very properly, knife-daggers. In fact some protodynastic Egyptian, Late Minoan and Early Bronze Age British "daggers" are rounded off at the point so that their use as daggers is excluded.

In the British Isles the round-pointed knives of the Early Bronze Age, that with their round heels and

Fig. 11. Knives. All $\frac{1}{4}$

- (1) Flame-shaped, Troy II.
 (2) Tanged, South Germany, Late Bronze Age D.
 (3) Bronze-handled, Bohemia, Late Bronze Age D.
 (4) Flanged, Bavaria, Late Bronze Age E.
 (5) Socketed, Alsace, Late Bronze Age E.
 (6) Tanged, Switzerland, Late Bronze Age E.
 (7) Swiss type, Late Bronze Age E.
 (8) Double-edged tanged, England, Late Bronze Age.
 (9) Double-edged socketed, England, Late Bronze Age.
 (10) Curved, Scotland Late Bronze Age.

numerous rivets are so patently allied to the more pointed "daggers", form the starting-point for two specialized knives of our Late Bronze Age. The first has a long blade and a short flat tang, nearly as wide as the blade, that generally bears two rivets (Fig. 11, no. 8). The second, but that it is found associated with the first, might be regarded as evolved therefrom by the addition of a ferrule like the socketed spear-heads of the Arreton Down class; for it is characterized by an elliptical socket with one or two pairs of rivet-holes, that looks just what might have developed out of such a combination with the hypothetical ferrule (Fig. 11, no. 9). Such forms, though commonest in the British Isles and probably native there, are also found in Northern France and as far south as Charente.

Related to our socketed knives is a curious socketed instrument whose leaf-shaped blade is bent round in a semicircle. Outside Great Britain the type is found in Normandy and perhaps Switzerland (Fig. 11, no. 10).

R A Z O R S

It is quite possible to shave with a flint blade, and some predynastic flints were undeniably utilized in this way. The early Egyptian metal razors exactly copy these flint forms. One type, confined to the Early Dynastic period, was rectangular with four bevelled edges. Another form, going back to Late Predynastic times, looks like a broad double-edged knife with a short tang. Probably most were sharpened along one edge only as is certainly the case with the specimens from Queen Hetep-heres' tomb. A very similar little implement has recently been found in early Sumerian tombs. The Mesopotamian razors, always unfortunately in bad preservation, are regularly found in pairs; it is uncertain

whether both edges were sharp. In the Aegean area the earliest certain razors date from the L.M. III period. The majority are one-edged (Fig. 12, no. 1) but there are double-edged specimens in which the handle was riveted directly on to the blade without a tang.

The majority of European razors belong to the same family. In the earlier graves of the so-called Siculan II period, containing Mycenaean vases imported from Greece, we find a long blade with slightly concave sides and an indentation at the lower end (Fig. 12, no. 3). The purpose of the indent was perhaps to allow the forefinger to feel the skin while shaving. In any case it is a prominent feature in nearly all European double-edged razors. In contemporary North Italian implements the indent is much more pronounced, and, above, a wide slit separates the two blades. An openwork handle, generally terminating in a loop and cast in one piece with the blade, was attached to these Italian razors (Fig. 12, no. 5). They belong to the Middle Bronze Age. Rather later a small group of razors appears in Franconia and Western Bohemia with a very broad double-edged blade, sometimes at least divided by a slit near the end, and an openwork handle cast in one piece with it (Fig. 12, no. 6). Crude razors of this pattern are found at a relatively later date in Holland and Eastern France (Nièvre and Rhône). But the contemporary Central European razors of phase E have already grown into developed horseshoe-shaped blades (Fig. 12, no. 7).

In Upper Italy, on the other hand, during the Late Bronze Age and first phase of the Early Iron Age (Villanova culture), the razor assumes a rectangular outline, preserving the indent in the lower end as an almost circular aperture and provided with a loop of

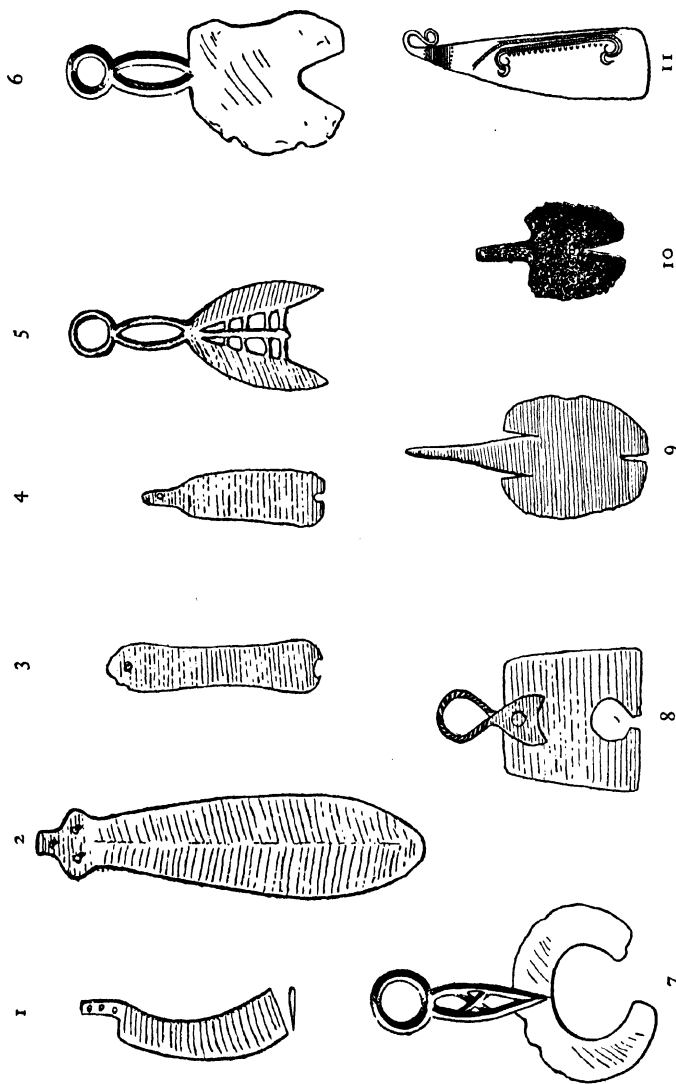


Fig. 12.

- (1) Minoan single-edged razor, Zafer Papoura.
- (2) Minoan double-edged razor, Zafer Papoura.
- (3, 4) Siculan II razors, earlier type.
- (5) Terremare razor, Upper Italy.
- (6) Double-edged razor, Bohemia.
- (7) Horse-shoe razor, South-west Germany.
- (8) Rectangular razor, Villanova.
- (9) Late Siculan II razor.
- (10) Double-edged razor, England.
- (11) Single-edged razor, Denmark.

All 4

twisted wire riveted on to the blade as handle (Fig. 12, no. 8). The same type is found in South Italy and Sicily, but in that island a type, derived from the earlier native form, but with wider blade, more pronounced slit between the edges and a flat tang for handle, is also encountered in the later tombs of the Siculan II period. Similar forms occur in Southern France (Ariège and Charente) and probably give a clue to the ancestry of our British razors⁽³⁵⁾.

The latter resemble a maple leaf in form. A tang to take the handle projects from the base of the blade and is often continued downwards by a wide midrib along its face. In the opposite end is a deep V-shaped indent and just behind it a circular eyelet. Though generally Late Bronze Age in date, one such blade, though without the round eyelet, was found with rapiers and palstaves in Scotland⁽⁶⁰⁾. It is generally believed that these razors belong to the group of foreign forms introduced into Britain by invaders arriving at the beginning of the Late Bronze Age. The affinities of our razors in any case seem to lie rather with Sicily and the Western Mediterranean than with the countries east of the Rhine.

While the standard European razors of the Bronze Age were double-edged, there is a series in Scandinavia with only one blade. Such are doubtless in the last resort derived from the normal Mycenaean implement (Fig. 12, no. 11, cf. 1).

TWEEZERS

Another surer but certainly more painful method of removing the facial hairs was to pull them out with tweezers. Depilatory tweezers, formed essentially of a bronze ribbon bent double and rather wider at the ends

than at the middle, were largely used in predynastic Egypt and precede razors in Crete and the Cyclades, appearing there in Early Aegean times. In Central Europe and Scandinavia, tweezers, allied to the foregoing, were adopted in the Middle Bronze Age, slightly preceding the razors, though curiously enough razors and tweezers are not seldom found together in the same grave. Such metal tweezers are very rare in Britain but appear at the same time as the razors in the Late Bronze Age.

A different type of tweezer, consisting of two strips of metal brazed together, was current in Mesopotamia and India about 3000 B.C. They are found as components of toilet-sets, hung on a ring together with a pricking instrument and an ear-scoop⁽⁸⁾. As their ends are very narrow, these Asiatic tweezers probably served a different purpose to the Egyptian, perhaps catching lice. Structurally, a curious pair of bone tweezers from an Early Bronze Age grave in England resembles the Asiatic group.

SICKLES

All metal sickles go back in the last resort to the so-called jaw-bone sickle formed by inserting serrated flint blades into the dental cavity of some domestic animal. No jaw-bones thus equipped have ever been found, but Egypt has yielded a wooden mount, armed with flints, shaped in imitation of a jaw-bone, and similarly formed clay sickles are common in prediluvian deposits in Mesopotamia. As a result of this origin a hollow arc-shaped cutting edge is universal in the metal sickles, but three main groups can be distinguished by the method of hafting the blade.

In the oldest Mesopotamian metal sickle the blade

was continued into a flat tang which was doubled over to form a loop. The same type is found in Anatolia in Troy VI, and a variant appears in the Late Bronze Age of the Caucasus and Transylvania.

In the commonest North European type, found also in Southern Germany, Bohemia, Eastern France and England, there is no tang. The blade is reinforced by a couple of ridges parallel to it on the back, and the handle is attached with the aid of a knob projecting on one face near the butt. It is therefore termed the button sickle (Fig. 13, no. 1). This type certainly goes back to the Middle Bronze Age.

During the Late Bronze Age it was replaced in France and Central Europe by a type of Italian or Hungarian origin. In the latter the form of the blade is the same, but the button is replaced by a wide tang that makes an angle with the blade. The handle was attached by a rivet and is kept in place by a pair of ridges running along the edges of the tang (Fig. 13, no. 2).

The socketed sickle may have been evolved out of the foregoing, since its tubular socket makes a similar angle with the blade. The type was certainly invented in the British Isles where it is common in hoards of the Late Bronze Age (Fig. 13, no. 3). Stray specimens, presumably British exports, occur beyond the Channel in Northern France, the Swiss lake-dwellings and Upper Italy. The device even reached Sardinia where a local variant on it occurs.

HARNESSES

The harnessing of animal motive power was, as already remarked, one of the most momentous achievements of the Bronze Age. Yet of all the gear that must have been used in the application of that new motive

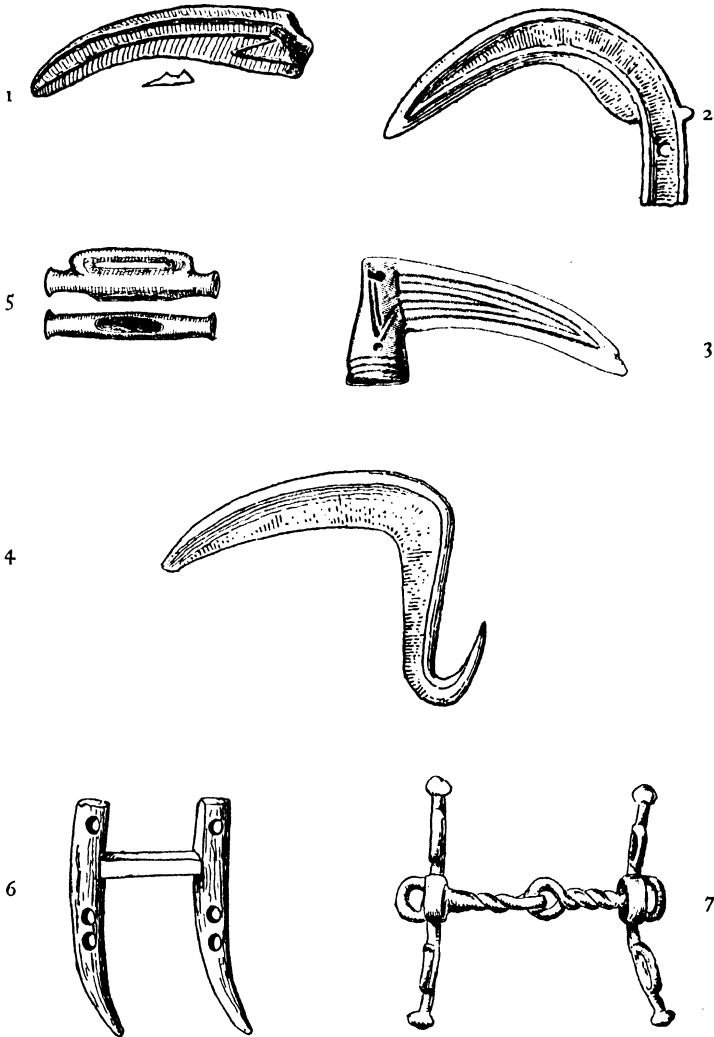


Fig. 13. (1) Button sickle, England, Middle Bronze Age.
 (2) Grooved sickle, Italy, Middle Bronze Age.
 (3) Socketed sickle, Ireland, Late Bronze Age.
 (4) Hooked sickle, Transylvania, Late Bronze Age.
 (5) Bugle-shaped object from harness, England, Late Bronze Age.
 (6) Reconstruction of bit with horn cheek-pieces and wooden bar.
 (7) Jointed bronze bit, Swiss lakes, Late Bronze Age. All $\frac{1}{4}$

power the only recognizable elements that have come down to us from Bronze Age Europe are bits, or to be exact, portions of bits.

It is still uncertain how the Sumerians controlled the asses that drew their early chariots. Even as late as the Eighteenth Dynasty in Egypt it is possible that the chariot horses were governed merely by nose-ropes; for though several royal tombs have yielded us chariots and harness, no bits have as yet come to light. The earliest known metal bit comes from a Late Mycenaean tomb at Mycenae. Like modern bits, it consisted of a jointed metal rod that passed between the horse's jaws. But in addition it was equipped at either end with flat pieces of metal, termed cheek-pieces, to which the reins were attached by loops. When the reins were drawn tight the cheek-pieces would compress the animal's jaws, the pain in the case before us being augmented by metal spikes on the inner faces of the cheek-pieces⁽⁶⁾.

No such metal bits are known during the pure Bronze Age of continental Europe. But from the "terremare" of Upper Italy and Middle Bronze Age deposits in Hungary, Germany and Sweden we possess pieces of tine or horn with several perforations that are believed to have been attached as cheek-pieces to the ends of a bar of wood or a stout twisted strip of hide that constituted the bit proper (Fig. 13, no. 6). Similar horn cheek-pieces become quite common in the Late Bronze Age and even reach Britain in company with other continental types. But in Switzerland and Scandinavia by that phase of the Late Bronze Age, termed by Reinecke Hallstatt A (Bronze Age E), and in the contemporary Early Iron Age deposits of Upper Italy, bronze bits were being already manufactured. These all have metal cheek-pieces, generally bent rods

with loops at the sides or slits through them to take the reins (Fig. 13, no. 7). Only later in the Hallstatt period do we meet examples of the modern form of bit terminating in rings.

ORNAMENTS

The ornaments worn during the Bronze Age are far too varied to be discussed in detail. They are, moreover, specialized into local groups that can best be mentioned later in dealing with the several cultures. Some, however, throw an unique light on cultural relations or serve as invaluable chronological guides. Such must be briefly described here.

PINS

Pins were used for fastening garments over a curiously restricted area during the earlier parts of the Bronze Age. Their use must obviously be correlated with a particular costume—an untailored cloak or mantle, worn over the shoulders and fastened in front by one or two pins. As a matter of fact ancient representations or lucky finds in peat-bogs afford positive proof of the wearing of such a garb among the Sumerians and the prehistoric Danes. Pins, and the dress they imply, were worn in Mesopotamia from the earliest Sumerian times and then throughout Asia Minor and Anatolia. They were also freely used in the Cyclades and on the Greek mainland during Early Aegean times, but only very rarely and in an immature form in Crete. Pins are equally rare in centres of metallurgy connected with maritime trade westward—Sicily, Sardinia, Spain and Britain. On the other hand they were adopted together with metallurgy in Central Europe, whence the local types spread widely as a result of ethnic movements.

To keep the pin in position a thread was passed through or tied on to its head, looped round the fold of the stuff to be fastened, and the end wound round the shaft again. The devices employed for attaching the thread provide the most workable basis for a classification of pins.

(I) PINS WITH LOOPED HEADS

In this class the head itself is a loop through which the thread may be passed. The simplest way of making such a pin is to take a piece of wire and bend over the top end or head. Generally the head is hammered out flat before being bent over.¹ The result is termed a roll-head pin (*Rollennadel*) (Fig. 14, no. 1). Such are found from the earliest times in Sumer and throughout the Asiatic Bronze Age province and its Central and North European extensions. A natural development of this is the shepherd's-crook pin distinctive of the Bronze Age in East Central Europe. A roll-head pin might be made more ornate by simply widening the flat head. From merely broadening the head materially in this way arises the racket pin (*Rudernadel*). This variant is found in Sumer before 3000 B.C. (Fig. 14, no. 3), then in the Early and Middle Bronze Ages of Hungary and Central Europe and later in the Caucasus. In the Early Bronze Age of Central Europe the decorative effect was further enhanced by trimming off the angles of the flat plate till it became a perfect circle (a little tang being left projecting opposite the shaft to form the loop), the disk pin (*Scheibennadel*). The disk is often decorated with an engraved cross. By casting the disk as an

¹ At first this flat head may just have been part of the original ribbon from which the wire was manufactured by the torsion process described on p. 37.

openwork wheel with an ear to represent the original folded loop, the wheel pin was created in the Rhine valley during the Middle Bronze Age (Fig. 14, no. 4). The type was exported throughout Central Europe as far as Upper Italy, Poland and Denmark.

An earlier variant of the disk pin, also formed by trimming up a racket pin, was the trefoil pin of the Rhône valley. The bilobate and trilobate pins of the Middle Bronze Age in Upper Italy may be derived from it in the same way as the wheel pin from the disk type.

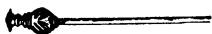
A safer loop might be produced on a wire pin by bending the top over and twisting it round the shaft, producing the knot-headed pin (*Schleifennadel*). The principle was known both in predynastic Egypt, in early Sumer and in prehistoric cities on the Indus. It was applied to the manufacture of pins in Cyprus and Troy II. Thence the type was diffused up the Danube to Hungary, Bohemia and Silesia, where it became common from the beginning of the age of metals and throughout the Middle Bronze Age (Fig. 14, no. 5). By imitating the knot-headed pin in a casting the Aunjetitz pin (*Böhmische Osennadel*) was created in Bohemia. It had an inverted conical head surmounted by a cast loop or ear (Fig. 14, no. 6). The ring-headed pin seems a later derivative of the same fundamental type.

(2) TOGGLE OR EYELET PINS

In a second series the thread was passed through a hole in the pin-shaft near its head. The shaft had generally to be widened where it was pierced. In Mesopotamia by 3000 B.C. it was hammered out flat, and the flattened surface perforated (Fig. 14, no. 2). The wide flat part, often called the neck, is frequently

- Fig. 14. (1) Roll-headed pin, Kish, Early Sumerian.
(2) Toggle pin, Kish, Early Sumerian.
(3) Racket pin, Ur, Early Sumerian.
(4) Wheel pin, South-west Germany, Middle Bronze Age.
(5) Knot-headed pin, Bohemia, Early Bronze Age.
(6) Aunjetitz pin, Bohemia, Early Bronze Age.
(7) Pin with bent disk head, Bohemia, Late Bronze Age.
(8) Sunflower pin, Ireland, Late Bronze Age.
(9) Pin with lateral loop, England, Late Bronze Age.
(10) Ribbed pin, Alsace, Late Bronze Age.
(11) Vase-headed pin, Bavaria, Late Bronze Age.
(12) Violin-bow fibula, Switzerland, Middle Bronze Age.
(13) Simple arc fibula, Italy, Late Bronze Age.
(14) Hungarian fibula with looped bow, Late Bronze Age.
(15) Elbow fibula, Siculan II.
(16) Two-piece fibula, Denmark, Middle Bronze Age.
(17) Two-piece fibula, Denmark, Late Bronze Age.

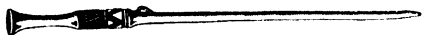
11



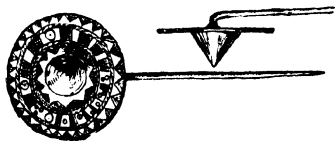
10



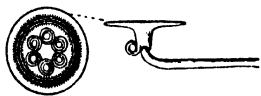
9



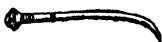
8



7



6



4



3



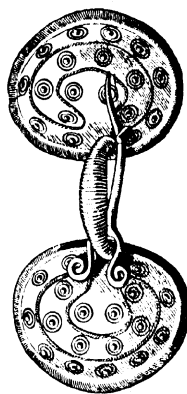
2



16



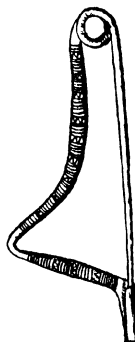
17



14

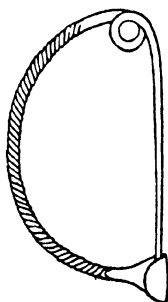


15



5

13



Pins $\frac{1}{4}$ and fibulae $\frac{1}{2}$

engraved with crosses and herring-bone patterns. Above the neck the shaft was normally bent over. It was generally surmounted with a globular bead of lapis. Eyelet pins with bulbous, or in Cyprus mushroom, heads, cast in one piece with the shaft, very early found acceptance in Syria, Cyprus, Troy and South Russia. Eyelet pins did not reach Central Europe till the Middle Bronze Age, but are very characteristic of that period. The round swollen necks of these pins are decorated with just the same herring-bone and cruciform patterns as the Sumerian pins of the fourth millennium.

In South Germany the eyelet pins seldom have a specialized head. In Hungary, on the other hand, they are surmounted with mushroom heads. In some mushroom pins the eyelet is formed by a spur projecting from the side of the shaft to meet the (separately cast) head. Allied to these is a form belonging to the very end of the Middle Bronze Age: the flat disk head is cast apart from the shaft and with a socket fitted on to the bent shaft so that the latter is parallel to the plane of the disk. The eye is formed by a looped strand of finer wire, one end of which was cast on to the shaft, the other tucked into the head's socket (Fig. 14, no. 7). In its Bohemian home the disk was generally decorated with an engraved star pattern. A variant with no loop or eyelet reached Scandinavia in the latest Bronze Age there (Montelius IV and V) and Great Britain. These late pins, termed sunflower pins, are decorated only with concentric circles upon the disk (Fig. 14, no. 8). The sunflower pin is the only type at any time at all common in the British Isles till our own Iron Age began.

Allied to the pins with perforated neck is a rare type with a lateral loop on the neck. It is found occasionally

in Early Bronze Age graves in North Syria. Then there are isolated examples from Bohemia belonging to the very end of the Middle Bronze Age, from Denmark later still, from the great Iron Age cemetery at Hallstatt in Upper Austria and from France undated. Yet the type has been found in Scotland in company with Middle Bronze Age rapiers and palstaves and a razor (Fig. 14, no. 9).

Carefully to be distinguished from the foregoing is the "East German eyelet pin" found in the Late Bronze Age urnfields. Its distinctive feature is a lateral spur on the neck perforated with a hole *parallel to the shaft*. It is probably derived from a pin common in Hungary and Central Europe in the Early and Middle Bronze Ages with a bulbous head perforated with a hole running down from the crown to the side of the shaft. This type may be inspired by Syrian bulb-headed pins.

(3) PINS WITH MERELY DECORATIVE HEADS

In a third family of pins the securing thread was merely twisted round the head; the latter, therefore, need not be perforated but is generally decorative. From ancient Sumerian and Early Cycladic graves come pins with animal heads, while others from Troy II were surmounted by miniature vases. In an important group extending from Turkestan to Italy the head is just a spiral disk. In some Early Cycladic specimens two spirals sprout out from the top of the shaft, and the same happens in Italy during the Middle Bronze Age and then in Central Europe, where spiral-headed pins are late in the Late Bronze Age.

Indeed, throughout continental Europe loops and eyelets went out of fashion during the Late Bronze Age.

The older eyelet pins are replaced by forms, often of gigantic size, with a collar of ribs or a big head in the shape of a vase, a poppy-head, a turban or a globe. Very distinctive of the second phase of the Late Bronze Age (Kraft E) are the Swiss pins whose globular heads are adorned with inlaid "eyes". Later, fashions changed again; the giant types disappear, and the heads of the rest shrink.

SAFETY-PINS OR FIBULAE

A logical corrolary of the pins kept in position by a loop of thread round the fold of clothing pierced by the pin was the safety-pin or brooch, technically known by the Latin name of *fibula*. There are two methods by which a safety-pin might be arrived at. You might take a wiry pin and bend back the top of the shaft over the fold of clothing to meet the lower part of the shaft and catch the point. Alternatively the thread passing through the eyelet of a toggle pin might be replaced by a length of wire which would likewise be twisted so as to catch the point. The first plan produces our safety-pin or one-piece fibula; the alternative gives rise to the so-called two-membered safety-pin. These two series seem to be independent, but both start about the same time, Middle Bronze Age or *circa* 1350 B.C., and moreover at opposite ends of the amber trade route. The one-piece safety-pin originated in Italy, Bohemia, or, on the latest theory, Mycenaean Greece; the two-membered fibula started about the same time in Denmark. It is therefore on the face of it unlikely that the two types are really autonomous and spontaneous growths.

O N E P I E C E S A F E T Y - P I N S .

In Late Minoan Crete people wore long pins, with a twisted shaft but no distinct head, whose upper parts were just hooked over. Blinkenberg⁽³⁶⁾ and Myres⁽³⁷⁾ believe that these pins were turned into fibulae by the simple expedient of bending the upper end into a hook to catch and also guard the point. This terminal hook is thus the prototype of the catch-plate. To make a really workable safety-pin the simple hooked end had to be modified so as to give a protection to the point, and a spring had to be introduced to bring the point back into the catch. The fibulae from pure L.M. III *a* tombs in Greece have a bow parallel to the pin and a catch-plate formed either by hammering out the end of the wire flat or by coiling it in a spiral (Fig. 14, no. 12). Such fibulae are known as the violin-bow type and form the starting-point for several series, developing along divergent lines in different regions. The greater part of this evolution lies outside the scope of this book, in the Iron Age, but some early forms may be sketched here.

Violin-bow fibulae, representing the primary stage of the safety-pin, are found outside Greece in Middle Bronze Age deposits in Italy and Sicily, and rather later in Bosnia, the Tyrol and Switzerland. There are two specimens from Central Europe, alleged to come from Early Bronze Age graves, but the circumstances of their discovery are doubtful.

The changes affect principally the form of the bow, aiming at making it more ornate or capable of catching a thicker fold of clothing. In Greece during the Mycenaean period the bow was widened to a leaf-shape. Rather later a series of figure-8 twists were introduced

in the wire bow. The latter type occurs on both sides of the Adriatic and in North-western Hungary (Fig. 14, no. 14). In the last-named region it gave rise to a series of highly elaborate variants in the Late Bronze Age and Hallstatt period.

The main direction of evolution went towards increasing the space between pin and bow to allow of more stuff being gripped. This was effected by four methods, giving rise to four main families that constitute the second evolutionary phase: A 1, prolonging the catch-plate vertically, giving the asymmetrical bow fibula; A 2, bending the bow into a semicircle, producing the arc fibula; A 3, twisting the bow up into an elbow and elongating the stilt, yielding the elbow and serpentine fibulae, or A 4, adding coils to the spring, leading to the harp fibula. Of these only the last version preserves the spiral catch-plate. The first two, on the other hand, as well as some late violin-bow types, may have small shoulders or beads at either end of the bow.

The arc fibula (Fig. 14, no. 13) appears in Greece already during L.M. III *b* times and in the Late Bronze Age of Italy and Bosnia, and leads to many variants in the Iron Age. The elbow fibula (*a gomito*) (Fig. 14, no. 15) is found in Sicily in graves of the Siculan II period slightly later than those containing Mycenaean vases. In the Early Iron Age of Cyprus a kindred form is found. A rather later Sicilian type (*serpeggianti ad occhio*) introduces a second loop at the root of the stilt where the elbow comes. It seems influenced by a version of the arc fibula, with a loop at the base of the catch-plate, found during the Early Iron Age in Crete and Illyria. Finally the harp fibula, appearing in a rudimentary form in the latest Bronze Age of Styria, characterizes the early Hallstatt period in the Eastern

Alps and Lower Austria. Contemporary with it in Styria appears the earliest spectacle brooch, a type distinctive of the true Hallstatt culture and of the Geometric period in Greece. It consists of a strand of wire coiled into a pair of spiral disks; from the centre of one the wire, sharpened to make the pin, is brought back across the other to engage in its end.

The modifications introduced during phase III of the safety-pin's evolution include, in the case of arc fibulae, threading beads on to the bow or imitating such in metal bulbs cast on it (Greece and Italy), widening the catch-plate (Greece and Illyria) or lengthening it (Italy), introducing a second loop at the root of the catch-plate (Greece and Illyria, also Sicily), decorating the bows with raised ribs (Upper Italy and Switzerland), etc.

These three stages can be approximately dated. Stage I is purely Mycenaean and accordingly begins before 1300 B.C.; even stage II began before the end of the Mycenaean age, about 1100; while stage III was already well advanced in sub-Mycenaean times by 1000 B.C.

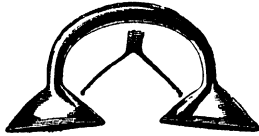
T W O - M E M B E R F I B U L A E

The evolution of the two-piece fibulae follows in the main the same lines as that of the one-member group. During the first or Middle Bronze Age phase (Sophus Müller, 3) the bow, either of twisted wire or leaf-shaped, is parallel to the pin and ends in two spiral disks or just two hooks. The pin is just a normal toggle pin with swollen, perforated neck and simple, club-shaped head (Fig. 14, no. 16). This stage is virtually confined to Denmark. During the Late Bronze Age divergent developments set in as the device spread. In Scandinavia and North Germany the

- Fig. 15. (1) Heavy ribbed armlet, Bavaria, Late Bronze Age. $\frac{1}{4}$
(2) Gold armlet, Ireland, Middle to Late Bronze Age. $\frac{1}{4}$
(3) Hungarian armlet, with spiral ends, Middle Bronze Age. $\frac{1}{4}$
(4) Horizontally ribbed armlet, Hungary, Middle Bronze Age. $\frac{1}{4}$
(5) Hooked double armlet, England, Middle Bronze Age. $\frac{1}{4}$
(6) Spiral-ended anklet, Alsace, Late Bronze Age. $\frac{1}{4}$
(7) Ingot torque, Bohemia, Early Bronze Age. $\frac{1}{4}$
(8) Gold ear-ring, Troy II. $\frac{1}{2}$
(9) Twisted gold armlet, England. $\frac{1}{4}$
(10) Spiral-ended finger-ring, South Germany. $\frac{1}{3}$
(11) Helical wire tutulus, Bavaria, Early Bronze Age. $\frac{1}{4}$
(12) Spiked tutulus, Hungary, Middle Bronze Age. $\frac{1}{4}$
(13, 14) Gold lock-rings, Early and Middle Bronze Age. $\frac{1}{2}$



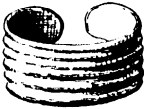
1



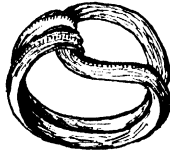
2



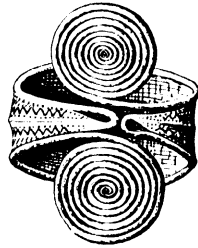
3



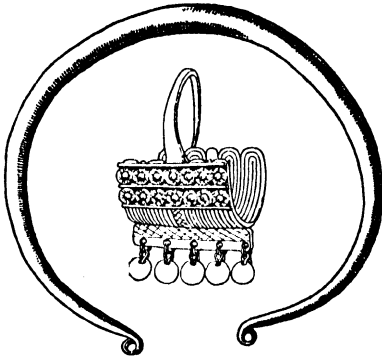
4



5



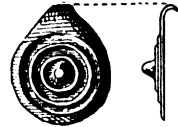
6



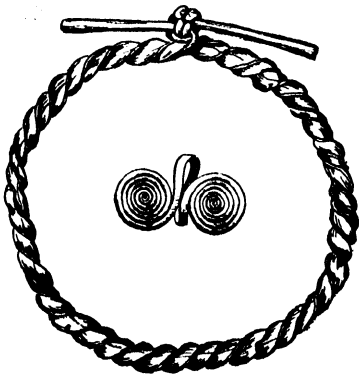
7,8



11



12



9,10



13



14

speciality of the Swiss lake-dwellings during the last phase of the Bronze Age (Kraft E).

Bracelets with spiral ends were characteristic of East Central Europe, Hungary, Galicia, East Germany and Scandinavia during the Middle and Late Bronze Age. The most handsome Middle Bronze Age type in the former area terminates in opposed spiral disks. Such rings were worn on the upper arm as the traces of wear indicate. Later Hungarian specimens, belonging already to phase E of the Bronze Age, have double-spiral ends. A variant, also with double-spiral ends but a ribbon-like body decorated with cast horizontal ribs or engraved triangles, is, however, found already in Middle Bronze Age deposits of Scandinavia, South-west Germany and Bohemia.

Two types of bracelet formed from a doubled piece of wire deserve notice. In the variety current in Central Europe from Early Bronze Age times the ends of the wire are twisted; in a British type of the Middle Bronze Age, the loop where the wire is bent back is relatively wide and the ends are twisted over and hooked into it (Fig. 15, no. 5). Neither type is penannular; both approximate rather to the cylinders.

Broad armlets of plate bronze, even in width all over and decorated with cast horizontal ribs or engraved triangles, appear already in the Early Bronze Age of Central Europe. Analogous types, generally narrower and with sharper ridges, are found in contemporary deposits in France and Britain. Such wide armlets may have taken the place of the stone wrist-guards worn by the archers of the Bell-beaker culture in the Copper Age to protect them from the recoil of the bow-string. The horizontally ribbed armlet persists into the Late Bronze Age, even reaching Scandinavia. But the later Central

European specimens generally have rounded ends (Fig. 15, no. 4).

East of the Rhine the tendency was to replace broad armlets by cylinders. Cylinders of narrow copper ribbon had been worn even in the Copper Age and, made of stouter ribbon, appear in Early Bronze Age hoards. By the Middle Bronze Age they had become very popular, particularly in East Germany and Hungary. Here the ribbon, hammered out to nearly an inch or so in width, is decorated with punctured patterns and strengthened with a midrib which is prolonged beyond either end of the ribbon and coiled into spiral disks. The type outlasts the Bronze Age and reappears in Early Iron Age graves in Italy and the Caucasus. Cylinders of the same structure could be worn on the legs.

A series of anklets, developed in the Upper Rhine valley, is interesting owing to its well-marked typological evolution. The oldest form, going back to Reinecke's phase B, is a simple piece of stout wire coiled into spiral disks at either end. Next, the wire body is replaced by narrow ribbon, the spiral ends remaining wiry. Finally in phases D and E the ribbon of the body is widened and the wiry ends are bent back and carried round for one turn before being coiled into spirals (Fig. 15, no. 6). This late type reaches the Upper Danube on the one hand and the French Departments of Aube, Marne and Côte d'Or on the other.

There remains a series of ornaments with wiry bodies, worn principally on the neck, which are of special importance owing to early parallels on the fringes of the Oriental civilizations. A penannular ring of stout wire with the ends hammered flat and bent back into loops (Fig. 16, no. 7) is represented by a number of

specimens in a hoard found at Byblos in North Syria and dated roughly about 1800 B.C. There are stray specimens from Egypt of a similar age, and later the type was common in the Caucasus. Just the same rings are found in the very earliest Bronze Age deposits of Hungary and Central Europe. Here they were sometimes worn as collars and also, as noted on p. 30, used as ingots. They are therefore termed ingot torques. From Central Europe the type reached the valleys of the Rhine and Rhône. Ingot torques remained current throughout the Bronze Age, but some of the later specimens are made of twisted rectangular wire,¹ a feature also observed on certain early Syrian specimens. The effect of torsion was imitated in casting on some European examples.

A series of ingot torques diminishing in size might be fastened together by pins through the terminal loops to form gorgets. Composite gorgets of this pattern are actually found as late as phase E in South-west Germany. But imitations thereof in sheet bronze with the ends rolled up into tubes were current in Switzerland and Scandinavia during the Middle Bronze Age. The Swiss collars are decorated with engraved rectilinear patterns and maintain the same width throughout their circumference. The Scandinavian, on the other hand, are shaped so as to be widest in the middle. The earlier ones show horizontal ribs in front, reminiscent of the originally separate neck-rings, but panels at either end are richly ornamented with engraved spirals. Related to the foregoing are some collars of thin sheet gold from Brittany and Portugal. Instead of ribs, these exhibit in

¹ The name *torque*, derived from the Latin *torqueo*, I twist, should strictly be applied only to such twisted rings, but is in practice used for all neck-rings whether smooth or twisted.

front, slits, reproducing the effect of the originally separate rings.

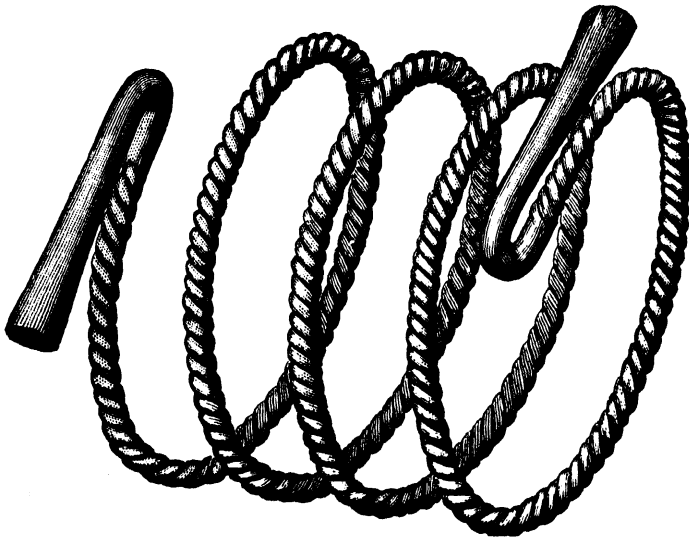
A hoard found in the ruins of Troy II included a gold collar or bracelet of twisted rectangular wire with hooked ends, and a similar torque of silver wire has come to light in an Early Helladic grave on Levkas. Twisted ornaments of exactly the same pattern in bronze, or more often in gold, are common during the Middle Bronze Age in the British Isles. As an alternative to quadrangular wire, simple or compound ribbon was sometimes twisted thus (Fig. 16). The composite ribbon employed has a X-shaped section and has been made by bending a strip of gold ribbon at right angles longitudinally, joining two such strips along the keel and then twisting the result. From Great Britain these torques were exported to Brittany, Northern France and probably Scandinavia.

In the last-named country in any case a local series, in which the torsion effect is generally produced by cast ridges, began in the Late Bronze Age. It attained its richest development in that belated Bronze Age that corresponds to the Hallstatt period farther south. By then the torsion was often not continuous in the same direction, but portions of the ring had been twisted in opposite ways (Fig. 17, no. 6). Finger-rings were made in the same style.

Another series of British neck ornaments belonging to the Early Bronze Age is allied in form to the Scandinavian gorgets already described. I refer to the so-called *lunulae* of gold. As their name implies, they are crescent-shaped pieces of thin gold plate. The horns are richly decorated with the rectilinear patterns, so characteristic of the Early Bronze Age throughout Western Europe, and terminate in flat catches. Over



1



2

Fig. 16. (1) Gold torque, Scotland, Middle Bronze Age. $\frac{1}{3}$
(2) Twisted gold armlet, Scotland, Middle Bronze Age (after Anderson). $\frac{1}{3}$

sixty *lunulae* have been found in Ireland but there are six from Scotland. The latter particularly resemble both in plan and ornament the contemporary jet necklaces found in the same country. It has therefore been suggested very plausibly that the *lunulae* originated in Scotland as metal copies of such necklaces, Ireland being only a secondary centre. Thence in any case they were exported to Wales, Cornwall, Brittany, Scandinavia and North Germany (Fig. 19).

FINGER-RINGS

One of the simplest conceivable metal ornaments is a ring of wire or ribbon to fit on the finger. As bone and stone finger-rings go far back in the Stone Age, early metal copies are only to be expected. They are so widespread as to have little cultural significance, and only a few specialized types need mention here.

The Minoans of Crete, copying the Sumerians and Egyptians, used to mark the ownership of a packet or authenticate inscribed tablets by the impression of a seal. This was at first worn on a string, passing in one class through a loop at the back. During Middle Minoan times the loop was enlarged into a hoop to fit the finger. The oval seal part (technically called the bezel) with its long axis at right angles to the hoop, was of course beautifully engraved like the bead or button seals of gems or ivory. No seals nor signet rings were made by the European barbarians till late in the Iron Age, but in the Late Bronze Age rings of bronze leaf, generally horizontally ribbed, were made of bronze ribbon, so trimmed as to be much wider at the side worn on the back of the finger than on the other. Such rings, common in South-west Germany and Switzerland, doubtless imitate Aegean signets.

A truly European ring, common in Central Europe from the Early Bronze Age onwards, was formed of a strand of gold or bronze wire doubled with the ends twisted together, coiled into a little cylinder, like the wire bracelets already mentioned. During the Middle Bronze Age a very handsome ring of bronze ribbon, terminating in opposed spiral disks, characterized the Tumulus culture of Western Germany, South-western Bohemia, Austria and Slovakia (Fig. 15, no. 10). In the Late Bronze Age a more wiry version was in vogue also farther east in the urnfields of Moravia and Hungary.

In Britain we find in hoards of the Middle Bronze Age small coils of massive gold with imitation torsion that may have been worn on the fingers but possibly served as money.

BUTTONS, CLASPS, STUDS AND TUTULI

Even in Early Minoan times, buttons of some perishable material, overlaid with gold, were being worn in Crete. The little convex disks of gold leaf, that once had sheathed them and now alone survive, are each pierced with two thread-holes. Similar hollow button-covers, generally of bronze, appear in Hungary even in the Early Bronze Age, and in the Middle Bronze Age become very plentiful throughout Central Europe. In the Late Bronze Age they were gradually replaced by a more solid button, generally flat, with a cast loop on the back instead of the thread-holes.

Buttons of stone, bone and ivory have a longer history. A very famous type, common all through Western Europe and right up to Scandinavia and the Tisza during the Copper Age, is conical and pierced on the flat side with two holes that converge to meet in a V.

Such buttons with V-perforation in jet or amber remained popular in Britain during the Early Bronze Age (Fig. 18, no. 2).

Studs of stone, shaped like two disks joined by a short cylinder, were used in a rudimentary form, perhaps as lip-plugs, in prediluvian Mesopotamia and reached Crete even before the local Bronze Age began. A developed variant on this in jet was popular in Britain during the Early Bronze Age. Later metal studs of the same plan were largely manufactured in Scandinavia.

Buckles of jet were employed in Great Britain during the Early Bronze Age. They resemble an oval rod with a longitudinal slit.

For fastening the girdle very handsome clasps were used in Central and North Europe during the Middle and Late Bronze Ages. A pretty form, current chiefly in Würtemberg and on the Upper Rhine, was a hook of doubled wire whose ends were coiled in spiral disks. This was replaced in the Late Bronze Age by a flat metal plate, circular save for a narrow tang that was bent over to form the hook; a loop is attached to the back of the disk at the centre. In the Rhône valley during the latest Bronze Age the type was further elaborated, the tang growing into a richly decorated oval plate, while the original disk, no less ornate, developed three additional hooked tangs.

A very distinctive hook was used by Scandinavian warriors of the Middle Bronze Age for attaching the scabbard to the girdle. The hook is massive, cross-pieces project just below its point and its base is a solid disk.

The girdles themselves might sometimes be all of sheet metal. There is an example in beaten silver from Byblos in Syria. Magnificently engraved girdles of hammered bronze were being manufactured in Upper

Italy at the beginning of the Iron Age, and others occur in the contemporary Bronze Age of Hungary. But normally the girdles were of leather or wool, though often decked with metal ornaments. During the Early Bronze Age of Bohemia hammered metal plates were probably thus employed; they are either shield-shaped or circular with a hollow dome-shaped boss in the centre. They are decorated with engraved triangles arranged in parallel rows or on the circumference of concentric circles. Holes near the rim enabled them to be sewn on. The latter type persists throughout the Middle Bronze Age, spreading to South-west Germany and Scandinavia, to be decorated in each region in the appropriate local style.

Early Bronze Age graves in Lower Bavaria contain extraordinary helical pyramids of coiled bronze wire, executed in a technique already exemplified on a smaller scale in the jewellery from the earliest Sumerian graves at Ur⁽⁸⁾ (Fig. 15, no. 11). Copying the helices by casting produced a metal disk with a spike in the centre surrounded by concentric ridges⁽⁴³⁾. A small bent-over tab projects from the edge of the disk for their attachment to girdles or strings (Fig. 15, no. 12). This "spiked tutulus" is very common in the Middle Bronze Age of Hungary and Central Europe. Scandinavian women wore a similarly shaped ornament on their girdles, but in the North the disk is often very large, 11 inches in diameter, and decorated with spirals (Fig. 17, no. 2). In the Late Bronze Age of the North the size is still further increased, and the central spike becomes a regular little pillar surmounted with a knob. A bar across the base of the hollow pillar provides a means of attachment in lieu of the older thread-holes. Quite possibly the so-called hanging vases of the latest Bronze

Age in Scandinavia are just exaggerations of this type of tutulus (Fig. 17, no 4).

Cones of rolled bronze leaf, or more elaborate versions thereof made by casting, were hung like tassels on the ends of woollen girdles.

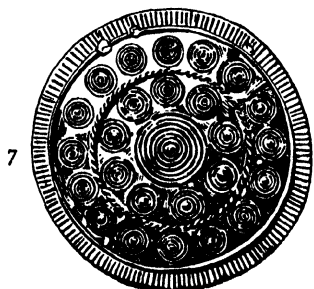
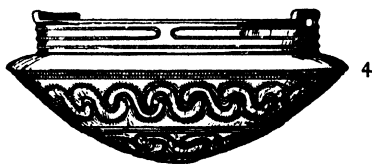
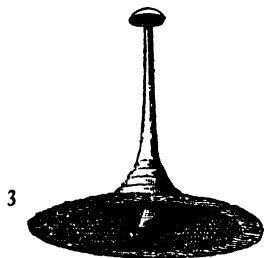
Besides stuff and metal plate girdles, double chains were already being worn in Bohemia even in the Early Bronze Age. At that date all the links were just circular rings. In the Late Bronze Age farther west rings alternate with wide links of ribbon.

E A R - R I N G S A N D L O C K - R I N G S

All European ear-rings and hair-rings of any interest go back in the last resort to Mesopotamian types⁽⁸⁾. In the very early Sumerian graves recently excavated at Ur of the Chaldees, Woolley found several forms that constitute the starting-points of our series. The simplest type is a penannular gold ring, one end of which has been hammered out till it is boat-shaped while the other is sharp. The wide end is sometimes decorated with filigree work, at others exaggerated to monstrous proportions and duplicated. Contemporary with these undoubted ear-rings are little open spirals, both ends of which are boat-shaped (Fig. 15, no. 14). They were perhaps twisted in the hair over the ears and may provisionally be termed lock-rings. Identical spiral lock-rings are known from Troy II, the Caucasus, South Russia, Hungary and Central Europe. In the latter region a variant grew up in which one end is bent back upon itself. There are also wiry copies influenced by the contemporary ear-rings.

The simple ear-ring with one boat-shaped end is also found at Troy and in Hungary. At the former site barbaric exaggerations lead to the gigantic basket

- Fig. 17. (1) Bronze collar, Denmark, Middle Bronze Age. $\frac{1}{4}$
(2) Bronze tutulus, Denmark, Middle Bronze Age. $\frac{1}{4}$
(3) Bronze tutulus, Denmark, Middle Bronze Age. $\frac{1}{2}$
(4) Hanging vase (tutulus), Denmark, Late Bronze Age. $\frac{1}{6}$
(5) Bronze tutulus, Denmark, Late Bronze Age. $\frac{1}{8}$
(6) Torque with alternating torsion, Denmark, Late Bronze Age. $\frac{1}{8}$
(7) Gold "sun disk", Ireland, Late Bronze Age. $\frac{1}{2}$
(8) Penannular gold ornament, Ireland, Late Bronze Age. $\frac{1}{2}$



ear-rings. These were made by soldering on to gold bars a series of bent wire coils as shown in Fig. 15, no. 8, the whole being embellished with rosettes and pendants. The barbarians of the North, who were ignorant of solder, imitated the Trojan type in two ways. In Scotland during the Early Bronze Age the basket was formed of a bent sheet of thin gold with a hook projecting from one long side. Such ear-rings have been found as British exports in Belgium and Western Poland. In the Early Bronze Age of Hungary and Bohemia the gold wire coils that formed components of the Trojan baskets were elaborated by themselves to form the ear-ring (Fig. 15, no. 13). Thence they were exported to the still Neolithic inhabitants of Denmark in exchange for amber.

NECKLACES AND PENDANTS

Perhaps as early as Middle Palaeolithic times men had pierced shells and strung them together as necklaces. Upper Palaeolithic man could also carve very neat beads out of ivory for the same purpose. The earliest Egyptians we know, the Badarians, could already drill stone for beads and soon mastered even such hard materials as carnelian and turquoise. An extraordinary variety of beads and amulets were carved out of stone or ivory. In prehistoric India and Mesopotamia, and later in Crete and the Cyclades too, stone beads were soon very popular. Stone beads and amulets based on East Mediterranean models and bone copies thereof were then very widely diffused throughout the Mediterranean basin and along the Atlantic coasts to Brittany and Ireland in the Neolithic and Copper Ages, but had practically gone out of use before the local Bronze Age began. Along the Danube valley stone beads had never

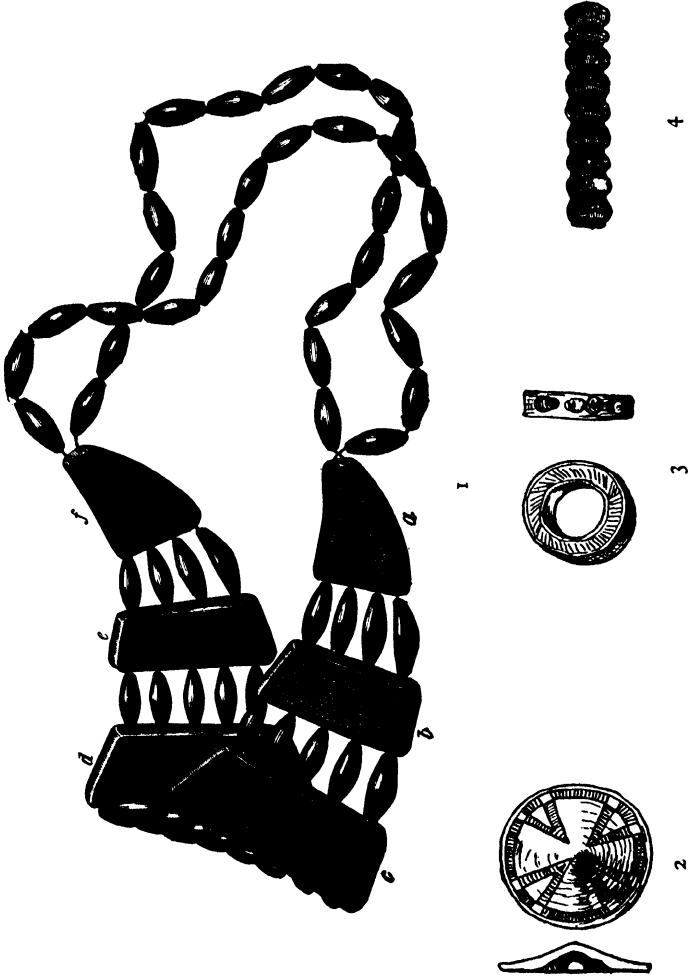


Fig. 18. (1) Jet necklace, Scotland, Early Bronze Age. $\frac{1}{2}$
 (2) Button with V-perforation, England, Early Bronze Age. $\frac{1}{2}$
 (3) Jet pulley ring. $\frac{1}{2}$
 (4) Segmented bead, England, Middle to Late Bronze Age. $\frac{1}{4}$

come into vogue at all. Hence in a study of the Bronze Age in North-western and Central Europe only amber and jet beads together with a few glazed ones imported from the East Mediterranean need be considered.

Amber necklaces were largely worn in Denmark, Great Britain and Central Europe, going back in the first country to early in the New Stone Age. The most popular form consisted of two or three strings of almost spherical beads connected at intervals by flat spacers. A spacer is a bead perforated with several holes, usually parallel, designed to keep the several strings of a necklace at the proper distance apart. The English and Scottish jet necklaces are similar to the foregoing but often more elaborate. Besides sphericals, thin disks, long barrel-shaped beads and flattened barrels with a little collar at either end were employed, and the spacers were cut to various shapes and diagonally perforated so that the necklace is broader on the throat than behind the neck where it was fastened (Fig. 18, no. 1).

Even the earliest Egyptians could put a glaze on stone beads, and before the beginning of the dynastic epoch they had learned to cast beads of an opaque vitreous material termed faience. The secret had also been grasped in Mesopotamia and India before the beginning of the fourth millennium. Instead of casting a number of separate beads, it was found that the same effect could be obtained more cheaply by moulding a tube divided by grooves into six or eight segments. Thus arose the so-called segmented bead which may have been suggested by the manufacture of simple beads by cutting into segments and then breaking off thin tubular bones or the long roots of bovine teeth. Segmented beads of faience are in any case known from Assur in

Mesopotamia as early as the third millennium B.C., and appear in Crete during M.M. III and in Egypt under the New Kingdom⁽¹²⁾. Analogous segmented beads of bluish faience have been found as imports in South-eastern Spain, England (Fig. 18, no. 4) and Poland.

In Mesopotamia metal pendants as well as beads were hung on necklaces. These include gold hoops, bearing wire decorations, and disks engraved and inlaid, in both cases provided with a loop for suspension. We find the same idea applied in Central Europe chiefly during the Middle and Late Bronze Age. A strand of wire, coiled into two spiral disks with a loop between them like spectacles, goes back to the Copper Age, and later a small cast wheel, possibly a solar symbol, became very popular. Another pendant, very common during the Middle Bronze Age in Hungary and adjoining regions as far as the Rhine, is heart-shaped. It is actually inspired by Minoan collar-segments of gold or faience bearing a hybrid pattern, termed by Sir Arthur Evans the sacral ivy-leaf.

Naturally, in addition to the foregoing, simpler ornaments such as marine shells, *Dentalium* tubes, bored teeth and tubes of sheet metal or coiled wire were frequently worn.

V E S S E L S

Where metal was plentiful, it was used for the manufacture of dishes, cups and ewers and even pails and cauldrons. The majority were made of sheet-metal hammered out. Cups and dishes of precious metals or bronze could be made, as they are to-day, by simply beating up a sheet of metal to the desired shape. For larger vessels two or three sheets were shaped by hammering and then riveted together. Handles too

were generally attached by rivets, but in the case of gold and silver vessels they might be soldered on in the Ancient East and the Aegean. Spouts, projecting from the walls of vases in Mesopotamia and Egypt, are said to have been brazed on. Parts of the vessel might receive special treatment. The rim might be strengthened by hammering over it on either side a ribbon of metal. A ring foot can be easily made by inverting the vessel and hammering in a circular depression on the base so as to leave a fold all round, a process termed cupping the base. The handle is normally a piece of ribbon or stout wire with the ends hammered flat to receive the rivets. Metal vessels of varied shape are quite common from the beginnings of the historical period in Sumer and Egypt, at Troy II, in Copper Age graves north of the Caucasus, and in Middle and Late Minoan Crete. North of the Alps none are known before the Late Bronze Age with the exception of two gold cups from Cornwall.

The predynastic Egyptians were very skilled in grinding vases out of even the hardest stones, and stone vessels were also freely used in early Sumer, in Crete from Early Minoan times and in the Cyclades. This material was not adopted for the manufacture of vessels north of the Alps save in Britain. And the small group of English cups of shale or amber, belonging mainly to the Middle Bronze Age, bear no obvious relation to any East Mediterranean form, being equipped with handles and turned on a lathe. Their prototypes are to be sought in woodwork.

Bronze Age pottery exhibits such a variety of forms and ornaments that it must be described in connection with the several cultural groups which it serves to define. Technically, it does not differ in any essential principle

from Stone Age wares save in the Ancient East and the Aegean. There the application of the wheel, already described, gave the potter opportunities for all sorts of experiments. In the Aegean too a glaze paint, that is, a paint containing silicates that fuse and vitrify during the firing of the vase, had been invented in Early Minoan Crete and diffused thence to the Early Cycladic and Helladic folk. It enabled the potter to produce lustrous patterns without burnishing the whole surface. Apart from these inventions and even north of the Alps, Bronze Age pottery exhibits some features, notably handles and spouts, apparently unknown or at least very rare in pure Neolithic times.

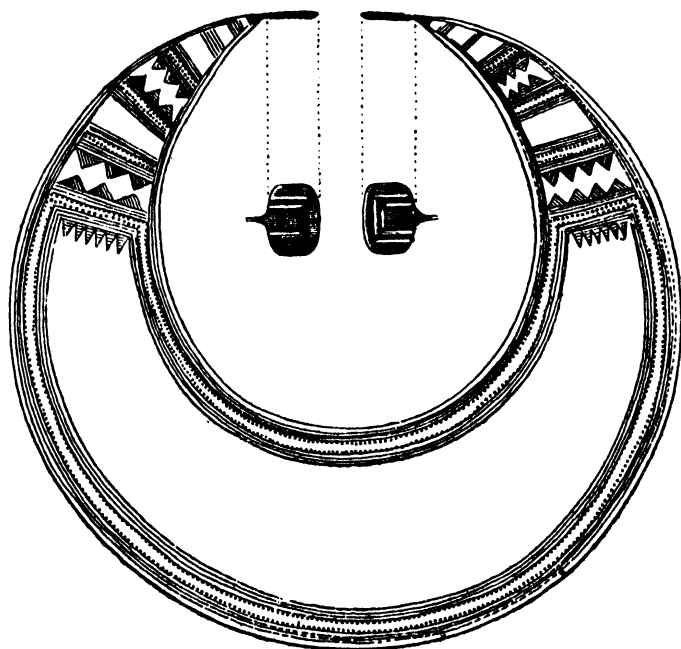


Fig. 19. Irish gold lunula. †

CHAPTER IV

THE EARLY BRONZE AGE

THE Bronze Age peoples of Europe were essentially descendants of the stocks inhabiting the same or adjacent parts of our continent in Neolithic times. These were already racially very mixed, and the rise of metallurgy may well have involved the incorporation of foreign artificers and miners in the community, as indicated in Chapter I. Commercial activity, such as necessarily played a prominent part in Bronze Age economics, was also accompanied by a certain interchange of populations, not to be confused with mass migrations. At the same time the dry climatic conditions prevailing facilitated, and in some cases perhaps even necessitated, migratory movements. We thus are faced, even before the beginning of the Bronze Age, with groups already differentiated that by no means lost their identity when they adopted metallurgy. On the contrary, behind the close similarities of bronze tools and weapons that mark the earliest Bronze Age we discern already great divergences in pottery, burial rites and other traits. These divergences soon infect the bronze industry itself. The latter is again differentiated according as Egyptian or Anatolian traditions predominated among the local artificers.

In a general way it seems likely that metal first won general acceptance among the settled farming populations of the coasts and valleys. On the plateaux and plains where forests were giving way to heath and park-land flora, more mobile tribes mainly, though by

no means exclusively, pastoral, continued for a while to content themselves with stone tools. Excluding the Aegean and Sicily, there are only three really important centres of Early Bronze Age culture in Europe, namely, Central Europe, South-eastern Spain and Britain, though Upper Italy may be added as a fourth group and the Rhône valley and Brittany were destined soon to join with the other regions.

CENTRAL EUROPE

In the valleys of the Tisza, the Middle and Upper Danube, the March, the Oder, the Upper Elbe and the Saale we find a series of allied communities. They are settled upon the great trade routes connecting the Adriatic with the amber of Jutland and East Prussia, and Bohemia with Slovakian copper and Transylvanian gold. It is convenient to designate all these kindred groups the Aunjetitz cultures, after a great cemetery at Únětice, south of Prague. There are, however, important differences between the several groups in pottery and to some extent also in ornaments. Strictly speaking the Aunjetitz culture is confined to Bohemia, Moravia, Lower Austria north of the Danube, Silesia and Saxo-Thuringia. On the fringe of this area there are local groups named respectively after Gáta on the Austro-Hungarian frontier, Tószeg near Szolnok on the Upper Tisza, Perjámos near Arad on the Maros and Straubing on the Upper Danube in Lower Bavaria⁽⁴¹⁾.

All equally belong to descendants of the local Copper Age populations, essentially Danubian II (Lengyel) folk mixed in varying proportions with intruders from farther north, Anatolians and Bell-beaker folk from Spain. The latter had profoundly affected the industry of the region, without, however, leaving any appreciable

trace on the physical character of the population. The metallurgy of our region is none the less on the whole inspired primarily by the Anatolian school as a consideration of the pins and ear-rings at once betrays. From Danubian II times onwards there had been indications of Anatolian penetration in the pottery, Mediterranean shells and stray metal objects found in graves throughout the Danubian area; prospectors, perhaps from Troy, had discovered the gold of Transylvania and the tin of Bohemia. In the advanced Copper Age some ceramic groups exhibit such marked Anatolian features that one suspects a considerable influx of Orientals. Such would presumably have been extracting gold, copper and tin for export down the Danube to Troy where rich bronze occurs in the second city. But when Troy II was sacked, the market would be closed. The strangers must produce for local consumption. The rise of the native Aunjetitz industry dated from that moment.

The Aunjetitz people were of moderate stature but long-headed: they were not therefore descended from the exclusively round-headed Beaker folk. They lived primarily by farming, but undoubtedly controlled the exploitation of ore and the trade in amber and metals. Their dwellings were for the most part round beehive pits dug in the löss, but rectangular houses with plastered wattle walls were also built. The villages were of modest size judging from the cemeteries which comprise no more than a hundred graves. The dead were always interred in the contracted position with the knees drawn up to the breast. In one case in Bohemia a megalithic kist formed the tomb.

Stone and bone tools including celts (some of flint with rectangular cross-section as in the northern Neo-

lithic province), hammer-axes, grooved hammer-stones (p. 6), crescent-shaped flint sickles, bone awls and chisels, horn picks and axes, are quite common in the settlements. From hoards and graves we know flat and flanged celts (both axes and chisels) and quadrangular awls of bronze. The principal weapon was the flat triangular dagger with wooden or bronze hilt, but two bronze battle-axes with knobbed butts have been found in Bohemian graves.

The pins all belong to the group with loop heads, and in particular those with simple roll, knot, perforated globular, racket, disk or husk heads. Distinctive of the Aunjetitz culture in the narrower sense is the pin with a cast loop surmounting an inverted conical head. In all cases the shaft is generally bent near the point. Except for the "manchette" armlet with engraved or ribbed surface, restricted to Bohemia and the immediately adjoining territories, the bracelets are less typical. On the other hand, the ingot torque (Fig. 15, no. 7) is found throughout the area, as are the spiral lock-rings of gold or bronze like Fig. 15, no. 14 and the cognate form of Fig. 15, no. 13. Amber necklaces of two or more strings of beads connected by spacers are common only in Bohemia, Saxo-Thuringia and Bavaria. In Moravia and Lower Austria amber occurs sporadically, while none is reported from Hungarian graves. Tubes of rolled bronze leaf and fossil *Dentalium* shells, together with imported *Cardium* shells or bronze imitations thereof, were likewise strung together for necklaces. Little bone disks decorated with concentric circles may have had a similar use. Girdles of stuff or of multiple bronze chains were worn, and scutiform or circular plates might be sewn on to the former.

The pottery of the whole group is very fine, well

baked and burnished, but rarely decorated. It varies in colour from orange to black and is often mottled like Anatolian wares. The leading form is a mug or jug with a loop handle attached some way below the rim. In the narrower Aunjetitz area it is at first pouch-shaped, having a rather pear-shaped body, a slightly conical neck and an everted rim (Fig. 20, no. 1). The body and neck were moulded separately and then joined, a procedure which leaves a groove round the shoulder. Later the body is suppressed altogether, and we get the classical keeled mug with cavetto neck (Fig. 20, no. 3). In both varieties there is a dimple in the base. The earlier pouch-shaped type alone is found in Bavaria and Lower Austria and recurs with rather longer and narrower neck and a trumpet mouth in the Hungarian Tószeg group. At Perjámos and Gáta the distinctive type is an hour-glass mug with two handles descending from the brim to the belly—an essentially Anatolian type, that began to appear even in Danubian II. An amphora is also found in Bohemia, but there the handles are attached to the neck below the rim.

Together with the mug goes a wide dish with a groove under the broad brim (Fig. 20, no. 2). There are also a few bowls on hollow pedestals and many large jars or *pithoi* intentionally roughened on the outside. Bohemia and Moravia have also yielded a number of small vases that obviously imitate stone models, imported presumably from the Aegean. Finally from Nienhagen on the northern slopes of the Harz comes a famous clay copy of a Minoan metal cup of the so-called Vapheio shape⁽¹²⁾.

Incised ornament when present is limited to a belt of parallel lines round the rim or shoulder with fillets hanging from it. In Hungary the incised lines are replaced by applied ribs arranged in the same way. Small nipples on the shoulders are found everywhere.

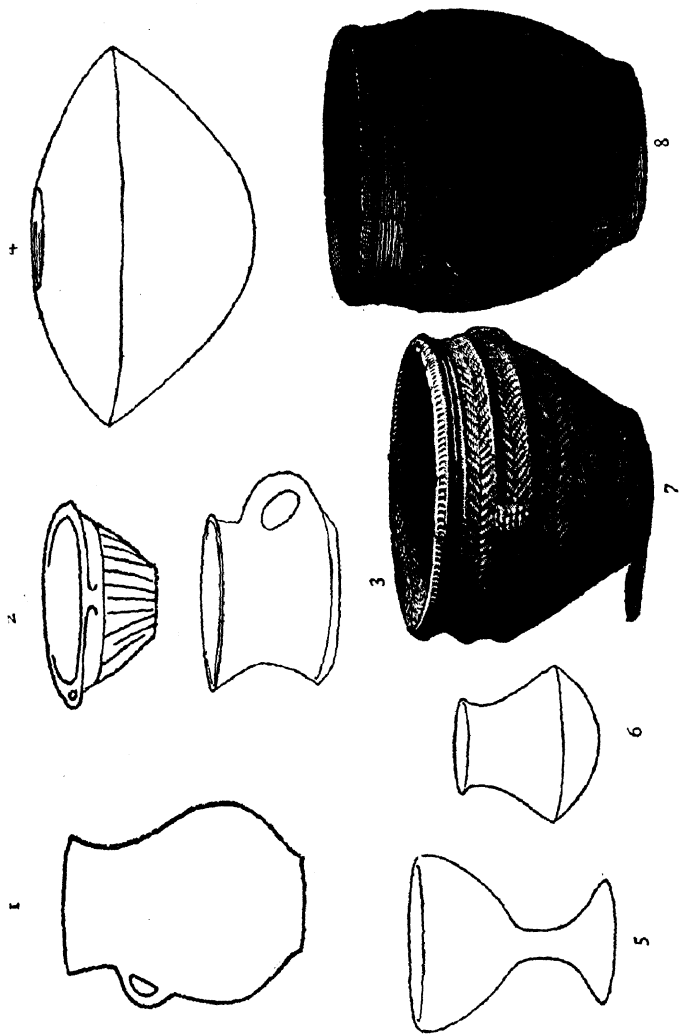


Fig. 20. (1) Early Aunjetitz pouched jug, Moravia. $\frac{1}{2}$

(2) Aunjetitz dish. $\frac{1}{2}$

(3) Mature Aunjetitz jug, Moravia. $\frac{1}{2}$

(4) El Argar bowl. $\frac{1}{2}$

(5) El Argar goblet. $\frac{1}{2}$

(6) El Argar beaker. $\frac{1}{2}$

(7) Food vessel with shoulder groove, Scotland (after Anderson). $\frac{1}{2}$

(8) Food vessel (after Anderson). $\frac{1}{2}$

The art of the Aunjetitz group is better illustrated by the engraved patterns on daggers, armlets and pin-heads. It is purely rectilinear, the favourite motive being a small hatched triangle. On round surfaces these may be arranged in concentric rings. The cross is also found on some disk-head pins. This rigidly rectilinear style is universal throughout the Early Bronze Age save for the Spanish and Scottish stone carvings to be mentioned below. It is sometimes regarded as West European but might equally well be northern, since similar triangle patterns had been very common on the Corded Ware vases of Thuringia in the later Stone Age.

In Saxo-Thuringia side by side with regular Aunjetitz graves distinguished by no superficial monument, we encounter interments under barrows, often very richly furnished. The most famous are the barrows of Leubingen and Helmsdorf. Both contained halberds in addition to the normal Aunjetitz armoury. Such barrows probably belong to descendants of the Neolithic Corded Ware folk of Thuringia. The halberds and a celt of English manufacture from Helmsdorf show that these warriors controlled trade routes leading westward as well as the great amber route along the Elbe. The special culture that was differentiated under these circumstances in the Saale valley may well be no earlier than Reinecke's phase B while the Aunjetitz culture proper occupies both phases A and B.

North of Magdeburg and Glogau no burials furnished with Early Bronze Age types are known. But at least in Scandinavia and along the North Sea coasts the old Nordic population still lived on in a Stone Age burying their dead either in megalithic long kists or under barrows. In a few such graves gold spirals of Aunjetitz types (like Fig. 15, no. 14) or other stray

imports have been unearthed to confirm the synchronism of this belated Stone Age with a precocious Bronze culture. Similarly south of the Drave the so-called Slavonian culture seems to lack metal. Yet the pottery includes keeled mugs quite like those of Aunjetitz and Tószeg. Moreover one group of Middle Bronze Age pottery from Hungary is a direct continuation of the Slavonian tradition.

UPPER ITALY

A contemporary centre of metallurgical industry in Northern Italy must be inferred from the distribution of certain types such as the flanged celts like Fig. 4, no. 1. It is not, however, easy to locate the centre accurately. In the province of Brescia extensive cemeteries, notably the type site of Remedello, have been explored that go back to the Copper Age, in fact to the Bell-beaker period. Beside the narrow-shouldered West European dagger and others of Early Minoan form with midrib and short tang and flint copies of both, the graves contained round-heeled triangular daggers and even flanged celts, albeit of pure copper⁽⁴⁴⁾.

Within the period covered by the cemeteries pile-dwellings were being founded on the Italian Lakes. These were occupied for a long time and have yielded stone tools as well as Middle and even Late Bronze Age types. But there are indications that some Early Bronze Age forms were actually cast in the lake-villages, and amber beads attest their relations with the North. It is supposed that the lake-dwellers were invaders from beyond the Alps though their precise home is uncertain. Some of the pots really resemble early Aunjetitz shapes, but they exhibit a curious spur or thumb-grip at the top of the handle that is more at home south of the Alps.

The Early Bronze Age culture of Italy is, therefore, still rather vague. Industrially Aegean and Spanish traditions met there—even the halberd is represented in hoards. Ethnically an old native Neolithic stock was overlaid by Bell-beaker elements from Spain and immigrants from beyond the Alps.

SPAIN

As a centre of Early Bronze Age industry South-eastern Spain ranks in importance with Bohemia and even perhaps the Aegean. Here, too, it looks as if the rise of a local Bronze Age coincided with an interruption of relations with the Eastern Mediterranean, which obliged foreign metallurgists, settled round the rich lodes of copper and silver, to produce for a local market. The effects of earlier eastern trade are illustrated by the Copper Age settlements and cemeteries of Los Millares in Almeria and of Palmella in Portugal. At Los Millares the dead were buried in beehive tombs built of stones and roofed by corbelling. Similar, but sometimes even finer, tombs are known from Granada, Andalucia and Southern Portugal. The tombs at Palmella are similarly shaped, but hewn out of the rock. Both types seem to be derived from the Eastern Mediterranean. That is confirmed by the discovery at Los Millares of ostrich-shell beads, pins of hippopotamus-ivory, vases of stone and plaster, painted pottery and bone combs, as well as flat celts, West European daggers, saws, arrow-heads and other copper implements. With the Oriental imports are found also Baltic amber, English jet and French callais. The pottery in all the above-mentioned tombs includes Beaker ware mingled with undecorated local vases sometimes of Early Minoan or Cycladic form.

Siret⁽⁴⁶⁾ believes that these rich tombs belonged to Oriental colonists who had founded trading-posts at points commanding the sea route to the North and the local supplies of ore. He insists that the rarity of gold and silver at this time is due to the fact that the precious metals were exported to the Ancient East and the Aegean, just as in Denmark, when in Late Neolithic times the amber trade with Bohemia was established, that substance, formerly common in every tomb, ceased to figure in the grave inventory. In the Bronze Age culture that succeeded that of Los Millares silver became relatively common and foreign imports correspondingly rare, as might be inferred on the assumption of the interruption of eastern trade.

The chief centre of Early Bronze Age civilization lay in Almeria, the type station being El Argar in that province⁽⁴⁵⁾. The same culture spread all along the east coast of the Peninsula to the Pyrenees and is traceable, though in an impoverished form, in Andalucia and Southern Portugal.

Physically the Bronze Age population of South-eastern Spain was mixed. Among the males long-heads and round-heads were represented in approximately equal proportions; the women on the other hand were predominantly brachycephalic.

The El Argar folk were certainly farmers and as surely also metallurgists. Moulds, grooved hammer-stones and slag have turned up in several settlements. The people doubtless exploited the local copper and silver ores, but the supply of tin which had to be imported from Galicia, the Cevennes, Brittany or Cornwall was irregular. None of the tools analysed contained as much as ten per cent., and the majority consist of unalloyed copper. In Almeria the El Argar people

lived on hill-tops defended by great stone walls, sometimes pierced by a postern reminiscent of Mycenae. The houses were agglomerations of rectangular chambers with stone foundations for the walls. Some may have boasted two storeys. The dead were buried, contracted, within the settlements, among or under the houses, either in small kists of six thin slabs or in large jars. Some sarcophagi, hollowed out of stone, are also assigned to this period. Against a wall in one village was an altar-like construction embellished with horn-like ends suggesting a well-known Minoan cult object, the horns of consecration.

The principal tools are celts, flat or with low flanges, and quadrangular awls. As weapons were employed round-heeled knife-daggers, halberds and the bow and arrows. The daggers, as in the Cyclades, were not seldom attached to the hilts by small silver rivets. As noted, the daggers eventually grew into short flat swords. The halberd, the most distinctive weapon of the peninsula, is already foreshadowed by flint blades from Los Millares and contemporary sites. The bronze specimens vary widely in shape: most are symmetrical, some have very broad butts, the rivets may be quite big and a broad midrib is frequently used to strengthen the blade. The arrows were tipped with tanged copper heads, generally lozenge-shaped and seldom barbed. The type goes back to the Copper Age culture of Los Millares. Narrow plaques of schist, perforated at either end, were probably worn on the wrist by archers as a protection against the recoil of the bow-string. Elsewhere such wrist-guards are found in graves with Bell-beakers.

The ornaments are dull in comparison with the Bohemian. The most interesting is a diadem, an open circlet of silver or sheet copper, shaped so as to leave

an upright projection in front. Plain rings of silver or bronze wire were worn on the arms and fingers and in the ears. Another ornament for the arm or neck was made from a boar's tusk perforated with a series of holes through which small copper rings were stuck. Beads of rolled copper leaf or coiled wire together with shells were hung on necklaces. There are also a few imported beads of calläis, segmented beads of Minoan or Egyptian faience and imitations thereof in bone. Pyramidal bone buttons with V perforation served to fasten the garments.

The El Argar pottery, like that of Aunjetitz, is normally unornamented and red, black or mottled. Handles are virtually unknown, nor is the base ever dimpled; rounded bottoms are indeed common. The main forms are goblets with inverted rims on a solid pedestal (Fig. 20, no. 5), dishes with similar rims, big carinated bowls with flattened conical necks (Fig. 20, no. 4), and keeled mugs with cavetto necks (Fig. 20, no. 6). The latter closely resemble the Aunjetitz form in profile, but never have handles. Such parallels need imply no direct connection; they are rather developments of Copper Age types in which North African and Aegean elements were prominent, and some of which reached Central Europe along with the Bell-beaker culture.

In the East Spanish cradle of the El Argar culture, so rich in artistic production of the Stone and Copper Ages, no indications of decorative activity assignable to the Bronze Age have come to light. But in the Northwest (Northern Portugal, Galicia and the Pyrenees), where isolated bronzes of El Argar form and traces of contemporary mining have come to light, two curious series of rock-carvings exist that may be described here. The first and older group is a degenerate descendant

of the well-known Copper Age group described by Burkitt (op. p. 217). Its patterns seem to represent yet more conventionalized versions of the human figure. The body has become a rectangle or three concentric circles round a central dot. The head is denoted by a vertical line starting from the periphery and sometimes terminating in a circle or a cross. A pair of short oblique strokes, sprouting from the upper corners of the rectangles or the appropriate cords of the circles may be added to represent arms, and legs may be similarly indicated (Fig. 21, no. 1). Some of these figures may stand for the four-wheeled carts depicted on the Copper Age monuments.

In a later group conventionalization had proceeded even farther. Of the old figures nothing now remains but circles sometimes traversed by a radial line and enclosing a round hollow, termed a cup mark (Fig. 21, no. 1), or a group of such. But mixed up with these geometric figures on some rocks are highly conventionalized but quite recognizable animals, carved in the same technique. Apart from these animal figures the later Galician rock-carvings offer most interesting parallels to the "cup and ring" markings of the British Isles. They thus supplement the evidence afforded by beads and tools for the continuance of those ancient trade relations along the Atlantic coasts of which the distribution of megalithic tombs give proof in the Stone Age.

Settlements and cemeteries of classical El Argar type are common only along the east coast of the peninsula from the Ebro to Gibraltar. In Portugal El Argar types occur principally in the late degenerate forms of the local megalithic tombs. The same remark applies to the Pyrenaean region where a local megalithic culture, evolved in the Copper Age out of a fusion of

Portuguese, Bell-beaker and local Neolithic elements, now accepted some El Argar types of tool and pottery. In time the range of the El Argar culture may be considerable. It must begin quite early in the second millennium B.C., yet, at least in its homeland, it has no successor till the Iron Age.

Apart from the limited adoption of El Argar types in the south, it seems that the natives of France were incapable of fulfilling the conditions requisite for regular supplies of metal. Though isolated bronzes of early type are widespread, burials furnished with such are confined to the north-west corner and the extreme east (Savoy and Jura). The negative evidence is supplemented by the discovery of a few Bronze Age trinkets among Neolithic or Copper Age grave goods in the stone kists of the Cevennes or the *allées couvertes* of the Seine-Oise-Marne basins.

In Normandy and Brittany on the other hand a series of tombs furnished with Early Bronze Age types testifies to a vigorous though belated metal industry. The Armorican culture probably belongs rather to the Middle Bronze Age, like that of the Rhône, and so does not rank as an original centre of metallurgy, but it is none the less more convenient to mention it here at the expense of chronological exactitude. The Bronze Age graves lie conspicuously outside the areas where the famous megalithic tombs are concentrated. They seem to denote a new and probably intrusive culture. The tombs are generally chambers, built of small stones not bonded with any mortar and roofed either with a single large capstone or with a corbelled vault. The whole structure was buried beneath a mound or cairn. Usually no passage connected the chamber with the exterior of the cairn, but some tombs with a corridor of access in

Normandy may belong to this period. The tombs were designed for one interment only, and in most cases the body had been burned, though inhumations occur (51).

The furniture includes flat celts and round-heeled daggers¹ of bronze and superb tanged and barbed arrow-heads of flint. One wooden dagger-hilt had been studded with 1333 little gold nails; other daggers are bronze hilted. Wrist-guards for the bowman have been found but rarely. Among the ornaments may be mentioned a ring-head pin of silver and rare beads of amber or vitreous paste.

A curious vase regularly accompanies these burials. It is strictly biconical though the upper cone is shorter and more depressed than the lower one. Two or four wide strap handles unite the rim to the keel where the two cones join. The vases may be decorated with herring-bone incisions or with rows of hatched triangles along the keel and base and the same inverted below the keel and along the rim. This is the same style of decoration that we find generally on bronzes and gold ornaments throughout the Early Bronze Age. The origin of this culture is at the moment unknown.

The Early Bronze Age cultures in Savoy and Eastern France are chiefly represented by burials under barrows which may still contain stone axes (celts) together with bronze offerings. They are inspired partly from Bohemia and Hungary like the Rhône culture of the Middle Bronze Age.

At the close of the Neolithic Age the dominant folk on both sides of the Rhine possessed the culture termed

¹ Déchelette figures as halberds certain blades from S. Fiacre, Morbihan. An examination of the weapons, now in Oxford, disclosed not the straight transverse lines left by a halberd shaft, but the semi-circular plate usually left by dagger hilts.

by Burkitt "Pile-dwelling". They dwelt in fortified settlements. At the same time part of the country was overrun by Corded Ware makers from farther east and the Bell-beaker folk from the West. Mixed communities arose under these conditions. From an amalgamation between the two intrusive groups sprang the so-called Zoned-beaker group. This people already possessed round-heeled daggers of true Bronze Age type. A large proportion of them went down stream and settled in Britain, as we shall see below.

In the Rhineland itself, however, a kindred group, including more Pile-dwelling elements, remained behind and created the Adlerberg culture, so called after a village and cemetery on a knoll of that name on the outskirts of Worms. The huts were pit-dwellings, partly sunk in the earth, and the graves, situated among the huts, each contained a contracted corpse. Round-heads were predominant in the population. The grave goods are poor and primitive—rare flat celts, round-heeled flat daggers and quadrangular awls of bronze, and pins with broad rolled heads and a shaft bent like a sabre. The latter type was also imitated in bone. The graves also yielded flint knives and arrow-heads, bone and allegedly ivory rings, and beads and shells, including Mediterranean species, pierced for stringing.

The commonest pot is a rather biconical or pear-shaped mug with ribbon handles, that may be decorated with rows of incised triangles like the Armorican vases.

GREAT BRITAIN

The round-headed Beaker folk who descended the Rhine settled in Great Britain, introducing there their own habit of individual burial under a round barrow in contrast to the collective interments under a long barrow

practised by the supposedly older "Neolithic" long-heads. Naturally the invaders from the East did not exterminate the older population. The latter continued to bury their dead for a time in the family vaults under long barrows, and, though the round barrow eventually became universal, probably ended by absorbing the intruders. They at any rate played a part in the development of the bronze industry. Yet the oldest metal objects in Britain have been found under round barrows and with beakers. Though flint and stone are far commoner than metal with such pottery, the Beaker folk probably introduced the knowledge of metallurgy or the organizing ability needed to make that knowledge effective; the establishment of the necessary organization naturally took time for invaders in a strange country.

Our knowledge of the British Bronze Age being founded in a peculiar degree upon a study of the funerary pottery and associated grave goods, our account of it must begin with a description of the main types. The beakers⁽¹⁾ that symbolize the invaders have been divided into three main classes by Thurnam and Abercromby, denoted by the letters A, B, and C—most unhappily since, while the A and C beakers are closely allied, the B beakers are placed in a class apart by ornament and associations as well as by form.

Beakers of class B stand nearest to the continental varieties. The rims are everted and the profile forms a graceful \mathfrak{z} curve down to the base. The clay is fine, often red and generally burnished. The ornament is arranged in predominantly horizontal zones, as a rule alternately plain and decorated. The patterns, repeated round the zones, are quite simple—chevrons, triangles, X's. The decoration was executed either with a cog-wheel or short-toothed comb of bone or

wood whose square teeth, rolled over the wet clay, have left an almost continuous series of little rectangular depressions, or (in North Britain) with a cord impressed upon the damp clay or finally with a simple pointed implement. Beakers of this type are found all over the island. They are regularly associated with bronze, or perhaps copper, daggers of West European type (Fig. 7, no. 2), barbed and tanged flint arrow-heads, stone wrist-guards and buttons with V-perforation, but never with objects of Nordic type (stone battle-axes or flint daggers).

Beakers of types A and C bear a close family likeness. The neck is practically straight or even inturned at the rim and makes a definite angle with the globular body instead of rising out of it in a continuous swelling curve. In type A the neck is relatively long in comparison with the body while in C it is shorter. These beakers exhibit a greater variety of ornament than those of class B. The arrangement is no longer exclusively horizontal; a division into panels or metopes is common, and occasionally vertical bands predominate. The patterns include saltires, elongated triangles and lozenges. Cord-impression is not employed, but in addition to the remaining devices applied to the decoration of B beakers, we have the imprint of finger-nails and of a hollow reed or bird's leg-bone. In type C horizontal ridges in relief may be used decoratively. In the same class are to be included a small group of beakers with handles. Such appendages are foreign to the pure bell-beakers of Western Europe, but are not rare in Bavaria and farther east. With beakers of types A and C are associated flat round-heeled daggers with rivets for the handle (Fig. 7, no. 3), flint daggers, stone battle-axes and flint arrow-heads.

Lord Abercromby⁽⁵³⁾ believed that the Beaker folk landed at one point on our coasts, probably in Kent, and spread gradually northwards. The gradual degeneration of type A would provide a time-scale for checking their advance. The theory of a single landing-place is now generally rejected, and class B beakers must be excluded from the typological series as a group apart. On the other hand, the C beakers, that may well be decadent descendants of the A group, are really commonest in North Britain. So the people who made them may in truth have spread northwards by land routes rather as Abercromby imagined.

Partly, at least, contemporary with the beaker burials are others, accompanied by a quite unrelated vase termed a food vessel. This was the funerary pot of the "Neolithic" stock and originated in North Britain or Ireland out of a bowl found in the long barrows and contemporary settlements. The allegedly Neolithic bowls were round-bottomed so that food vessels showing this peculiarity may be regarded as early. Such are lotus-shaped with ornament even on the base; they are termed type A by Abercromby. Very soon the base was flattened and a groove developed round the widest part of the body (Frontispiece). As a further development, or more probably as a derivative of another variety of "Neolithic" bowl, the part above the grooves was contracted somewhat to form a slightly concave neck, the groove being now in a well-marked shoulder. The classical types of England are a modification of this. The lower part is an inverted truncated cone; above this comes a marked shoulder bearing one (types 1 and 2) (Fig. 20, no. 7) or two (type 4) grooves or none at all (type 3). The shoulder is surmounted by a short concave neck. In all food

vessels the rim is broad and moulded, generally on the inside.

Food vessels, especially in North Britain and Ireland, are very richly decorated. The cog-wheel technique, distinctive of Beaker ornament, is indeed comparatively rare on food vessels south of Derbyshire, while cord impressions are exceptional farther north. On the other hand, three methods of ornamentation strange to beakers were freely employed on food vessels in Ireland and Western Scotland, but grow progressively rarer as we proceed southward in England. They are termed by Abercromby the whipped-cord, the looped-cord and the false-relief techniques respectively.

In the first a cord, twisted tightly round a pin or other thin core, is impressed upon the damp clay, a style of decoration known also on "Neolithic" pottery in Scotland. The looped-cord effect may be obtained by twisting two cords together to form a braid which is impressed upon the clay, then unwinding the braid and forming a new one with the cords twisted in the opposite direction. The false relief is obtained by impressing on the soft clay a bone or wooden implement with a triangular point like that of a penknife so as to produce a series of triangles whose bases form a continuous line. The process is repeated with the point of the instrument inverted so as to yield a second series of triangles whose bases shall be parallel to those of the first but whose apices point to the junction of the bases of the first series. A zig-zag band is thus left in relief between the two sets of inverted triangles (Frontispiece). Sometimes an actual triangular stamp of wood may have been employed. And in any case the effect is similar to that of the fretwork technique on Central European pottery described in the next chapter. It is already seen on

some true bell-beakers from North Spain and Central Europe.

Though covered with patterns, food vessels seldom exhibit such distinctive motives as are seen on beakers of class A. We may, however, draw attention to the radial cruciform or stellate patterns on the bases of some Irish and Scottish examples. They distinctly recall the patterns radiating from the bases of vases of the bell-beaker class in Spain and Portugal (Frontispiece).

The food vessels of early type are found principally in Ireland and the more mountainous northern and western portions of Great Britain. In Southern England funerary vases of this group are quite rare, and all belong to late or degenerate types. Food vessels, in fact, doubtless belong to the "Neolithic" stock, dispossessed in the south by the Beaker folk. Nevertheless fresh arrivals from the south-west, whence the "Neolithic" people had presumably come, are highly probable. A reinforcement of Spanish influence is demonstrated by the radial decoration mentioned above as well as by the contemporary halberds, the chambered tumuli of the type of New Grange, the carvings on stones there and elsewhere and other cognate phenomena.

With food vessels are associated flat triangular daggers, celts and awls of bronze, flint arrow-heads and stone battle-axes, but no wrist-guards or flint daggers and very few buttons with V-perforation. The skulls of corpses interred with food vessels, like those from the "Neolithic" long barrows, are quite often long-headed in contrast to the pronounced round-headedness of the Beaker folk. Moreover, in some instances food vessels accompany cremated interments and may even contain the ashes.

To adapt them better to the function of ossuaries, the food vessels were eventually greatly enlarged, becoming what are termed cinerary urns. The general adoption of cremation, signalized by the appearance of the cinerary urn, may be conveniently taken to mark the beginning of the Middle Bronze Age here, although no corresponding changes in the buried bronze offerings can be detected. And it must be noted that even beakers were in use side by side with early cineraries.

Sharply defined cultural groups are not distinguishable in Great Britain till the Late Bronze Age, but even in our period we can discern the working of a principle, recently enunciated by Dr Fox⁽⁷¹⁾. In the predominantly lowland area south-east of a line from Teesmouth to Torquay foreign cultures of continental origin tend to be imposed; in the highland country to the north-west such tend to be absorbed. In our period the Beaker culture maintained itself for a long time in the south; in the north the native Bronze culture characterized by food vessels soon developed and superseded it. Two overlapping phases of the British Early Bronze Age are thus obvious; the first, marked by the earlier types of beakers, witnessed the arrival and expansion of the round-headed invaders; during the second the older population, distinguished by the food vessels, reasserted itself. Thanks to the blending of two traditions the native civilization of the British Isles during these two periods was vigorous and original.

While they undoubtedly cultivated grains and engaged in trade and industry, our Bronze Age ancestors were semi-nomadic. As Dr Curwen⁽⁸⁰⁾ puts it "like the patriarch Isaac who 'sowed in that land and found in the same year an hundredfold...and departed thence' our Bronze Age ancestors inhabited a site from one

to five years until the cornplots were exhausted and then moved elsewhere". No large villages have been found, and the earlier burials do not constitute regular cemeteries. A few fortified enclosures on hill-tops were certainly occupied by the Beaker folk, but their foundation dates from an earlier age. The defences, of which Windmill Hill near Avebury offers the typical example, consisted of concentric moats interrupted by frequent causeways⁽¹⁰⁸⁾.

The dwellings of the period were mainly circular. In England the hut was excavated in the chalky ground and completed probably by a conical roof of skins. In Scotland beaker sherds have been found in "hut-circles" of which the foundation only—a circular bank of stones and turf—survives; the nature of the superstructure is unknown. In one near Muirkirk in Ayrshire⁽⁷⁹⁾ a post hole was observed near the centre as well as a large hole full of ashes and cracked stones that served as a cooking-pit. Such hut-circles are scattered all over the moors throughout the British Isles and are easily seen when the heather is not too high. In all a gap in the circular bank, often flanked by great stones, marks the doorway. In some later huts (Late Bronze Age) on Dartmoor⁽⁷⁸⁾ the megalithic jambs and the stone lintel above them are still in position. These show that by the Late Bronze Age at least the hut with low narrow doorway (2 feet 9 inches wide by 3 feet 9 inches high) was already well established. Sometimes the door opens on to a low narrow passage, often bent in an elbow. A comparison with the snow huts of the Esquimaux suggests that these features were designed to exclude currents of cold air. The superstition about draughts that makes railway travelling so painful even now is clearly very old. The inhabitants of hut-circles

seem to have enjoyed the odorous warmth of human bodies clustered about a reeking fire as much as their Arctic representatives. The stone hut-circle, with its analogues in the beehive tomb, is an Atlantic-Mediterranean device inherited from the old "Neolithic" stock in Britain, but it continued to grow into even more elaborate forms during the Iron Age.

Hut-circles generally occur in little groups, evidently tiny hamlets of from four to twelve families. Adjacent to some groups, for instance on Dartmoor and on Spartleton Edge in the Lammermoors, remains of irregular enclosures, fenced by dry walls of stone, are noticeable. They may denote the cornplots of the semi-nomadic villagers⁽⁸⁰⁾.

Nearly all Early Bronze Age burials have been marked externally by a mound of earth or a cairn of stones. But the barrows and the grave beneath them vary considerably in structure. The simplest form of barrow is a roughly circular mound; from their external appearance such tumuli are termed "bowl barrows". The base of the mound is sometimes surrounded with a ring of large stones, technically called a peristalith, that served to keep the material of the tumulus in place. Occasionally such a ring of stones or a circular trench dug in the virgin soil encircles the grave but is completely buried by the mass of the barrow. Very close attention is therefore needed during the excavation of even a simple bowl barrow to disclose these and other possible structural features. A more elaborate monument is the so-called "bell barrow". Here the mound is surrounded by a ditch or fosse with a bank outside it; a narrow belt of level ground, known as the berm, generally intervenes between the inner lip of the encircling fosse and the base of the mound proper. Some gigantic tumuli,

covering built chambers, such as the celebrated Maes Howe in Orkney, could be classed as bell barrows though some believe them to be Neolithic rather than Bronze Age. In a third type, christened the "disk barrow", the central eminence has virtually disappeared; we have, that is, an immense berm encircled by fosse and rampart. Such are supposed to be late in the Early Bronze Age; disks are generally earlier⁽⁷²⁾.

The normal grave of the Beaker people was a simple trench or, in hard country, a short kist built of six stone slabs at the centre of the barrow. In Ireland and Northern and Western Scotland some round cairns which covered circular or more often cruciform chambers, roofed by corbelling, are still assigned to the Bronze Age. Such chambered cairns are clearly connected with the old long barrows that covered similar chambers. And it must be remembered that Early Bronze Age pottery, principally Beaker ware, has been found in quite a number of long barrows, showing that such family vaults were still in use when the Beaker folk reached our shores.

"The standing stones on the naked wine red moor" are a feature of British highland scenery scarcely less impressive than the grandeur of their setting. Mr Burkitt⁽¹⁾ has already described the principal characters of *menhirs*, alignments and cromlechs as well as Stonehenge⁽⁷⁵⁾, but a few additional words on the stone circles are indispensable to any account of the Bronze Age in Great Britain. It has been suggested that the stone circle developed out of the peristalith of a cairn or from the buried setting under one⁽⁷³⁾. At Clava near Inverness we actually find circles of huge upright stones enclosing the chambered cairns, and at Callernish in Lewis a similar ring of uprights encloses a chambered

tumulus but just touches its periphery. Our stone circles vary widely in character and doubtless also in date and function. All consist of upright stones placed so as to form a ring, but the number, size and arrangement of the stones are variable. There are circles whose stones barely emerge above the surface of the ground and others like Avebury (Wilts), consisting of stupendous blocks of stone. Some large circles are surrounded by a fosse and bank like the Rings of Brodgar (no bank) and Stennis in Orkney, Arbor Low in Derbyshire and of course Stonehenge itself and Avebury. The diameter between the stones of Brodgar is 340 feet. A much smaller example of a similar type (without bank) is to be seen at the Broomend of Crichie near Inverurie with a diameter of only 38 feet. Its six pillars surround a central burial kist. In a specialized group, confined to Aberdeenshire, the uprights increase in height progressively throughout a semicircle, and a huge horizontal slab, termed the recumbent, lies between the two highest which are of course adjacent. Some circles at least were sepulchral. For example, a kist containing a food vessel was found so precisely in the centre of a circle on Mauchrum Moor on the west coast of Arran that grave and circle must have been conceived as a single monument. The food vessel incidentally fixes the Early Bronze Age date of this circle at least. But others may be later in date and need not have been connected with any burials. Sometimes two circles are closely juxtaposed as in the famous Grey Wethers on Dartmoor.

Near many stone circles stands a single upright termed the outlier. Such are attached to all sorts of circles in all parts of the country, e.g. to the fossed Ring of Brodgar in Orkney, to most Aberdeenshire circles, to the small ring termed the Rollright Stones in

Oxfordshire, etc. Outliers furnish one of the principal arguments to those who believe the circles to have been astronomical. The outlier would be a pointer to mark some celestial event viewed from the centre at a stated season of the year. Unfortunately in quite a number of cases the only possible phenomena to which many of these outliers might have been orientated prove to be of such an inconspicuous nature that they are unlikely to have attracted attention in our clouded heavens. Indeed it is fantastic to imagine that the ill-clad inhabitants of these boreal isles should shiver night long in rain and gale, peering through the driving mists to note eclipses and planetary movements in our oft-veiled skies.

The cover-stones of certain Scottish kists containing food vessels or beakers exhibit a curious carved decoration, and allied patterns can be seen on the stones of the peristaliths and chambers of the famous chambered tumuli at New Grange and Lough Crew in Ireland. Here Professor Breuil has been able to distinguish four series⁽¹⁾. The first, simple engraved lines, and the second, consisting of spirals and other curvilinear figures executed by pocking, are anterior to the building of the tumuli which partly hide the markings. Subsequently other patterns—lozenges and diapers pocked all over—were squeezed into the spaces left by the earlier figures. Designs of the same series, Breuil's group IV, recur together with spirals, on the underside of the stone covering a kist containing a beaker at Carnwath in Lanarkshire (Fig. 21, no. 2). Between these limits fall a large series of patterns, allied in design and technique to group II but executed on living rock surfaces in Southern Scotland and Northern England. The commonest device here is the "cup-and-ring marking": a shallow depression, 1-2 inches in diameter hammered

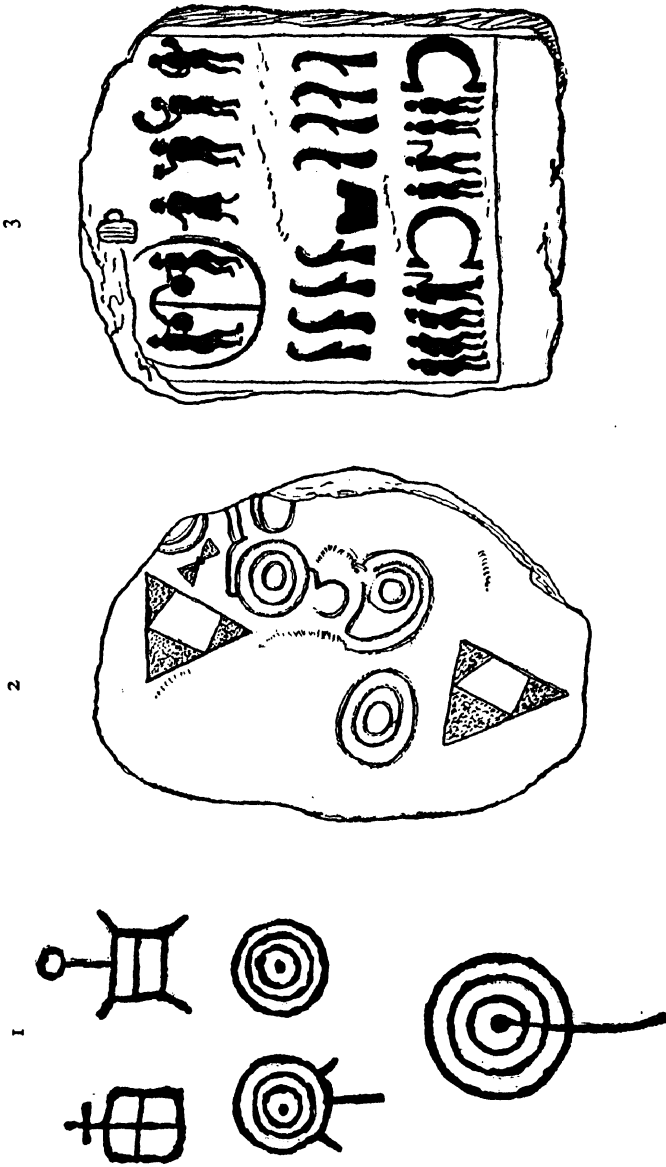


Fig. 21. (1) Conventionalized human figures carved on rocks of Galicia.
(2) Coverstone of a kist at Carnwarth, Lanarkshire.
(3) Slab from the tomb at Kivik, Sweden.

out in the rock surface, is surrounded by from one to eight concentric circles, pocked out; a groove often runs from the centre to just beyond the outermost circle (cf. Fig. 21, no. 1). Cognate curvilinear patterns, showing very clearly the motive of a pair of human eyes that is just discernible at New Grange, are carved on a chalk drum found under an Early Bronze Age barrow at Folkton in Yorkshire. Probably in all these carvings we have very conventionalized versions of the human figure or parts thereof and perhaps of ritual objects such as bull-roarers. The peculiarity of the group lies in the use of curvilinear motives that are otherwise foreign to the Bronze Age art of Europe except at a later date in Scandinavia and Hungary. The spirals have been interpreted as due to Mycenaean influence. In any case the carvings do indicate very close connections with the South-west. The spirals of New Grange have parallels, which cannot be accidental, on the walls of the great passage grave of Gavri'nis, Brittany. The cup-and-ring markings exhibit no less significant similarities to the Galician carvings mentioned on p. 150. These carvings can hardly be merely decorative. As we have no insight into their inner function and significance, we mask our ignorance by calling them religious or magical.

The purely decorative art of our Early Bronze Age is illustrated on the pottery already discussed and on the weapons and ornaments. Of the latter the most striking are the gold lunulae and jet necklaces described in Chapter III. All show the strictly rectilinear patterns of triangles and similar motives usual everywhere at the period, engraved in the case of bronzes and lunulae and punctured on the jet beads.

The main types of tools and weapons in use have already been sufficiently summarized in dealing with

the grave goods associated with beakers and food vessels. The only important addition to the list, given by a study of the few hoards assignable to the period, is the halberd that was, as noted in Chapter III, very common in Ireland. It must again be insisted that flint was very freely used, not only for arrow-heads but also for all sorts of knives and scrapers, and polished stone celts, as well as battle-axes, were still current. Yet copper or bronze flat celts were manufactured locally. Moulds for casting such have turned up in Scotland to an extent unsurpassed anywhere on the continent outside South-eastern Spain, and the distribution of actual specimens coincides fairly closely with that of Early Bronze Age settlement as disclosed by Beaker burials. On the other hand, Dr Fox⁽⁸⁹⁾ contends that the bronze knife-daggers were imported from the South by sea. They are certainly concentrated in South-western England and become disproportionately rarer to the east and north. Commercial or other connections with the Iberian Peninsula were certainly close during the period. And a dagger whose wooden hilt was decorated with tiny gold nails affords a link with contemporary Brittany. At the same time contact with the lands across the North Sea is illustrated by the amber necklaces and flint daggers of Scandinavian type as well as by beads in the form of a double-axe—a well-known “Neolithic” type in Denmark.

Thus three currents met in England during the Early Bronze Age—one from Central Europe represented by the invading Beaker folk, another from the Iberian Peninsula, perhaps unconnected with popular movement, and a third, plainly mercantile, from Scandinavian countries. That explains the intense vigour and originality of our Bronze Age civilization.

CHAPTER V

THE MIDDLE BRONZE AGE

THE Middle Bronze Age is much more than a mere continuation of the previous period. It witnessed the rise of schools of metallurgy in regions where Early Bronze Age types are rare and among peoples who had spent the preceding period in a belated Stone Age. The new communities of metal-workers made an original contribution to the common European stock of types. Thus many of the bronzes illustrate a new spirit instead of being just improvements on the older types. Conversely, in several centres of early metallurgy, particularly South-eastern Spain and Great Britain and to some extent also Central Bohemia, Middle Bronze Age types are either totally lacking or represented only by stray objects and a few hoards. The principal new provinces are Scandinavia, the South-west German uplands and Hungary, to which may be added the peculiar developments in Upper Italy and the Rhône valley. It will be seen from a glance at the map that these centres lie along and on either side of the great central amber route. The regions remote therefrom failed to participate in the new developments.

SCANDINAVIA

While the earlier Aunjetitz culture had been flourishing in Bohemia, and plentiful metal objects were being buried with beakers and early food vessels in Great Britain, the peoples of Scandinavia and North Germany still used stone tools, supplemented by a very few bronzes imported from England or Central Europe. To that epoch should be assigned the latest megalithic

kists and the separate graves high up in the barrows of the Battle-axe folk. The latter had obtained complete dominance before the secrets of metal-working had been mastered locally. But smiths were eventually attracted to Denmark, which became the centre of a new metal-working province, termed Germanic or Teutonic. Besides Denmark it embraced the Norwegian coasts, Southern Sweden, North-west Germany and Central Germany north of Magdeburg.

The distribution and grouping of the barrows—for very few settlements are known—produces the impression of a semi-nomadic people, living in little groups with a limited regular range. It must be remembered that the dry sub-boreal conditions had converted the North European plain into an open park-land, verging on steppe in some districts. The Bronze Age population buried their dead, like the Neolithic Battle-axe folk, under barrows, normally in the extended position and very often enclosed in coffins formed out of hollowed oak trunks.

Besides flint tools—sickles, scrapers, knives, and even celts—flanged celts, palstaves or even socketed celts, button sickles and knives were manufactured locally in bronze. In men's graves weapons are abundant. From such come the splendid swords with inlaid pommels, great socketed spear-heads sometimes 35 cm. long, and, more rarely, heavy battle-axes with a shaft-hole. The arrows were still tipped with flint points, and even flint daggers remained current, though inferior in workmanship to the amazing products of the last Neolithic Period.

Unusually favourable circumstances have preserved to us substantial vestiges of the actual clothing then worn. Men wore a close-fitting woollen cap; a sort of

blanket was girt round the body under the arms, while the shoulders were covered with a plaid fastened by a brooch at the throat. Women were clad in a short sleeved jacket, like a pull-over, and a skirt formed by girding a blanket round the waist. Their long hair was held in place by a net. Both sexes were shod with leather boots. The simple woollen dress was set off by a wealth of gold or bronze ornaments. For fastening the cloak two-piece fibulae (Fig. 14, no. 16) were used, but neat studs were also manufactured. The leather girdles were fastened with the clasps already described on p. 127 and decked with tutuli. These are circular. Those worn by women have a central spike while the disk may attain a diameter of 28 cm. (Fig. 17, no. 2). Men's were of more modest size with a hollow boss or *umbo* in the centre. Males wore bracelets on the left arm only, females on both. The most distinctive and beautiful terminate in spirals or pairs of spirals. Finger-rings and bracelets of double gold wire were favoured by both sexes. Finally, women wore the broad gorgets, like Fig. 17, no. 1. Necklaces of amber or glass beads are less common.

Towards the close of the period toilet articles in the form of tweezers, single-edged razors (Fig. 12, no. 11) and bronze combs begin to appear in the graves.

Pottery is rare and exceedingly rough. Finer vessels were made of wood. Several neat cups of this material have survived. They appear to have been turned on a pole-lathe, are provided with a band handle and sometimes are adorned with little tin nails forming a star pattern on the base.

The Teutons of the Middle Bronze Age displayed high artistic capacity. Their aesthetic taste is best exemplified in the shapely weapons and graceful orna-

ments and their decoration. Axes, sword-hilts (Fig. 9, no. 6), collars and tutuli are covered with running spiral patterns engraved with astonishing accuracy. In the later phases of the Bronze Age the first delicacy is lost, but we shall see a fine revival of curvilinear ornament in the latest period that corresponds to the southern Hallstatt age.

Probably to our period belong also some rock-engravings, found principally in Bohuslan, Southern Sweden. As artistic productions they are far inferior to the delicate geometrical art of the bronze-worker or to the older naturalistic engravings of the Arctic Stone Age hunters (Burkitt⁽⁴⁹⁾, p. 213), but they are none the less full of human interest. They depict in fact scenes of daily life—men at the plough, combats between warriors protected by round shields, very like those we shall meet in the Late Bronze Age, and naval battles between great rowing galleys. Different in style from the foregoing are the engravings on a Middle Bronze Age grave kist unearthed at Kivik, Schönen. One slab depicts a prince in a chariot, directing the slaughter of three naked captives quite in the spirit of certain early Sumerian scenes. Another slab (Fig. 21, no. 3) represents some rather puzzling ritual ceremonies: its upper register shows a band of musicians blowing long curved trumpets or playing other less easily recognizable instruments; below in the middle we see eight women (looking very like seals!) grouped symmetrically about a large cauldron. The bottom register is taken up with another group of captives being slaughtered.

The significance of these uncouth carvings cannot be over-estimated. They afford the oldest positive proof of the use of wheeled vehicles north of the Alps and probably also of the domestication of the horse. The use of the musical instruments, well known in the succeeding

period, is here dated back well into the second millennium B.C. The cult scene is even more important; for it anticipates a ceremony described by Strabo as observed among the Cimbri who hailed from Denmark, and more clearly depicted on a famous bronze cauldron of later date discovered at Gundestrup in Jutland. The Greek author describes how among the Teutonic tribe a priestess used to cut the throats of prisoners of war so that their blood gushed into a great cauldron. Omens were obtained in this manner. The Kivik monument implies a similar gruesome rite among the ancestral Teutons about 1400 B.C., unrolling in salutary wise a blood-stained page which we should gladly forget.

The free use of the spiral, and especially of interlacing spiral figures exactly as at Mycenae, has been thought to betoken Aegean influence, the Irish and Scottish carvings being sometimes invoked as links. But in point of fact the Teutonic Bronze Age was singularly original and independent. Hungary, indeed, supplied models for a number of types, but imported foreign commodities are rare. Of course the metals, copper, tin and gold, had to be imported from the South or West, but they arrived raw and even unalloyed. Of foreign manufactures we find from the East Mediterranean glass beads, from Italy a sword with lead solder on the hilt and from South-west Germany wheel-head pins, but that is all. Conversely Teutonic bronzes were never exported at this date. Save for a couple of two-piece fibulae from the Tyrol and North Italy, the unmistakable bronzes we have described only found their way very sporadically just across the border of the Teutonic province into Holland and Thuringia. The imported metals must have been paid for entirely in amber or slaves. In the Late Bronze Age we shall find affairs

changed and Teutonic manufactures reaching Hungary and Switzerland.

THE TUMULUS BRONZE CULTURE

The heaths and upland country of Holland, Western Germany, Bavaria, Upper Austria and South-western Bohemia are dotted over with groups of barrows whose furniture marks each as just a specialized manifestation of a single culture. In the enormous area local differences are only to be expected, and in fact extend to tools and weapons as well as vases and ornaments. Still it is convenient and justifiable to treat all the local groups together as the Tumulus Bronze culture.

The tumulus-builders are thought by many authorities to have been Kelts, but this, as we shall see, is dubious. Physically they were distinctly mixed, including both long-heads and round-heads as well as mesaticephals. But they were the direct descendants of the peoples who had occupied the South-west German uplands and the Alpine slopes towards the close of the Stone Age. Among these the Battle-axe folk, as in the North, would have been the most prominent. Indeed in Upper Bavaria⁽⁸⁵⁾, Alsace⁽⁸⁶⁾ and elsewhere in the area barrows with Corded Ware have been found in or near the Middle Bronze Age cemeteries, forming as it were their nuclei. These highlanders and heathmen learned metal-working late, like their Scandinavian relatives, and learnt it from the Danubian school, as the earliest bronzes even in Alsace and the French Jura prove.

Economically the barrow-builders must have been largely pastoral and semi-nomadic. There is no doubt that they cultivated grain like our own ancestors, but they did not settle in the fertile valleys like the Aunjetitz

folk. Their favourite haunts were poor and hilly regions that are to-day heavily timbered unless artificially cleared, but that under the dry sub-boreal conditions were heath or park-lands, as surviving xerophilous plants indicate. As characteristic regions we might mention the swampy tract of alluvial sands, covered to-day with oak woods, north of Haguenau, near Strasbourg, and the lovely slopes of boulder clay above the little glacial lakes behind Munich.

Owing to their mode of life and perhaps under stress of periods of real drought, the tumulus-builders spread far. From centres in Upper Bavaria or Württemberg the slopes of the Hercynian forest in Bohemia were early colonized, and by the Late Bronze Age we find allied groups as far away as Bosnia. So, too, from the terraces above the Upper Rhine and the Jura the greater part of Eastern and Central France was overrun as far as Charente.

Settlements are practically unknown, but the graves are distinctive. The burial place is always marked by a tumulus of earth or stones generally covering one or two interments only, but sometimes serving as a collective sepulchre. The remains were laid, not in a trench, but just on the surface of the earth, protected by stones. The normal rite was inhumation in the extended position. But cases of cremation occur among even the earliest Bronze Age interments as under Neolithic barrows in the same area. This rite became increasingly common as time advanced. But the ashes were generally just deposited on the ground; only where the influence of the Urn-field folk, described in the next chapter, was strong in the Late Bronze Age, were the ashes enshrined in cinerary urns.

The warrior was armed with an axe, a dagger, and a

rapier or a spear with socketed head. The axe-heads never possessed shaft-holes, but consisted of flanged celts (everywhere), very slender winged celts (Fig. 4, no. 2) (Württemberg and Upper Bavaria), palstaves (Fig. 3, no. 5) (South-west Germany and Holland) or Bohemian palstaves (Fig. 4, no. 4) (in the Palatinate and Bohemia). The daggers were very seldom mounted in bronze hilts, but at least in Bavaria bronze-hilted rapiers are common. As a defence, the warrior carried a round targe of wood or leather, studded with hollow bronze knobs which alone have survived. The bow was used in hunting, and bronze arrow-heads have been found even in women's tombs though they are far from common. Sickles too of the button type (Fig. 13, no. 1) were sometimes buried in the graves, but, with the possible exception of a small group in Franconia and Bavaria, single-edged knives appeared first in the Late Bronze Age.

The dress was probably similar to that worn in Denmark. Men fastened the cloak at the throat with a single pin; women always used two crossed on the breast. In Württemberg the type with an eyelet in the swollen neck was at first the standard, to give place in the Late Bronze Age to giant forms with ribbed necks (Fig. 14, no. 10). In Bavaria and Bohemia mushroom-headed varieties were popular, while in Alsace the nail-headed type was once general, though later superseded by wheel-headed and ribbed types. Bracelets were worn by both sexes, exactly as in Denmark. The most general type was a simple rod, tapering at both ends and bent into an open ring, but forms like Fig. 15, nos. 3 and 4, and, on the Rhine, cylinders were quite popular. Finger-rings with ribbon bodies like Fig. 15, no. 10 were displayed upon the fingers, and the legs were sometimes burdened

with anklets like Fig. 15, no. 6. Such were an Alsatian speciality. From the Rhine they spread westward into East-central France, helping to mark the expansion of the Tumulus culture. The girdle might be fastened with a spiral-ended hook and was studded with hollow bronze buttons, small spiked tutuli and, later, wheel-pendants. Strings of amber and glass beads, bronze wire coils and pendants including the sacral ivy leaf, were hung round the neck though ingot torques were sometimes worn.

The pottery, often very graceful, varies materially from region to region. But the best proof of the fundamental homogeneity of the whole culture is the fact that any given local ware is represented by stray specimens in almost all the other regions. In the Rhine valley, Würtemberg and Upper Bavaria the commonest shapes are hemispherical cups, jugs with globular bodies and wide funnel-like necks, and big urns with short necks and handles on the shoulders. In Bohemia and the Palatinate the bowls may have pedestals and a handle, the jugs bear four warts on the belly, and the urns are squat with conical necks. The ornamentation is also different. None the less pedestalled bowls quite comparable to the Bohemian are found also in Alsace.

The vases from Bohemia and the Palatinate are decorated either by simply roughening the surface or with incised hatched triangles or chevrons of cross-hatched ribbons. Roughening was also used decoratively in Würtemberg and the other groups, but conical warts sitting on the shoulders are a common decorative device (Fig. 22, no. 1). The most distinctive of all, however, is the so-called fretwork ornamentation (*Kerbschnitt*). The effect at first was similar to the "false relief" on British food vessels, but in this case the little triangles and

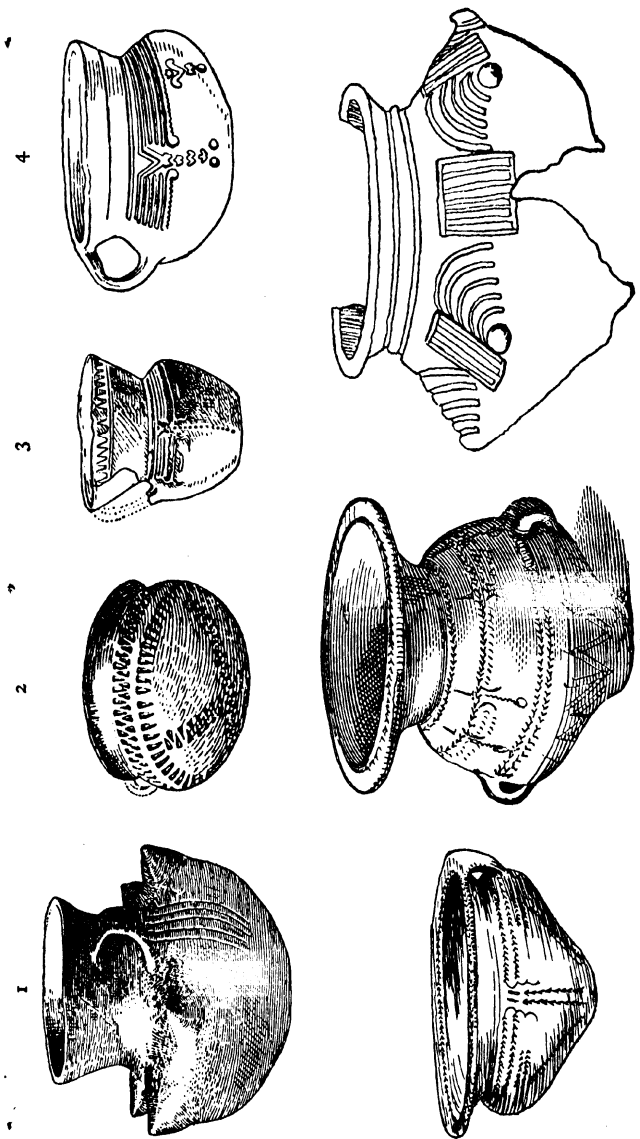


Fig. 22. (1) Jug ornamented with warts, Tumulus culture, Würtemberg. $\frac{1}{3}$
 (2) Cup with fretwork patterns, Tumulus culture. $\frac{1}{3}$
 (3) Pannonian cup. $\frac{1}{3}$
 (4) Pannonian cup. $\frac{1}{3}$
 (5) Cup, south Hungarian urnfields. $\frac{1}{3}$
 (6) South Hungarian urn. $\frac{1}{3}$
 (7) Urn with wart ornament, terremare of Italy.

lozenges were actually cut out of (excised from) the soft clay (Fig. 22, no. 2). Later, stamps of various shapes including circles came into use. In either case the fretwork patterns are arranged, as on beakers, in zones or radiating from the bases of vessels. Fretwork pottery is particularly common in Würtemberg⁽⁴³⁾ and on the Upper Rhine but is represented also even in Bohemia and Upper Austria, all down the Rhine and right across France to the Departments of Gard, Puy-de-Dôme and Charente. Similarly jugs or urns with conical warts of Swabian style are found in Bohemia and in Western Lorraine (Dept. Meurthe et Moselle⁽⁴⁾).

THE ITALIAN TERREMARE

The third new group of the Middle Bronze Age had its seat in Upper Italy, south of the Po. It is distinguished by a curious sort of settlement termed a *terramara*, the "black earth", full of organic refuse, having been used as fertilizer by the local peasantry. A *terramara* is a low, oblong mound, 12-15 feet high, formed by the debris of prolonged occupation. On exploration it is found that the settlement had been fortified and laid out on a regular plan, common to most sites. The occupied area, which may cover nearly 200,000 square metres (50 acres), is always trapezoid in shape and is surrounded by a moat, 15-25 yards wide and about 12 feet deep. The moat was traversed by a single bridge and could be flooded by a canal joining it at the acute angle of the trapezoid. Some 20 yards inside the moat rises a broad rampart of earth, sloping on the outside but supported within by a wooden construction, resembling a series of small log-cabins and termed in Italian the *contraforte*. The area thus enclosed reveals on excavation a regular forest of piles. These it is supposed supported the

actual huts which would have been "pile-dwellings on dry land". They appear to be grouped along lanes parallel to the long sides or at right angles thereto. On the south side there is generally an earthen mound encircled by an inner moat.

Two cemeteries were normally attached to each *terramara*; they are miniature *terremare* with moats of their own. The inhabitants of the *terremare* (termed *terremaricoli*) burned their dead, preserving the ashes in cinerary urns. These are found packed close together in the necropoles.

The *terremaricoli* were prosperous farmers. The number of sickles or moulds for their manufacture testify to the importance of agriculture. The domestication and employment of horses is attested by cheek-pieces from bits. But the *terremaricoli* were also skilled craftsmen and keen traders. Metallurgy is illustrated by numerous stone moulds, weaving by whorls, loom-weights and spools of clay. Trade brought them, besides metals, amber from the Baltic and glass beads from the Eastern Mediterranean.

Polished stone celts and axes, flint knives, scrapers, arrow-heads and even daggers are not uncommon in a *terramara*, and tools of bone and horn are varied and plentiful. The distinctive bronze tools are flanged and winged celts, flat chisels, little awls, and needles, numerous grooved sickles, and a few single-edged knives. The warrior carried flat triangular daggers with bronze or horn hilts of ogival forms as well as three types of sword—the short sword with flat blade that is just an elongation of the flat dagger, a rapier of continental form, and another with a short tang formed by the prolongation of a pronounced midrib which is derived directly or through Sicily from Minoan types. Odd

ogival blades with a short flat tang and projecting shoulders may have been hafted as daggers or as spear-heads. But socketed spear-heads were also in use.

A great variety of pins were worn. Wiry headed varieties, singly or doubly looped and blossoming into spirals and double spirals, are the most distinctive. Little bone wheels that are common may also have been pin heads. Safety-pins of the violin-bow form are late and rare in *terremare*. But double-edged razors were in regular use and cast locally (Fig. 12, no. 5). Another toilet article was a comb of bronze or bone.

Terramara pottery is characterized above all by the extraordinary crescentic or horn-like projections that surmount the vase handles (*ansa lunata*, *ansa cornuta*). Such are just exaggerations of a feature, found earlier on Italian pottery, to which there are analogies in Macedonia, Aetolia, Malta, Sicily and Sardinia. The shapes include shallow cups, pedestalled vessels, and inverted conical or biconical urns, generally without necks. Warts, pinched out of the clay and often encircled by incisions, are the principal decorative device.

An approach to plastic art is seen in rude clay figurines and models of animals. The bone combs, disks and hilts are often richly carved with zig-zags, triangles, concentric circles or even running spirals.

An important school of Italian prehistorians, founded by the late Professor Pigorini, hold that the *terremaricoli* were the original Italici from whom the Umbrians, Latins and Sabines were alike descended. A genuine *terramara* near Taranto and other more ambiguous remains from Central Italy would be the monuments of the "Aryanization" of the peninsula. It is at least certain that the *terramara* industry became dominant throughout its whole length. According to Pigorini

these Italici would have been invaders from beyond the Alps. But despite general analogies in sites like Tószeg on the Tisza, no genuine *terremare* have been found in the Danube basin, and the exact starting-point of the Italici remains uncertain.

HUNGARY

The Middle Bronze Age in Hungary begins with the desertion of several Early Bronze Age sites and a break in the ceramic record—a layer yielding no potsherds—in others. Yet by the end of the period we find the whole plain occupied by extensive communities, each traceable by their pottery to Early Bronze Age groups though the traditions are now differently blended. At the same time a number of bronze types, found stray or in hoards and dated by their context abroad, show that Hungary was now the seat of a very vigorous and original bronze industry.

The most distinctive forms of the period are the shaft-hole axes described on p. 75 above (Fig. 23, no. 1); for celts were not manufactured locally to serve as axe-heads. The forms are probably derived from Copper Age models; the distribution suggests that they were manufactured principally in North-east Hungary, the copper being derived presumably from the Mátra Mountains. Thence they were exported as far as Upper Austria, Bavaria, Mecklenburg, the Ukraine and Serbia. Besides an axe the Hungarian warrior carried a spear with socketed head or—very rarely—a rapier. Small ogival daggers are occasionally found in the late graves. Few tools can safely be assigned to the Middle Bronze Age, but the ornaments were varied and distinctive, and enjoyed a wide popularity even outside Hungary. Many

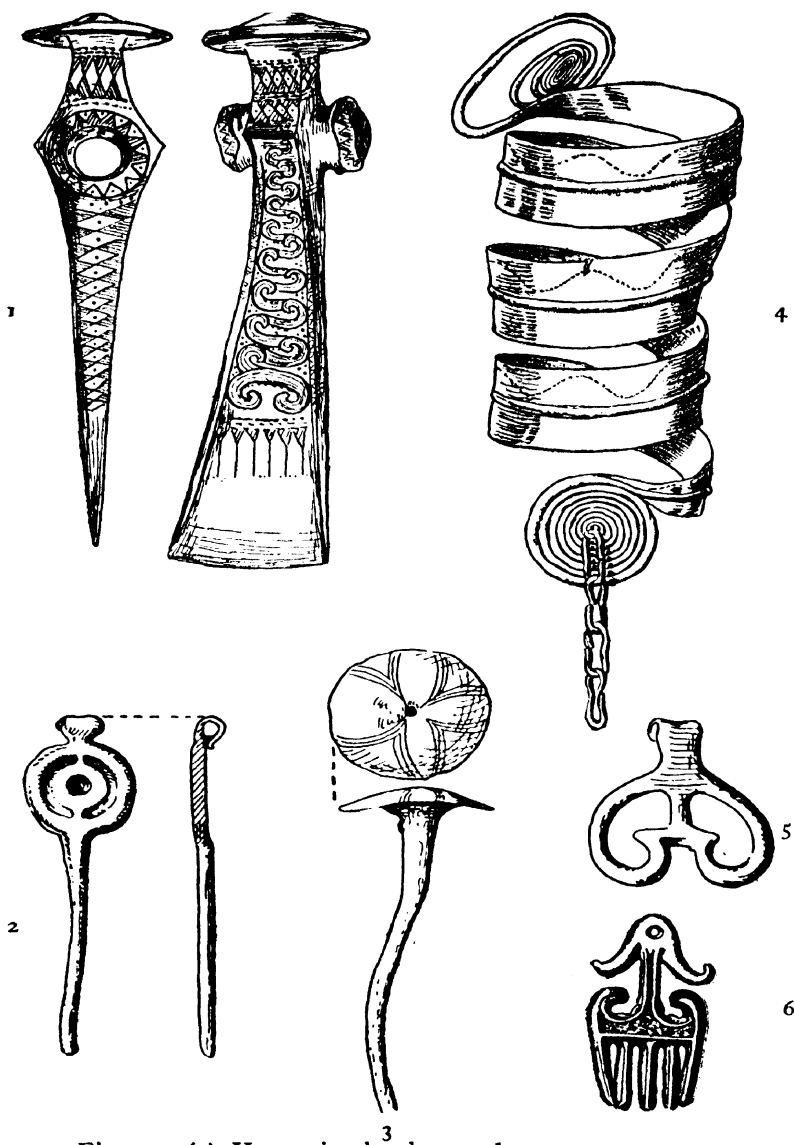


Fig. 23. (1) Hungarian battle axe. $\frac{1}{3}$
 (2) Disk-head pin, Hungarian type. $\frac{1}{2}$
 (3) Mushroom pin of Hungarian type. $\frac{1}{4}$
 (4) Cylinder, Hungary. $\frac{1}{4}$
 (5) Sacral ivy-leaf pendant, Hungary. $\frac{2}{3}$
 (6) Pectiform pendant, Hungary. $\frac{2}{3}$

Early Bronze Age types of pin remained in use throughout the Middle Bronze Age. But the most characteristic native type had a mushroom head vertically pierced (Fig. 23, no. 3) or with a lateral eyelet just below it. The bracelets tended to be massive and richly engraved. The ends are either thickened or coiled into opposing spiral disks (Fig. 15, no. 3). Hardly less distinctive are the cylinders of bronze ribbon ending in wire spirals worn on the legs and arms (Fig. 23, no. 4).

A great variety of pendants were sewn on the girdle, strung on necklaces, twisted in the locks or hung down over the breasts or the middle of the back. Most are of bronze, but gold specimens are known. Besides the hollow buttons and spiked tutuli, common also in other regions, many varieties of the sacral ivy-leaf pendant were manufactured in Hungary and exported thence as far as Alsace. Another important form is the pectiform or comb-shaped variety that formed a sort of tassel to ornamental chains hung down the back (Fig. 23, 5, 6). The gold spiral lock-rings, current already in the Early Bronze Age, continued to be worn.

Great aesthetic taste was shown by the Hungarians both in the grace of their ornaments and in the magnificent patterns engraved upon their weapons. In North Hungary in particular, scrolls luxuriate over the blades and butts of axes as lavishly as the more austere spirals of contemporary Teutonic art (Fig. 23, no. 1).

The remains from the relatively sterile layer at Tószeg suffice to show that even in the first half of the Middle Bronze Age the Hungarians had at their command the motive power of horses. Apart from these layers and a few inhumation burials, connected deposits are rare as if there had been a considerable exodus at the end of the Early Bronze Age. The lacuna may be the reflex of the

abruptly appearing invaders of Italy described in the last section as the *terremaricoli*. Nevertheless before the period closes the abundant remains must betoken a large and settled population, descended from old local stocks. We rely for our information chiefly upon cemeteries which may be divided by burial rites and pottery into several groups. In the largest group termed Pannonian, extending from the Austrian borders south-eastward into Central Hungary, as well as in the cemeteries of the Banat and North-east Serbia that continue the same line, cremation was the sole rite observed. In Southern Hungary and Slavonia inhumations also occur, and in the extreme north-east the latter rite was alone practised.

The tombs are poorly furnished with bronzes, but these conform to the Middle Bronze Age types familiar from the hoards. A wealth of vases counterbalances this poverty in metal grave goods. The ashes were enclosed in cinerary urns, in the Pannonian group generally great pitchers with trumpet-like necks, tall piriform bodies and one or two handles. The South Hungarian urns belong to the class of two-storied pots (Fig. 22, no. 6). The accessory vases and some urns are elaborately decorated. In the Pannonian group proper wide bands of true fretwork (excised, not stamped) are combined with stab-and-drag lines, uniting impressed concentric circles (Fig. 22, nos. 3, 4). In the more southerly groups fretwork is no longer used, while the incised lines often form running spirals, maeanders or rosettes. In the north-east the main decorative device was the conical wart, applied or pinched up and often surrounded by deep grooves.

Both in Slavonia and Serbia art was also manifested in clay figurines decorated in the same style as the vases. They represent a female personage, wearing a richly

embroidered bodice and a flounced skirt and decked with necklaces and pendants. The most famous idol of this class, found at Kličevac in North Serbia, was unfortunately lost during the war. The same region has yielded model thrones, axes and other clay votives.

The vase forms in most cases can be traced back to Early Bronze Age groups. Pannonian jugs and dishes have forerunners at Gáta and Tószeg; the hour-glass mug of Perjámos reappears in the Banat cemeteries. Pannonian ware is decorated in just the same technique as the earlier Slavonian ware. Hence the Hungarian plain cannot have been entirely deserted by the Early Bronze Age population, though some of the original groups had shifted their territories or amalgamated with neighbours.

THE RHÔNE CULTURE

Stray flanged celts and flat daggers of bronze as well as bone copies of common bronze pins have been found in several of the later "Neolithic" lake-villages of Switzerland. It would seem that the pile-dwellers lived on in a stone age throughout the Early Bronze Age and part of the succeeding period. By that time, however, we find in the Rhône valley, but unconnected with the lacustrine settlements, graves furnished with a distinctive series of bronzes. The tombs are either small megalithic kists, containing a number of corpses, or individual graves without any barrow over them. The bronze industry, here represented, is inspired mainly by Bohemian and Hungarian traditions though there are some indications of influence from the Iberian Peninsula. The types, however, developed along quite individual lines. Distinctive are the spatuliform celts and the triangular daggers, often bronze-hilted. Besides

pins with rolled or even knot-heads, trefoil and disk forms are characteristic, the latter being doubtless a local creation. So, in addition to simple rod bangles and ingot torques, broad bronze collars were developed in a specialized variant as described on p. 122. No pottery is known from these graves.

The engraved bronzes illustrate a continued development of that system of purely rectilinear decoration that had been almost universal in the Early Bronze Age.

The extent and age of the Rhône culture is not yet exactly determined. It is only mentioned here because, as we shall see, it is a prominent constituent of the oldest culture to which the name Keltic can be applied.

THE MIDDLE BRONZE AGE IN GREAT BRITAIN

In the British Isles the Middle Bronze Age is merely a continuation of the previous period, lacking the sharp demarcation observed in Italy or Southern Germany. Types distinctive of the period on the continent—early palstaves, ogival daggers, rapiers, socketed spear-heads and button sickles—are found stray or in hoards, particularly in the south; north of the Tay no rapiers have been reported and even early palstaves are rare. Yet there is no doubt that rapiers were actually manufactured in England, since moulds for their production are found there—practically the only known rapier moulds. These universal Middle Bronze Age shapes are associated in hoards with specialized local forms—celts with broad flanges near the butt (Fig. 3, no. 4), tanged chisels, spear-heads with loops (Fig. 10, no. 4), true torques, wide armlets with horizontal ridges and a sort of pin with a gigantic ring-head. Even socketed

sickles or double-edged razor blades are exceptionally associated with early palstaves and rapiers.

Nevertheless, save for a few ogival daggers, no distinctively Middle Bronze Age types are found in graves. Yet some of our barrows must obviously be contemporary with our Middle Bronze Age hoards. We therefore assign to this phase cremated interments, accompanied by vessels of Early Bronze Age antecedents whose descendants admittedly belong to the Late Bronze Age. Yet such graves may contain flat triangular daggers, and even stone battle-axes, though not flint daggers.

The pot form, thus marked out as Middle Bronze Age, is the so-called cinerary urn in its earlier versions. It is just an enlargement of the food vessel. The commonest type, originating probably in Southern England, is known as the overhanging-rim urn. It undergoes a regular typological degeneration during the period. The oldest form, which is partly contemporary with the latest beakers, had an inverted conical body distinguished by a definite shoulder from the well-marked concave neck, which is surmounted by a broad overhanging rim or collar (Fig. 24, no. 1). Before the end of the Middle Bronze Age the neck disappears, leaving us with rim and body only (Fig. 24, no. 2). In the Late Bronze Age further decadence produces cordoned and bucket urns in which all that is left is one or two ridges encircling the body to represent the overhang of the original rim or this and also the shoulder below the former neck (Fig. 24, no. 3). A contemporary form, originating in Northern England or Scotland and unknown south of the Thames, is just a magnification of the classical food vessel with grooved shoulder. It is therefore termed an enlarged food vessel.

These large pots are made of very coarse clay and

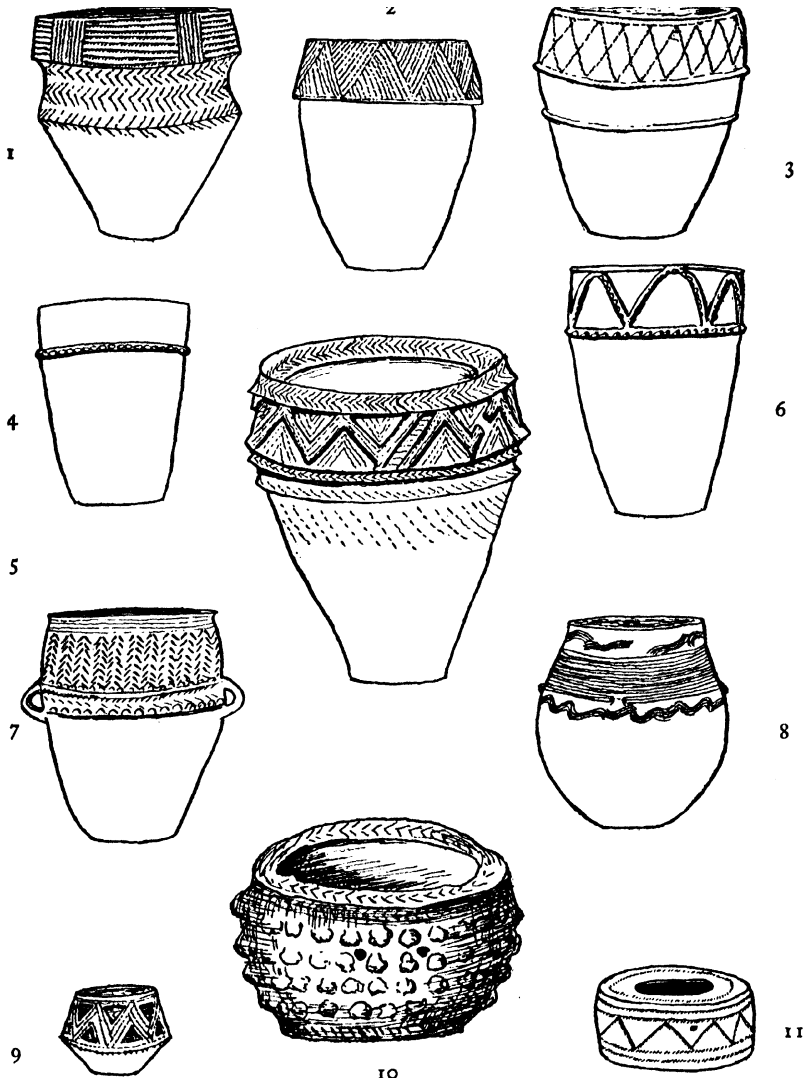


Fig. 24. British cinerary urns.

- | | |
|---|---|
| (1) Overhanging rim type, early. $\frac{1}{2}$ | (7) Cornish urn. $\frac{1}{2}$ |
| (2) Overhanging rim type, later form. $\frac{1}{2}$ | (8) Globular urn. $\frac{1}{10}$ |
| (3) Cordoned urn, Scotland. $\frac{1}{2}$ | (9) Incense cup with slits. $\frac{1}{4}$ |
| (4) Bucket urn, Dorset. $\frac{1}{2}$ | (10) Incense cup. $\frac{1}{4}$ |
| (5) Encrusted urn, Scotland. $\frac{1}{10}$ | (11) Grape cup. $\frac{3}{4}$ |
| (6) Urn of Type 3, group 2. $\frac{1}{2}$ | |

lack any slip or polish. They are none the less elaborately decorated, principally on the wide collar or the bevelled moulding inside the lip. The ornamentation is executed with a cord, with a chain-looped braid, or by simple incision. The cog-wheel technique and false relief have been abandoned. The patterns are simple zig-zags, triangles, chequers, lattices, and herring-boning.

Contemporary with these urns, often used like them to contain cremated remains and not seldom associated with them in the same grave, go a variety of small vases termed "incense cups" or "pigmy vessels". These are often of much finer clay than the big urns, but seldom approach the delicacy or technical excellence of beaker ware. The decoration includes incised lines combined with dots forming figures such as lozenges. One group of pigmy vessels, sometimes termed "grape cups", are covered with knobby projections (Fig. 24, no. 10). The latter, though quite different from the conical warts of Swabian and Hungarian pottery, recall the ornamentation on a class of Late Neolithic wares from the Danube basin. Another variety of incense cup has triangular slits in the walls, producing a sort of lattice effect (Fig. 24, no. 9). Perforations in the walls are indeed a common feature in the whole class of pigmy vessels.

The funerary pottery and bronzes produce a rather depressing picture of our civilization at this date. That is to some extent offset by the discovery in graves of the period of cups of shale, amber and gold⁽⁸⁸⁾ that are, for their age, unique west of the Aegean. The shale and amber cups are simple flat-bottomed vessels with ribbon handles. In shape they recall the wooden cups from Denmark and seem also to have been turned on a pole lathe. Ornamental horizontal grooves may encircle the body, parallel to the rim, and decorate the handle. Five

shale and two amber cups are known, all from Southern England, west of Brighton. The gold cup, from a cairn at Rillaton in Cornwall, is of similar shape, hammered out of a single piece of metal and decorated with horizontal corrugations. This group of vessels, unique in North-western Europe, shows that Britain had not lost her originality in the Middle Bronze Age. Moreover, the islands retained their place in European trade. Amber was still imported from Denmark and beads of blue faience came by coastal routes from Crete or Egypt¹. The most notable of the latter imports are the segmented beads. The type was current in Crete from the end of Middle Minoan times (1600 B.C.), but the trinkets found in Britain are said to resemble rather Egyptian specimens dated to the twelfth century. Similar beads or bone copies thereof have been found in late graves of El Argar type in South-eastern Spain and in megalithic tombs in South-west France and Brittany. Britain's principal export at this period would presumably be tin. But British and Irish gold torques, looped spear-heads and other British types of the Middle Bronze Age reached Northern France in considerable numbers. The spread of the palstave to Western Spain may also be connected with the Atlantic trade from the British Isles.

Dwellings of the period in Britain cannot be distinguished. It is possible, however, that hill camps were already being built. A hoard of rapier blades was, it is reported, unearthed at the bottom of the trench encircling that of Drumcoltram in Dumfriesshire. The fort stands, not on the summit of the hill, but on a spur

¹ Some authorities maintain that many of our vitreous beads were manufactured locally from slag. It remains certain that they imitate Aegean or Egyptian models.

projecting westward from the hill about 675 feet above sea-level. The neck and flanks of the spur are defended by a wide annular moat, 9 feet deep and 30 wide at the brim. The upcast from it has been piled up inside to form a rampart 9 feet high. A causeway 8 feet wide leads across the moat to a gap in the rampart. The fort is a good example of the simpler type widely distributed in the British Isles. The majority at least of the more complex forms belong to the Iron Age.

For the rest, life in prehistoric Britain had undergone no visible change since the Early Bronze Age. Only after the lapse of a considerable interval was our rather sleepy development rudely interrupted by the Late Bronze Age invasion.



Bronze figure
from Sardinia

CHAPTER VI

THE LATE BRONZE AGE

IN contrast to the apparent peace and prosperity of the preceding period, the Late Bronze Age was an epoch of turmoil and migration though it witnessed immense industrial and economic progress, forced upon the barbarians by these times of stress. The growth of population in the tranquil centuries of the Middle Bronze Age among peoples who had not yet settled down to the laborious methods of really sedentary cultivation resulted for the first time in a genuine pressure and congestion on the land. Climatic conditions—intensified drought followed ultimately by a return to moister and colder conditions that favoured the spread of forest at the expense of pastures—may have aggravated the land hunger in individual areas. The cumulative effect of these factors was to produce a bitter struggle for the fertile valleys in Central Europe and the uprooting of small hordes. The regime of bloody tribal wars, later described so grimly in the pages of Tacitus and profitable only to the Roman slave-dealer, had already been inaugurated. The repercussions of the turmoil reached Britain on the one hand and the East Mediterranean coast on the other, there to be complicated by events in Asia that still elude our ken. But the Mycenaean civilization collapsed under barbarian pressure, and northerners overran Anatolia, threatening the Egyptian and Hittite Empires.

These latter disturbances hampered mining and metallurgy in Asia Minor. And Assyrian military requisitions and monopolistic control of ores further

restricted the supply. At the same time the state of universal war increased the demand to unprecedented proportions. In continental Europe we witness not only the struggle for land but also one for the control of ores, accompanied by a great intensification of mining activities and the growth of a trade in scrap-metal, marked by the so-called founders' hoards. In Hither Asia the contest for booty was equally accompanied by a quest for new supplies of metal. The merchants and craftsmen of Phoenicia in particular, cut off by barbarian inroads and Assyrian monopolies from local supplies, sought compensations in the West. As at the beginning of the Age of Metals, fresh bands of prospectors sailed from the Eastern Mediterranean, combining kidnapping and piracy with legitimate trade as the *Odyssey* so brightly indicates. Their activities helped to introduce to the western world the secret of the new metal, iron, and a whole series of new types and processes.

Yet the westward tracks of Oriental traders crossed paths already furrowed at an earlier date by pirate galleys from the West Mediterranean isles. The raiders whose descents on the Oriental empires are such a feature of the thirteenth and twelfth centuries before our era may, when finally repulsed, have carried with them westward some of the arts and organization learnt during periods of mercenary service under Hittites and Egyptians. Despite the doubts of eminent Orientalists, the Shardana, Shakalasha and Tursha who harried the confines of Egypt were surely in some sense Sardinians, Sicilians and Etruscans. Whether they hailed in the first instance from Sardinia, Sicily and Italy or only retreated there after failures on the eastern coasts, is far more doubtful(90). Certain it is that the islands and peninsula were the seats of a curious Late Bronze Age

civilization which, despite a strong Oriental flavour, was based at least industrially on Central European rather than on Aegean or Asiatic traditions. The peninsula and islands being now incorporated in the continental economic system and having taken over from the Aegean the rôle of mediators in the diffusion of Oriental inventions, a few words on the cultures of Sicily, Sardinia and Italy in the age of transition from bronze to iron will form a necessary prelude to any account of events north of the Alps.

At the same time one general aspect of life in the latter region and also in the East Mediterranean area must be touched upon here; I refer to the spread of cremation cemeteries termed urnfields—a phenomenon already attributed to the Middle Bronze Age in Hungary and Upper Italy, but now becoming general from the Euphrates to the Irish Channel. The bodies of the dead were cremated, their ashes enshrined in cinerary urns and these buried close together with other vessels in extensive cemeteries, termed urnfields. The grave is seldom marked by a barrow; on the other hand cinerary urns were often deposited as secondary interments in earlier barrows. In several parts of Central Europe it was the practice to bore a hole through the walls or base of the cinerary urn. German archaeologists term such an aperture the ghost-hole (*Seelenloch*), believing that it was designed to allow the soul of the departed to escape from the jar that contained his mortal remains.

It should be remembered that cremation was not a new rite, first introduced during the Late Bronze Age. Even in Early Helladic graves on Levkas we find burnt human bones enclosed in large jars. And there are instances of Neolithic cremations from Central Europe, Brittany and England. Isolated instances occur widely

during the Early Bronze Age, and the practice was by no means rare in the Tumulus culture of the Middle Bronze Age. To the same period we have assigned a number of barrows covering inurned ashes from the British Isles. Even urnfields may, in Hungary and North Italy, go back to the Middle Bronze Age, but they become general first in the Late Bronze Age or the contemporary Early Iron Age of Greece and Syria.

Conversely it must be insisted that inhumation was not universally abandoned in the latter period. It remained the regular rite in the Illyrian regions, Southern Italy, Sicily and Macedonia till well on in the Iron Age and was still freely practised also west of the Rhine and in parts of Greece. Nowhere, indeed, would burial rite alone constitute a reliable criterion of age. Moreover, in view of the wide distribution of the rite in earlier times, the racial movements inferred simply from the appearance of cremation in Greece and Syria at the beginning of the Early Iron Age (equivalent there to our Late Bronze Age) are very insecurely based.

We begin our account of Late Bronze Age cultures with Italy and the adjacent isles, even though iron was rapidly replacing bronze there; for in the Early Iron Age deposits we find bronze tools of the types still exclusively used north of the Alps, and in the latter regions types of the more southern Iron Age appear in a purely Bronze Age context. Greece on the other hand may still be excluded as having no direct influence on the bronze industry north of the Alps after its very early passage into the Iron Age.

SICILY

During the earlier phases of the Bronze Age, as in the previous Copper Age, the culture of Sicily⁽⁴⁴⁾ had

maintained an essentially East Mediterranean character. During the first half of Orsi's Siculan II period, which corresponds to our Middle Bronze Age, the native culture had been dominated by Minoan industry and art. Palaces were built with stone foundations as in Greece, and shrines furnished with ritual objects of a Minoan character. The dead were buried in rock-hewn family vaults reminiscent of the usual Mycenaean chamber tombs, though carrying on a tradition rooted in the island since the Copper Age (Orsi's Siculan I). The Siculan II bronzes are inspired directly by Minoan models, though mostly of local manufacture. So we find long rapiers referable to Type II *a* from the Shaft Graves of Mycenae (p. 82) and daggers equally of Minoan ancestry. The common razors (Fig. 12, no. 3), though a specifically Siculan variant, have likewise Cretan prototypes. Fibulae of violin-bow form were worn as east of the Adriatic. And direct imports from Greece were plentiful: the early tombs are furnished with a comparative abundance of Mycenaean (L.M. III) vases and Late Minoan beads were worn.

In the later half of the Siculan II period, represented by cemeteries like Cassibile and Finnochito, farther inland than those described above, the industrial orientation of the island had changed. The dead were indeed still often buried in chamber tombs, a habit which persisted into the full Iron Age or Siculan III. The pottery, too, preserved native traditions enlarged by the inclusion of orientaling forms such as *askoi*. The safety-pins evolved farther along the separate lines sketched on p. 114. But the remaining bronzes tend to conform more and more to standard types current at the same period in Upper Italy and the Late Bronze Age north of the Alps.

Shaft-hole axes indeed persist in a local form even into Siculan III, but beside them we find in hoards winged celts, socketed celts and lug-adzes. The spear-heads have proper cast sockets and sometimes eyelets in the base of the blade. The commonest razors now conform exactly to the rectangular "Villanovan" type with the handle riveted on (Fig. 12, no. 8) despite some interesting transitional forms with maple leaf blades and flat tangs. This is the period of the serpentine and elbow fibulae (Fig. 14, no. 15) supplemented by simple arcs.

A very similar culture reigned at the same time in Southern Italy, a region that had always been closely allied to Sicily since Neolithic times. One notable type, assignable strictly to the local Iron Age, was a short sword provided with a flange carried right round the flat tang to hold the plates of the hilt and the pommel. The type is directly derived from a familiar L.M. III short sword.

In both regions large founders' hoards⁽⁹³⁾ attest at once an economic reorganization and social disturbance. Both Oriental and northern elements have been obtruded upon the native culture in a manner not yet plain. At the same time the resultant cultures exerted an influence on the West as the Siculan fibulae from the hoard at Huelva show⁽⁹²⁾. How the Siculan and South Italian spear-heads with eyelets in the base of the blade are related to the similar and contemporary British type is less clear.

SARDINIA

Far more insular and consequently puzzling is the vigorous civilization that grew up in the great island farther north. Sardinia is rich in copper and silver.

Even during the Copper Age⁽⁶³⁾ it had been an important centre of population and industry. Elaborate rock-cut tombs, sometimes carved with bulls' protomae and including marble statuettes among their grave goods, disclose Aegean inspiration. On the other hand, numerous bell-beakers and West European daggers are clearly occidental features. A similar blending of Eastern and Western traits characterizes the Late Bronze Age of the island.

Chambered tombs continued to be used as burial places even then, but have for the most part been plundered. The period is better known from dwellings—peculiar round towers termed *nuraghi*. The Sardinian Bronze Age is therefore often alluded to as the nuragic period.

A *nuraghe*⁽⁶⁵⁾ is an approximately conical tower, built without mortar, of rough, almost megalithic blocks. The only external opening was a low, tunnel-like doorway that eventually gave access to a large beehive-chamber. A winding stair in the thickness of the wall led to one or more upper storeys of similar plan. The *nuraghi* were evidently the castles of martial chieftains. At their feet clustered the round beehive huts of their peasant henchmen. Such strongholds are strung out at relatively short intervals along the valleys or fertile plains, evidently implying a peculiar clan organization in which the need for defence outweighed all other considerations.

In addition to the fortresses a number of partly coeval structures of a sacral character have recently been explored by Prof. Taramelli⁽⁶⁷⁾. These generally include subterranean sanctuaries from which numerous votive bronzes may be recovered. That at Santa Anastasia consisted of an outer temple with a façade of dressed

stone, from which a flight of steps led down to a circular pit covered with a corbelled roof.



The castles had been long occupied and repeatedly plundered, leaving few relics of their original occupants. A better idea of the bronze industry of the nuragic age may be obtained from numerous hoards⁽⁹⁶⁾ that testify in some cases to the piety of the islanders, in others to the disturbed conditions of the times. These depots belong for the most part to a time when iron was already in general use on the Italian mainland, but still contain archaic types, directly descended from quite ancient models and accordingly produced by a school of craftsmen whose divergent specialization must have begun in pure Bronze Age times. Their archaic traditions are rooted mainly in continental workshops. Few industrial types or weapons are East Mediterranean or Asiatic, though eastern influences are conspicuous in the votive bronzes. So, among the axes, curiously splayed flanged celts, two-eared palstaves and two-looped socketed celts were the commonest types current. (The founders' hoards contain also old Copper Age flat celts collected for recasting.) On the other hand, double-axes and axe-adzes might be Aegean types, though the tubular projection that surrounds the shaft-hole is more reminiscent of Hungary. Again the typical weapons are curious bronze-hilted daggers, rather like Early Bronze Age forms, or very archaic triangular or ogival types, swords with pronounced midrib and spur for the hilt or flanged tang. Socketed spear-heads, socketed sickles and rectangular razors, resembling the Villanovan blades but that the handle was cast in one piece with the blade, are also conspicuous. The rather rough pottery includes notably *askoi* and jugs with thrown-back necks and cut-away lips, both old Aegean and Anatolian shapes.

In the nuragic sanctuaries and hoards we find an extraordinary variety of votive statuettes and models in bronze. Figures of warriors, crude and barbaric in execution but full of life, are particularly common. The warrior was armed with a dagger and bow-and-arrows or a sword, covered with a two-horned helmet and protected by a circular buckler. The dress and armament leave no doubt as to the substantial identity of the Sardinian infantryman with the raiders and mercenaries depicted on Egyptian monuments as "Shardana". At the same time numerous votive barques, also of bronze, demonstrate the importance of the sea in Sardinian life.

This extraordinary culture accordingly shows indications of relations with the West—two-eared palstaves, socketed sickles—with Hungary and even perhaps with the Caucasus (statuettes and other models very like the Sardinian have turned up there) in addition to Central Europe and Upper Italy. Amber beads from the nuraghi may even mean connections with the far North. Were the Sardinian smiths originative innovators whose new models were carried westward and imitated there, or merely slaves who copied at the dictation of their pirate masters the odd types the latter picked up in distant raids? And how are the nuraghi related to the Scottish brochs, similar in several architectural details and evidently symptomatic of an analogous clan organization? Above all, were the Sardinians of the Late—nay belated—Bronze Age descendants of the Copper Age population who had seen service under Egyptians and Hittites, or did new arrivals from Asia Minor or the Caucasus dominate these? Such questions inevitably rise only to be dismissed as unsolved.

THE VILLANOVA CULTURE IN ITALY

While Sicily, South Italy and Sardinia were new and by no means secure acquisitions of the continental economic province, it had included Upper Italy since the beginning of the Bronze Age. There, as noted in the last chapter, the dominant cultural group during the Middle Bronze Age was that of the *terremaricoli* who even penetrated to the extreme South as well. A later phase in the same people's culture is illustrated by the urnfields of Bismantova and Fontanella south of the Po, of Pianello in the Marche (East Central Italy) and Timmari in Apulia.

These cemeteries are marked as later than the typical *terremare* by the types of razor, safety-pin and bracelet. The razor has a quadrangular blade with separate handle riveted on (Fig. 12, no. 8). In addition to violin-bow fibulae, generally with beads on, and sometimes with figure 8 twists in (after the style of Fig. 14, no. 14), the bow, simple arched bows and others with two loops were current. Ingot torques with twisted wire bodies and wire finger-rings with spiral ends were also worn. The distinctive pot form is already a storeyed or biconical urn. Such consist of a base in the form of an inverted conical bowl with inturned rim surmounted by a conical neck with everted lip. The parts are separated by a pronounced shoulder rather than a keel. The ornament, restricted to the upper cone, is limited to incised triangles, chevrons,  or  figures and dimples or warts encircled by grooves (Fig. 25, no. 1). A hoard, of the same date (Randall-MacIver considers it later), indicates that cups of beaten bronze, decorated with embossed knobs, were already in use. These cemeteries may be dated between 1200 and 1050 B.C.

A little later a belt of Italy from the Adige to the Tiber is found to be thickly settled by an industrious folk, termed Villanovans after the suburb of Bologna where their culture was first identified. Pigorini and his disciples hold that they were just the descendants of the *terremaricoli*; they would then be the Umbri and Latini of Roman tradition. Randall-MacIver prefers to invoke a second invasion from an unknown "Hungary" to explain the Villanovans. Assuming the first interpretation to be the more correct, as it is the more economical, we may call the northern Villanovans Umbrians, the southern ones, differentiated from the former by minor peculiarities, Latins. We must note, too, that the Villanovan culture is divided between three chronological phases, termed respectively Benacci I, Benacci II and Arnoaldi after the peasants on whose farms typical cemeteries were dug up. Iron was in use throughout these three periods and the two last are excluded altogether from the purview of this book.

The Villanovans, like their ancestors of the *terremare*, were primarily peasant farmers, living in mean huts grouped in villages of very modest size. The round huts themselves with walls of wattle and daub are represented for us by the models used as ossuaries among the "Latins" (Fig. 25, no. 5); the famous temple of Vesta preserves a glorified version of the same primitive hut.

But these farming communities included skilled metal-workers and traders. Round Bologna vast depots of scrap-metal, the so-called "foundries", have been discovered. Old tools, weapons and ornaments were gathered here for resmelting from every corner of Europe as the types included in the hoards show; even British socketed sickles are represented. In return for

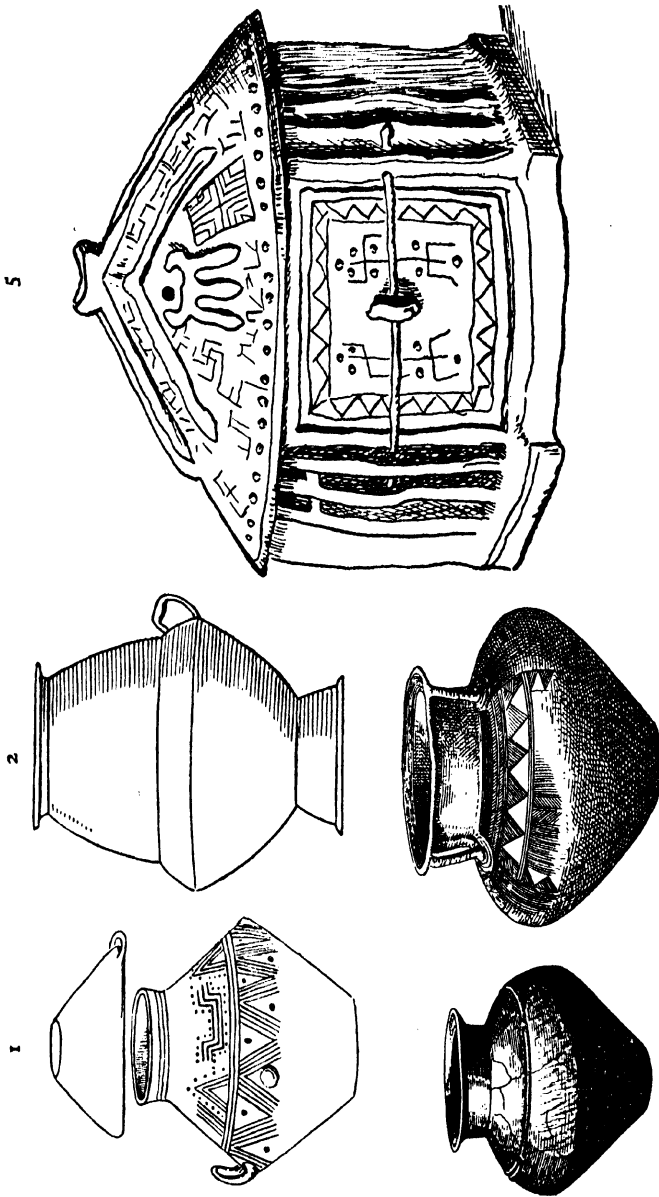


Fig. 25. Late Bronze Age urns.
 (1) Transitional type, Bismantova, North Italy. $\frac{1}{2}$
 (2) Villanovan ossuary. $\frac{1}{2}$
 (3) Urn with cylindrical neck, Würtemberg. $\frac{1}{8}$
 (4) Pillar urn, Tyrol. $\frac{1}{2}$
 (5) Hut urn, Latium. $\frac{1}{4}$

such scrap, for ores, gold, amber and salt, Villanovan bronzes were exported as far as Denmark and Transylvania. At the same time relations, direct or indirect, were maintained with the Eastern Mediterranean; glass beads from Villanovan graves leave no doubt on this score. Villanovan bronze work agrees too closely with Phoenician and Assyrian for the resemblance to be accidental. And from that quarter came eventually knowledge of the new metal, iron. In Benacci I times, however, that material is represented only by a few small objects that might have been imports.

The graves were simply holes in the ground, sometimes lined with stone slabs, in which the cinerary urn was deposited. The ossuary itself was sometimes enclosed within a large jar termed a *dolion*, especially in Etruria and Latium. In this region, too, a receptacle hollowed out of a block of stone occasionally replaced the *dolion*. The *dolion* is generally a rough two-storeyed jar. The Villanovan ossuary is equally two storeyed. It resembles a bowl with inverted rim and a horizontal handle, surmounted by a conical neck with splayed rim. It is, that is, a biconical urn closely related to those from Bismantova or Pianello, though with a broader shoulder (Fig. 25, no. 2). Often it was actually made of two pieces of hammered bronze united by rivets. More commonly the vessel is of black carboniferous pottery ornamented with elaborate maeanders, triangles, lozenges and rosettes. Sometimes small bronze studs were set in the clay to enhance the effect. As noted, the Latins used hut models as ossuaries. The urn was covered in the Umbrian area by a dish, in the Latin often by a helmet. While cremation was the general rite, isolated inhumation graves are known from all districts.

The commonest tools are celts with terminal wings

and very wide blades, knives with a spur-like tang, quadrangular double-edged razors (Fig. 12, no. 8) or semilunar single-edged specimens (a later type), tweezers and fish-hooks. The best known weapon is the socketed spear-head, but antennae swords (Fig. 8, no. 11) were imported and presumably used. The head was protected with ovoid bronze casques, surmounted by broad, decorated crests. Horses were controlled by bronze bits, the cheek-pieces in some instances taking the form of stylized steeds. Among the ornaments may be mentioned broad girdles of hammered bronze, pins surmounted by small knobs or terminating in a shepherd's crook, simple arc fibulae and early developments thereof, massive bracelets with overlapping ends, and ribbon cylinders. Besides ossuaries, cups and buckets (*situlae*) were made of hammered bronze.

Villanovan art is unmistakable. The vases, girdles and helmets of bronze are decorated with rows of bosses, beads or concentric rings, all embossed, and sometimes supplemented by engraved lines that reproduce the patterns known already from the pottery. A very distinctive and popular motive is moreover a pair of birds' heads projecting from a circle or wheel (Fig. 27, no. 3). The design is presumably a solar symbol connected with the sun disk of the Egyptians probably through a Hittite or Phoenician variant.

THE LAUSITZ CULTURE

The knowledge of iron-working naturally traversed the Alps from Italy with a material retardation, so that even throughout Benacci I times a pure Late Bronze Age was ruling in Central Europe. Here two or three great urnfield groups succeed the Early Bronze Age cultures in the fertile valleys and along the riverine

trade routes while the Tumulus culture persists in the uplands and heaths, modified by these neighbours.

The most conspicuous of the urnfield cultures is known by the name of Lausitz, a part of Saxony and Western Silesia where it is richly represented. It originated there or farther east out of Aunjetitz antecedents, possibly mixed with other undefined ingredients. From this cradle it spread to occupy the whole area from the Saale to the Vistula and from the Spree to the Austrian Danube and the Slovakian mountains.

The Lausitz folk were primarily peasant farmers, but were at pains to control trade routes and supplies of ore. In their communities dwelt competent smiths whose moulds, anvils and founders' hoards have come down to us. The people dwelt probably in log-cabins, built of trunks laid horizontally and supported by posts, quite like the dwellings of American pioneers. The houses were normally long one-roomed halls with the entry on the small side.

The dead were cremated, and their ashes, enclosed in cinerary urns, deposited in extensive cemeteries, sometimes under a barrow. The characteristic Lausitz ossuary is constituted by two truncated cones placed base to base. It was normally covered by a dish and accompanied by a high-handled mug, an amphora and a rough pot. In later graves, vases with side spouts, termed feeding-bowls, vessels in the shape of animals, and clay rattles occur. Apart from the rough pots, Lausitz vases are generally smooth and often burnished. At first they were buff in colour; later dark-faced wares became more popular, and graphite was even used to intensify the effect. The ossuary is normally plain, save for scratches radiating from the base. Other vessels were decorated at first with large conical warts projecting out of a round

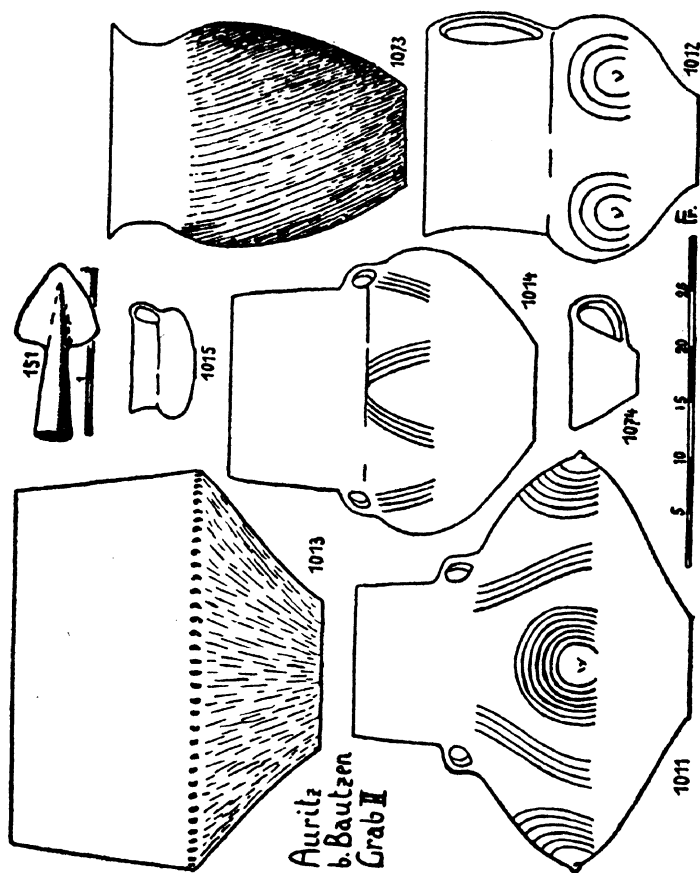


Fig. 26. Lausitz grave group after *Antiquity*.

depression. Later warts gave place to flutings or corrugations, oblique or forming semicircles (Fig. 26).

The Lausitz people used celts with terminal wings and an ear, or a socketed form, knives with a spur for the attachment of the handle or with a metal handle terminating in a ring, button sickles and eventually horse-shoe razors and tweezers. But celts and perforated axes of stone, arrow-heads of flint or bone and many implements of horn and bone were still used. The favourite weapons were spears with lanceolate socketed heads, and arrows, tipped with flint, bone or socketed bronze points, supplemented by comparatively rare swords with flanged tangs. The horse had certainly been domesticated. He was controlled by bits ending in horn cheek-pieces.

Common ornaments in Lausitz graves are pins with a vertically pierced eyelet in a spur projecting from the shaft, massive armlets with overlapping tapering ends, cylinders, ingot torques with twisted body, finger-rings of several coils of wire terminating in spirals, spectacle-spiral pendants and flat buttons with a loop on the back. Safety-pins were rarely worn; all were of the two-member family with a flattened oval bow. Beads of glass or amber are only occasionally found in graves. Gold, on the other hand, chiefly in the form of wire, is not uncommon in Bohemian settlements. The precious metal must have been carried in this form as a medium of exchange, but curious ornaments were made by plaiting gold wire together. Finally in the later phase of the Lausitz culture a few bronze cups of Italian style found their way to Bohemia.

This culture was cradled, as we have indicated, in a southerly corner of the North European plain. Thence it spread over the mountains into Bohemia and across

Moravia into Lower Austria and Slovakia. On the borders of its homeland it grew into the so-called Silesian culture which likewise spread southward and was flourishing in Eastern Bohemia and Moravia when iron was introduced into those regions along the amber trade route from Italy to East Prussia.

In Central Bohemia the Lausitz invaders met the people of the Tumulus culture advancing from the West as well as remnants of the old Aunjetitz population. Under these conditions there arose here in the latest Bronze Age (Kraft E) a specialized group, termed the Knovíz culture, which deserves a brief mention. Besides its urnfield cemeteries we know here deep pits, some perhaps dwellings, others rubbish pits or silos. In the latter we find, together with broken animal bones and other kitchen refuse, human bones, hacked about with knives and split to extract the marrow. Evidently cannibalism was not unknown to this people in Central Europe. Civil servants, engaged in suppressing the practice in Africa or New Guinea, may like to remember that it was current in Europe 3000 years ago, and that among a comparatively advanced group. For the cannibals made splendid pots. Their cinerary urns are based upon a degenerate Lausitz ossuary that has lost its angularity, surmounted by a swelling neck, so as to give the impression of two vases one on the top of the other. Broad-brimmed bowls with twisted pillar-like handles rising from the shoulder also deserve mention.

THE ALPINE URNFIELDS

The Knovíz culture already shows the influence of the South-west Bohemian Tumulus culture which in its turn had been profoundly modified by contact with a second group of urnfields. The latter had developed on

the Upper Danube and its tributaries in Austria, Bavaria and the Tyrol, whence it spread down the Rhine and across Switzerland. This Alpine culture is a far less coherent group than the Lausitz; probably it had several roots constituting originally distinct groups, and no doubt it absorbed in its expansion diverse elements. It may have originated among some descendants of Early Bronze Age folk dwelling in the valleys (at Gemeinlebarn in Lower Austria and Straubing in Bavaria both periods are represented in the same cemetery), influenced (whatever that may mean) by Hungarian groups, the Lausitz culture and its neighbours, the tumulus-builders. Lausitz "influence" is certainly patent in the use of typical Lausitz ossuaries in Lower Austria and even far away in the Tyrol. Some indeed would contend that it was constitutive: the whole group would owe its rise and specific character to an actual infusion of Lausitz folk, perhaps as an organizing force bringing together other communities. That certainly is a simple explanation, perhaps too simple.

Yet in its general character the North Alpine culture was very similar to the Lausitz, though richer and more warlike. Its authors dwelt in log-cabins or pit-dwellings. They walled off projecting spurs of the mountains (promontory forts) or defended hill-tops, the walls in each case being of stone and turf, strengthened with a palisade⁽⁹⁸⁾. As elsewhere, these fortifications would be places of refuge rather than permanent villages; the latter were probably situated in the valleys. The miners of the Tyrolean copper lodes and the rock-salt of Hallstatt, whose methods have been sketched in an earlier chapter, belonged to our North Alpine group. And the rich cemetery of Hallstatt, that gives its name to the First Iron Age in Central Europe, is an urnfield of the type

described below, though of later date. The long timbered galleries, the shafts and ladders and other workings which the visitor to Hallstatt may still admire are apparently pure Bronze Age.

Cremation was of course the normal burial rite, and an urn was deposited in every grave. Sometimes, however, the ashes were laid outside it. The urn itself, often very large, was globular or piriform, but always provided with a cylindrical neck surmounted by a projecting brim (Fig. 25, no. 3). It might serve as a *dolion* containing the ossuary proper, generally a smaller version of the same type. In the Tyrol the ossuaries' rims are supported by twisted pillar-like handles (hence the name "pillar urns"). The walls may be decorated with warts and "false cord impressions" obtained by rolling a twisted ring over the soft clay. With such cylinder-neck urns true Lausitz ossuaries are sometimes encountered as noted above. The accessory vases—jugs, dishes, and cups—are usually fine, often polished with graphite and decorated with incised patterns, flutings, or conical warts.

Typical implements are celts (axes and adzes) with terminal wings and an ear (Fig. 3, no. 8), socketed chisels and gouges, a wide variety of single-bladed knives, grooved sickles, fish-hooks, and razors with an openwork metal handle, at first with an irregular oval blade slit at the end, later horse-shoe shaped (Fig. 12, no. 7). The distinctive weapons are slashing swords with richly engraved bronze hilts or with flanged tangs, giving place later (Kraft E) to Hungarian, Mörigen and antennae types. In addition to swords the warrior used spears with socketed heads, and bronze-tipped arrows.

A wealth of ornaments is found in these graves in contrast to the poor Lausitz interments. The commonest

pins have large poppy, vase (Fig. 14, no. 11), turban or bulb heads. Safety-pins of violin-bow type are found sporadically in the Tyrol, and others with a wiry bow twisted in figure 8's and terminating in a horizontal spiral catch-plate, in Bavaria. Massive bracelets decorated with ribs (Fig. 15, no. 1) encircled the arms. The girdle was fastened with disk-shaped clasps. On it or on a necklace were hung pendants in the form of a wheel as well as glass, amber, and gold beads and spectacle-spirals of bronze wire. Gold disks ornamented with rings of stamped circles have been found in some graves and were doubtless solar symbols.

Finally vessels of beaten bronze occur even in the earlier phase (Reinecke and Kraft D). The commonest are cups decorated with embossed circles as in Italy. But a contemporary barrow at Milaveč in Bohemia contained a remarkable bronze bowl, shaped like the usual cinerary urn but mounted on a little wheeled car.

In art a revival of spiral decoration is to be observed on sword hilts of phase D. But even then concentric circles and arcs were commoner, and in phase E these alone survive.

In addition to the solar symbolism of the pendants, curious cult objects now meet us in the settlements. These are made of clay in the form of a pair of horns and very likely served as firedogs, the hearth being of course a place of sanctity. None the less these objects are derived in the last resort from the "Horns of Consecration" that had played a prominent part in Minoan cult from Early Minoan times till the collapse of the Mycenaean culture.

The urnfields just described were in their earlier phases concentrated in the valleys of the Upper Danube,

the Inn and the Isar. In the highlands on every side the tumulus-builders lived on still. But they now practised cremation regularly, though seldom, save in Bohemia, enclosing the ashes in cinerary urns. Their pottery was profoundly influenced by that of the urnfields, and most of the bronze types just described might also be found under barrows. The old bronze-studded wooden targe was now at times replaced by a buckler of hammered bronze. Unlike the British products, the Bohemian and South German shields are definitely convex all over and lack any distinct umbo. They were strengthened with concentric ridges hammered up from the inner side and were manipulated by a pair of small handles and one big central handle (Fig. 30).

The North Alpine urnfield culture is of such importance in British archaeology that its development during the last phase of the Bronze Age (Kraft E, Reinecke Hallstatt A) and into the Early Iron Age deserves a rather more detailed examination. Two zones must be distinguished. The inner zone, extending northward to the Main with its core in Switzerland and Bavaria, was nourished by the industry of the lake-dwellings and the trade of the western amber route.

The Bronze Age lake-villages of Switzerland and Upper Bavaria seem to result from the synoecism of older pile-hamlets⁽¹⁰⁰⁾ effected under the leadership of the urnfield folk with the collaboration of the authors of the Rhône culture and perhaps of immigrants from Upper Italy⁽⁵²⁾. The new pile-villages, situated farther from the present shore than their neolithic forerunners, were regular industrial settlements. Individual villages would even specialize in the manufacture of a particular kind of article—for instance, armlets. Their manufactures were exported to Hungary, Silesia and the North Sea.

In return, Danish bronzes and amber, Hungarian swords, Villanovan horse-trappings and metal vessels flowed in. Stimulated by the blended traditions of their compatriots and by contact with foreign centres of industry, the clever smiths devised original types of tool, weapon and ornament.

Noteworthy among these are knives like Fig. 11, no. 7, antennae and Mörigen swords (Fig. 8, no. 10), horse-shoe razors (Fig. 12, no. 7), pins with hollow globular heads decorated with inlaid eyes, and great hollow bracelets either closed and kidney-shaped (*Nierenringe*) or with open splayed-out ends. More generalized types of course occur. While socketed chisels and gouges were quite the rule, winged celts with the wings near the butt and a loop (Fig. 3, no. 8) were far commoner than socketed celts. Bronze bits (Fig. 13, no. 7) were manufactured to control the horses though those with horn cheek-pieces remained in use.

The fine black or grey pottery includes most urnfield forms and, in addition, globular vessels with a narrow out-turned rim, and tulip-shaped beakers with an almost pointed base. Fluted decoration, fretwork, as in the Tumulus culture, and very neat engraved patterns, often curvilinear, adorned the vases. A rare technique was to inlay the depression of the fretwork with tin. The latest vases show the polychrome decoration of Hallstatt types—stripes blackened with graphite on a ferruginous red wash.

The art of the lake-dwellings⁽⁵²⁾ is characterized above all by the minute exactness with which the linear patterns were executed. The patterns themselves include circles and semicircles but no spirals. Some pots, however, exhibit a sort of maeander in which the angles have been rounded off. In this connection we may note, too,

rattles of animal form and the horn-shaped fire-dogs already described.

The civilization of the lake-dwellings in Bavaria, Switzerland and Savoy, begun already in Reinecke's phase D of the Bronze Age, reached its zenith in the succeeding phase but lasted into the Early Iron Age (Reinecke's Hallstatt B). In that period invaders sacked the villages, while a recurrence of moister climatic conditions led to their final desertion. But by that time urnfield folk, whose funerary pottery shows them to be directly descended from the lake-dwellers, were settling in Northern Spain.

The urnfield people from the Danube basin occupied the valleys of the Rhine, the Neckar and the Main, bringing in their train Swiss and Bavarian elements and absorbing others from the native Tumulus groups. Thus we find inhumations as well as cremations. Throughout this area the essential features of the urnfield culture in its later phase were well maintained, and Swiss bronzes circulated freely. But directly we cross the Main or the Saône we enter impoverished provincial regions where archaic urnfield types persisted in a context that transcends the limits of the pure Bronze Age. The urnfield folk spread, that is, both into Holland and Central France, but lost touch with the creative centre and became economically isolated.

We have already described the gradual spread of the Tumulus culture across Central France. Particularly in Aube we have many burials of this class assignable to phase D₍₄₎. But the tumulus-builders were followed by urnfield folk. A cemetery of this type, discovered at Pougues-les-Eaux, Nièvre⁽¹⁰²⁾, is the best available evidence of this, though many sherds labelled "âge du bronze" in French museums indicate a wider

distribution for the culture. At Pouges, as on the Rhine, inhumations occurred side by side with cremations. The bronzes included two razors, one with openwork handle of the type current on the Upper Danube in phase D, the other flat-tanged like some Sicilian and all British blades (Fig. 12, no. 10). The pots on the contrary look rather like degenerate versions of the types current in Switzerland during phase E (Hallstatt A), to which also most of the pins could be assigned. It looks almost as if a band of urnfield folk had clung tenaciously to some types current in their homeland at the time of their departure while adopting contemporary models in other directions. At the same time the hoards⁽¹⁰¹⁾ suggest that South-eastern France was winning a certain independence of Central European traditions and was susceptible to currents coming, not from the Danube or Upper Italy, but from Sardinia and Sicily.

The phenomena observed on the Lower Rhine in Belgium and Holland in other respects reproduce those noticed in France. The urnfield folk spread thither slowly and mixed with tumulus-builders. Urnfield types of vases, all very degenerate, persisted well into the Hallstatt period. Scarcely any bronzes are found in graves, and hoards are inordinately rare. Still razors of archaic form occur as in France.

THE LATE BRONZE AGE IN THE NORTH

The Teutonic craftsmen in Denmark, Sweden and North Germany maintained the high standard of skill achieved during the Middle Bronze Age. The austere beauty of the earlier art was, however, sacrificed in the more florid products of the later. In general, Teutonic culture in the Late Bronze Age is only a richer auto-

mous development of that described in the last chapter. Foreign influences were certainly absorbed, but without causing any interruption in the tradition. The most radical was seen in burial rites. Cremation rapidly replaced inhumation. But even this change was by no means catastrophic. During the first half of the Late Bronze Age a barrow was still regularly erected over the remains. The ashes were frequently deposited in hollowed tree-trunks, big enough for a complete skeleton, as in the preceding period. Urn-burial on the contrary was at first exceptional. The rare ossuaries, however, are generally related to the biconical Lausitz type, showing the very strong influence from that culture that reached the Baltic. Another, but certainly native, innovation of the period was to construct round the grave the outline of a ship in stone, a practice that clearly anticipates the burial rites of Viking times⁽¹⁰³⁾.

The Late Bronze Age of Scandinavia falls quite easily into three phases, corresponding to Montelius' Periods III, IV and V. The regular interchange of products with the south makes it clear that these are parallel to Reinecke's Bronze D and Hallstatt A and B-C respectively. The last phase of the Teutonic Bronze Age is therefore contemporary with the full Iron Age in Southern Germany and the Danube basin. North-eastern Germany was becoming increasingly important during the later phases, but during Montelius' V Teutonic culture was also spreading westward to the Upper Rhine and the Dutch coasts. Eventually, however, the brilliant native development was arrested with the political and industrial expansion of the Kelts late in the Iron Age.

A few characteristic Teutonic products may now be briefly mentioned. Socketed celts were regularly used throughout the age. At first they exhibited a ridge in

relief down the middle of either face reminiscent of the projecting ends of the split knee-shaft between the flanges of the Middle Bronze Age celt, but by Period IV this motive had become purely conventional. At the same time winged celts, like those of the North Alpine area, were imported. The single-edged knives were scarcely altered at first, but in Period V, when Swiss and other southern types were imported, the native knife-handles sprouted out into opposed scrolls like the pommels of antennae swords. The horse's head handles of the razors were becoming increasingly conventionalized in Period III and gave way to swans' heads or pairs of spirals in Period IV. To that period, too, belong blades engraved with representations of the "solar barque" (Fig. 12, no. 11).

The sword remained the warrior's principal weapon. In Period III the hilt might still consist of alternate bronze and amber disks, with a flat rhombic pommel; in IV the plated tang predominates; while in V antennae, Mörigen, and true Hallstatt swords were imported or even copied locally.

The contemporary ornaments all grew out of older native types, showing that no material change affected Teutonic dress. The most important pins were of course the two-piece fibulae—in III with large flat spiral coils as catch-plates that were replaced in V by large shield-shaped plates (Fig. 14, no. 17). In the latter period there was a revival of simple pins, those with spiral, sunflower (like Fig. 14, no. 8) or saucer-shaped heads being most popular. Another queer pin, to which Early Iron Age deposits at Aegina and elsewhere in Greece offer parallels, has a dumb-bell head formed by joining two disks by a bar at right angles to the shaft. The handsome bronze collars were still worn by ladies during Mon-

teliu's III. In IV and V they were ousted by hooked torques, some genuinely twisted, others with the torsion imitated by cast ridges or engraved lines. In V the direction of the torsion often alternates, one strip being twisted to the right, the next to the left and so on (Fig. 17, no. 6). Some torques are even hinged. Tutuli assumed gigantic proportions. In Period III the central spike had already grown into a veritable pillar surmounted by a knob; by IV the disk may be 7 inches across and the pillar rise $4\frac{1}{2}$ inches from the rim; while in V the ornament looks like a pedestalled goblet 6 inches or more across, richly decorated on its surface and equipped with ingenious devices for attachment on the inside (Fig. 17, no. 5).

Late Bronze Age pottery in the Teutonic province is extremely dull. The only attempt at decoration was to smear over the surface with the fingers or a stiff brush. As already remarked, a biconical ossuary was in use from Periods III to V. In the latter period ossuaries in the form of round huts, much as in Latium, were also being made, particularly in Eastern Germany.

The dullness of the pottery is counterbalanced and explained by a wealth of bronze and gold vessels. Many of the bronze cups, buckets and urns were obviously imported from Italy, exhibiting the distinctive forms and decorative devices of the Villanovan bronze industry. But another group of vessels is no less of clearly native manufacture. Among these are the so-called hanging basins of bronze (they may really be grotesquely enlarged tutuli) of Periods IV-V. They have rounded or conical bases, a narrow almost horizontal shoulder and a short vertical neck from which grow two low handles (Fig. 17, no. 4). The base and neck are richly engraved. No less remarkable is the great group of gold vessels,

perhaps mainly ritual, assigned to Period IV. They are ornamented with zones of repoussé concentric circles separated by ribbed ridges. In the case of round-bottomed vessels the circles may form a star radiating from the base, or such a star may be left reserved, the space between the points being filled with bosses or circles. The commonest form is a round-bottomed cup without handles. Two remarkable gold vases in the form of a very high-crowned hat, though found respectively in the Rhenish Palatinate and in Central France, seem in style to belong to the Teutonic group.

The gold of these vessels is so thin that many believe them to have been used in ritual only. A number come from bogs where they might have been cast as offerings to some chthonic divinity. And we certainly possess ritual objects of the Late Bronze Age that must have been disposed of in that way, a usage indicated much later in the Norse sagas. The most famous and unambiguous is a bronze horse on wheels⁽²⁾ connected with a gold-plated¹ disk also on wheels. The disk is 6 inches in diameter. The whole object stands for the solar chariot; after use in some pagan ceremony it had been ritually slain (broken) and cast into the moss of Trundholm in Zealand. The same order of ideas doubtless sanctified some little gold boats found in another Danish bog. The wheeled bowls of Sweden and Mecklenburg, like that from Milaveč in Bohemia, may equally rank as ritual vessels. The boat symbol, combined often with swans' heads, recurs again engraved on razor-blades.

The art of the Late Bronze Age is on the whole inferior to that of the preceding epoch. The spiral survives on collars of Period III and grows into a variety

¹ Not of course by electrolysis, but by coating with gold foil.

of scroll patterns in V (Fig. 17, nos. 4, 5). But the purely geometric principle was being already abandoned, the scrolls blossoming out into stylized animals' heads. To the same period belong undoubtedly some of the rock-carvings and ornamented tombs. Even the Kivik grave is assigned by some authorities to the Late rather than the Middle Bronze Age.

In this connection we may refer to the so-called *lurer*, musical instruments indirectly related to the trumpets depicted on the Kivik monument. Some thirty of these instruments have been found, generally in Scandinavia and North Germany, all belonging it seems to Periods III–V. They consist of composite bronze tubes with a total length of as much as 5 feet, but wound in a curious S form. The sectional tubes of which they are composed have been cleverly united either by casting on or sweating on or by elaborate interlocking joints. The *lurer* each had a range of eight notes and are generally found in pairs, each tuned to a different pitch (Fig. 29).

HUNGARY AND RUSSIA

The Late Bronze Age on the Middle Danube is particularly complicated owing to extensive tribal movements. West of the river in Styria, Carinthia and Slovenia, iron came into use very early among Bronze Age groups of indeterminate antecedents, some showing relations with the Hungarian and North Alpine urn-field folks, others with tumulus-builders. In the mountains of Bosnia groups of barrows, covering inhumation interments accompanied by bracelets, pins and tutuli characteristic of the (northern) Tumulus culture together with a few fibulae of Adriatic form, constitute the nuclei of the well-known Iron Age cemeteries of Glasinac.

East of the Danube, on the other hand, a belated Bronze Age continued till iron was introduced by bands of Scyths pushing westward across South Russia towards 500 B.C., and by Kelts advancing in the opposite direction rather later.

The Late Bronze Age throughout the region was ushered in by an invasion of people related to the Lausitz and Knovíz groups who settled especially round the copper-bearing regions of Northern Hungary and Slovakia⁽⁴¹⁾. Their distinctive pottery, fluted like the later Lausitz vases, enables us to trace them farther south and indeed right across the Balkans into Macedonia; there they put an end to the Late Mycenaean colonies as indicated in Chapter 1. Everywhere they introduced the socketed celt, swords with plated hilts, and spear-heads with lanceolate blades. In North Hungary the socketed celt almost completely displaced the practical shaft-hole axe that had previously been manufactured in the regions. In Transylvania, however, elaborate derivatives of the old types were still made.

In Northern Hungary the fusion of the invaders with older inhabitants produced a very flourishing culture. It is illustrated by extensive urnfields, remains of regular industrial villages and rich traders' hoards and "foundries". Among distinctive local types are slashing swords with rich spiral ornamentation engraved on the bronze hilts, and a variety of elaborate fibulae with big spiral catch-plates. An exceptional number of bronze buckets and cauldrons (Fig. 27, nos. 2, 3) and cups of gold or bronze have been discovered in this area, principally on its fringe on the plains of the Upper Tisza. That was evidently a dangerous tract on a great trade route leading from the head of the Adriatic diagonally across Hungary to the Upper Tisza and so to the gold,



Fig. 27. Bronze vessels.

- (1) Gold cup from hoard of Unter-Glauheim, Bavaria. $\frac{1}{4}$
 (2) Bronze cauldron with T handles, same hoard. $\frac{1}{2}$
 (3) Bronze bucket with birds' heads, same hoard. $\frac{1}{4}$
 (4) Bronze cauldron, West Scotland (after Anderson). $\frac{1}{6}$

copper and salt deposits of Transylvania. The metal vessels are all of forms current in Italy and decorated with repoussé bosses in Villanovan style; the buckets even show the bird's head and circle motive in its classical North Italian form. Yet the exceptional number of the metal vessels and the use of presumably native gold in the manufacture of many suggest that some at least must be local products. Their distribution elsewhere, too, is not very different from that of the undoubtedly Hungarian swords just described.

Between the ninth and seventh centuries, too, South Russia at last entered the orbit of the European economic and industrial system for a short time. Particularly in the Ukraine⁽¹⁰⁵⁾ a local bronze industry arose, inspired mainly by Hungarian and Central European models. But here the western types subsist side by side with developments of native "Copper Age" forms. Thus socketed celts are found together with peculiar flat celts. Out of this mixture some interesting varieties were evolved. We may mention a socketed celt with two ears, a type which spread across Eastern Russia to the head-waters of the Jenessei in Siberia⁽¹⁰⁶⁾, and socketed spear-heads with big semicircular slits in the blades that must be related to contemporary British types. In the Ukraine they must be pre-Scythian (seventh to fifth centuries or earlier); farther north they belong to the local Iron Age. Yet side by side with these we have tanged spear-heads of Asiatic ancestry and others with folded socket as in Crete. To the same period belong the sickles with a hooked tang.

GREAT BRITAIN

We have already seen that Urnfield cultures, more or less, connected with the North Alpine group were

spreading in a westerly direction across Central France from Switzerland or the Upper Rhine and down the Rhine into Belgium and Holland. The latter current was further reinforced by one originating in northern Central Germany. Ultimately these movements impinged upon the coasts of Britain and represent the so-called invasion with which our Late Bronze Age may be said to open⁽¹⁰⁷⁾. Actually this "invasion" was a complex process effected by the infiltration of discrete bands of invaders⁽⁷⁶⁾—in this probably resembling the earlier phases of the "Anglo-Saxon Conquest". No doubt the invaders started from various centres and landed at diverse points along our coasts. Some certainly followed the precedent of the Beaker folk and crossed the North Sea from the Low Countries. Others may have come across France to the Channel ports, and a group that appears in Cornwall and Devon had Armorican affinities. The cumulative result was that "Lowland England" was dominated by the invaders, while in the highland country to the north and west the intrusive culture was absorbed in strict conformity with the principle recently enunciated by Fox⁽⁷¹⁾. In the south therefore exotic ceramic types were extensively manufactured, while to the north the Late Bronze Age pottery is directly descended from Middle Bronze Age wares. Nevertheless the changes in economic arrangements and burial rites, presumably introduced by the invaders, affected every part of the island, and their new tools and weapons were distributed evenly throughout the land. Conversely, even in Southern England the native tradition in pottery and bronze work was never entirely interrupted.

Hence in general the invasions produced no radical or abrupt change in economy and industry. Probably

the communities, in the lowlands especially, were larger, more agricultural and more settled than before. In Southern England a number of roughly rectangular earthworks defended by ditch and bank⁽¹⁰⁹⁾ can safely be assigned to this period and give evidence of more or less permanent settlement. In this area the people lived in pit-dwellings excavated in the chalk. Air photographs, supplemented by excavation, have also demonstrated that some of the old cultivations known as "Keltic fields" likewise date from the Late Bronze Age⁽¹⁰⁸⁾. Broad rectangular fields, varying in size from 100 sq. feet to 400 by 150 sq. feet, were cultivated with the aid of a foot-plough (such as was recently used in the Hebrides) or a primitive plough drawn by two oxen that did not undercut the sods, on the slopes of the open downs and uplands. Between each field narrow strips were left uncultivated⁽⁸⁰⁾. Owing to the slope of the land, soil was washed down from the upper edge of the field and gradually accumulated in a little straight bank against the uncultivated strip at its bottom. The low ridge thus formed is known as a (positive) lynchet, and it is a study of the relation of such lynchets to earthworks of the Late Bronze Age that enables us to date the cultivations. The formation of a lynchet clearly implies a considerable period of cultivation, confirming the impression of sedentary life produced by the settlements. In upland Britain, moreover, a number of very substantial round huts of stone, on Dartmoor and in Anglesey for instance, certainly go back at least to the Late Bronze Age, carrying on an early native architectural tradition. Even villages with elaborate stone defences, like Grimspound on Dartmoor, may be Late Bronze Age⁽⁷⁸⁾. Both these solid huts and the fine stone defences are incompatible with a semi-nomadic life, though not implying

necessarily that extreme fixity attained by our peasantry since the Saxon conquest.

More permanent occupation is likewise indicated by the adoption of burial in urnfields in place of, or besides, in small groups of barrows. Urnfields comparable to those of the Lausitz folk or the Italici are in fact distinctive of the Late Bronze Age not only in Southern England but even in the lowlands of Scotland as far north as Aberdeen. Very often, however, an old barrow was used for secondary interments in the Late Bronze Age, a practice also noticed in Holland and Scandinavia.

A change in the economic organization of Great Britain is denoted by the "founders' hoards" that appear for the first time in this period⁽⁵⁵⁾. They imply a new class of travelling smiths, agents or pupils of the great founders of Bologna. Exotic types whose previous history is to be sought in Central Europe, such as winged and socketed celts, leaf-shaped swords with plated hilts, and bugle-shaped objects from harness⁽¹⁰⁷⁾, are specially common in these hoards and again illustrate foreign traditions as well as actual imports. Trade relations with the lands beyond the Channel and the North Sea had naturally been cemented by the movements of peoples from those quarters. But the old traffic along the sea routes to Spain and the Western Mediterranean was revived at the same time, and Britain thus participated in the intensified maritime trade of the Mediterranean basin suggested at the beginning of the chapter. A spear-head of British type (almost identical with Fig. 10, no. 6) was included in a "hoard" dredged up from the harbour of Huelva in Southern Spain⁽⁹²⁾, and socketed sickles occur even in Sardinia. At the same time, as in the later Stone Age, the maritime trade route was continued round the west coasts of

Scotland presumably to Scandinavia. It is marked by a series of late hoards on Islay, Skye, the Hebrides and Orkney⁽⁶⁰⁾. By this route presumably Scandinavian types, such as the sunflower pin, reached Ireland and England.

The British bronze industry of this period is represented only by hoards and isolated objects. Except for razors and a few ornaments, no metal objects are found in the graves. For axe-heads the later palstaves with no indication of flanges below the stop-ridge remained in use side by side with socketed celts and rare winged celts with high-placed wings and an ear. Numerous wood-workers' tools testify to the revival of carpentry, of whose products unhappily no remains survive. To this class belong the socketed gouges, tanged chisels and curved knives (Fig. 11, no. 10). Socketed chisels and socketed hammers probably belong rather to the equipment of the metal-worker. Original products of the native industry are the socketed sickles and socketed double-edged knives (Fig. 11, no. 9). This is also the great age of the bifid razors (Fig. 12, no. 10). Such are found even in graves and settlements.

The slashing sword now became the warrior's principal weapon. Most have flanged tangs originally plated with horn or wood, straight shoulders and a blunted strip (*ricasso*) ending in a nick at the base of each edge. A few are of true Hallstatt pattern, widened out for the pommel like Fig. 8, no. 12. Bronze-hilted swords are rare. Apart from an antennae sword found at Lincoln⁽²⁾ these bear little resemblance to Central European models, but find rather distant parallels in Sweden. The wooden sheaths that held these swords normally terminated in long narrow chapes (Fig. 9, no. 2). Some, however, were fitted with true winged chapes of Hallstatt form

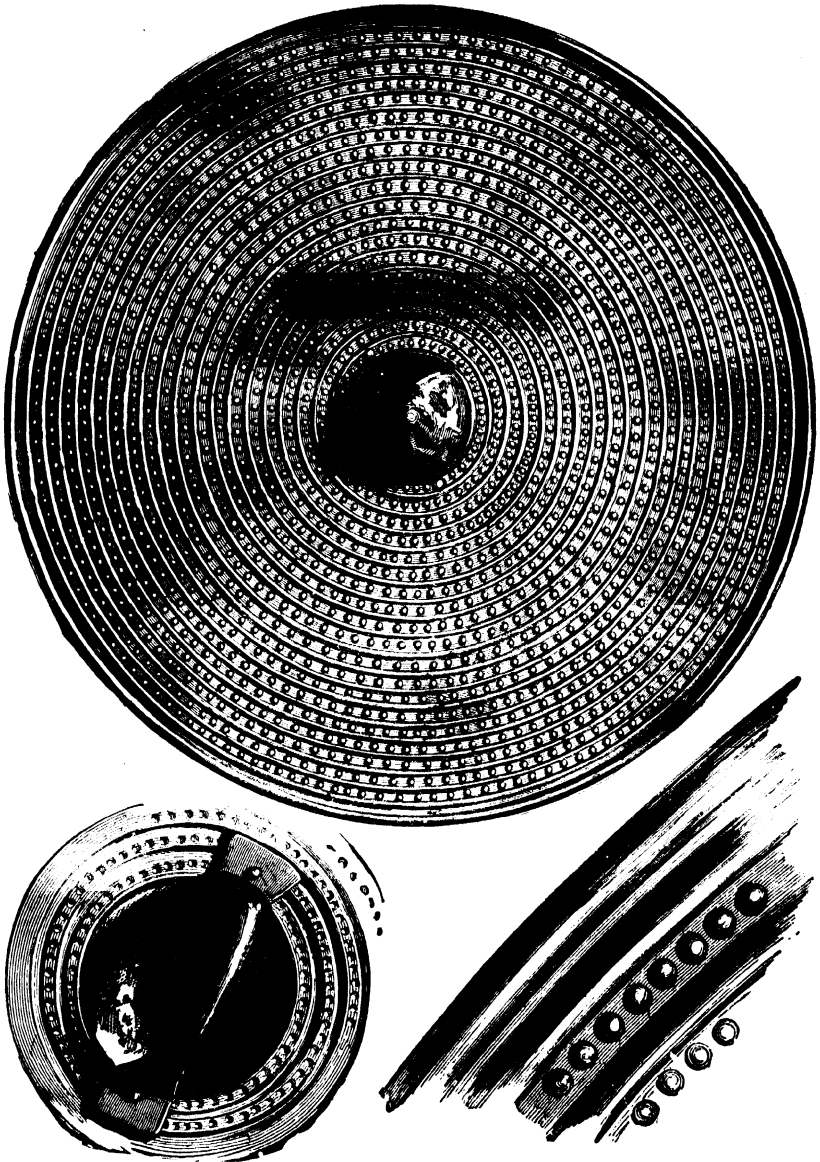


Fig. 28. Bronze shield, Scotland, Late Bronze Age. After Anderson. $\frac{1}{2}$

(Fig. 9, no. 3). The spear, too, retained its importance. The commonest type has a leaf-shaped head, but blades with lunate openings on either side of the midrib (Fig. 10, no. 6) are native British products derived from older local models.

The warrior was now defended, as in Central Europe, with a round buckler of bronze. The commonest native type exhibits a hollow central boss or umbo encircled by concentric ridges alternating with rings of small bosses. A flat strip of metal, doubled over at the edges, was riveted across the umbo to form a handle (Fig. 28).

Though no wheeled vehicles have come down to us, such were certainly in use. Indeed one domestic hoard, found in the cave of Heathery Burn (Durham)⁽²⁾, included six bronze cylinders with an internal diameter of 4 inches which are supposed to be nave collars. The horses which drew the vehicle were controlled by bits terminating in antler cheek-pieces just like Central European specimens. A remarkable gold peytrel (collar or brunt) found at Mold (Flintshire)⁽²⁾, if really Bronze Age at all—and its decoration is of Bronze Age style—shows how richly steeds might be caparisoned. The so-called bugle-shaped objects—tubes with a solid loop on one side and a slit on the other (Fig. 13, no. 5)—are probably pieces of harness.

No safety-pins were included among the toilet articles of a Late Bronze Age Briton. Even pins were still rare, except for the sunflower type (Fig. 14, no. 8). On the other hand, bronze buttons with a loop at the back now supplement the buttons of jet or amber as dress-fasteners. From Ireland come a number of small penannular objects of gold terminating in great cup-like disks. Some authorities think that they too were dress-fasteners⁽²⁾. A thread would have replaced the movable pin of the

contemporary Teutonic fibulae to which the Irish ornaments in other respects bear a very striking resemblance (Fig. 17, no. 8). Other gold objects of similar forms but with a larger hoop might be worn as bracelets (Fig. 15, no. 2). Sir John Evans⁽⁵⁾ pointed out the extraordinary resemblance these bear to the so-called *manillas*—the ring money still current in West Africa in his day. It may then be that these Irish gold objects were really currency. The use of identically shaped “money” in West Africa would be a survival from prehistoric times commemorating our Bronze Age trade along the Atlantic coasts.

Gold torques also continued in use as did probably the segmented, quoit-shaped and star-shaped beads of faience, and others of amber and jet. In late Scottish hoards⁽⁶⁾ we find beads of blue glass with yellow or white inlays such as would be more at home in the Second Iron Age or La Tène period.

Buckets and cauldrons of hammered bronze are included in several hoards, and, judging by the Heathery Burn cave⁽²⁾, were in regular use for domestic purposes by well-to-do families. The buckets are of Italian pattern and may well be imported thence. Their models in any case are not older than Benacci II times. The bottom on some British specimens has been strengthened externally by the attachment of a cruciform framework. The cauldrons, on the other hand, are purely British though late in date and probably inspired in the last resort by Italian models. The majority come from Scotland and Ireland, and some are actually associated with iron weapons. They are globular in shape and consist of several bronze plates riveted together and hammered over a hoop that gave stability to the mouth. The elaborate attachments for the loose ring handles have

been cast on (Fig. 27, no. 4). The great hoard of bronzes from Dowris in County Meath and that from Duddingston Loch, Edinburgh, were probably contained in such cauldrons.

The Dowris hoard contained also trumpets of types found elsewhere in Great Britain and Ireland. All are much shorter than the Teutonic lurer and lack their distinctive twists. The Dowris types were cast in one piece; some have the mouthpiece at the end, others at the side. A third variety, formed of sheet metal bent over and riveted to form a tube, may date from the Iron Age. In the Irish trumpets, as in the Teutonic lurer, the derivation from an original animal's-horn instrument is patent (Fig. 31).

The best known pottery of the Late Bronze Age is sepulchral and consists of cinerary urns. These naturally fall into two main classes—those derived from old native forms and those inspired by exotic traditions.

The degeneration of the overhanging-rim urn produced, as we saw in Chapter VI, the cordoned or hooped type (Fig. 24, no. 3). In it one ridge of pinched-up clay represents the lower edge of the rim and another below it the old line of the shoulder. This type is commonest north of the Thames, in Wales and in Ireland. Dr Clay⁽¹¹⁰⁾ believes that in the south of England a similar process led to the formation of what Abercromby calls the Deverel group 2. The urn of this group is cylindrical or bucket-shaped and has a single moulding encircling the body a couple of inches below the lip (Fig. 24, no. 4). This moulding can be treated as a survival of the original overhanging rim. It is, however, generally decorated with finger-tip impressions, a technique which at once relates it to certain foreign types of urn with which the Deverel group 2 is often

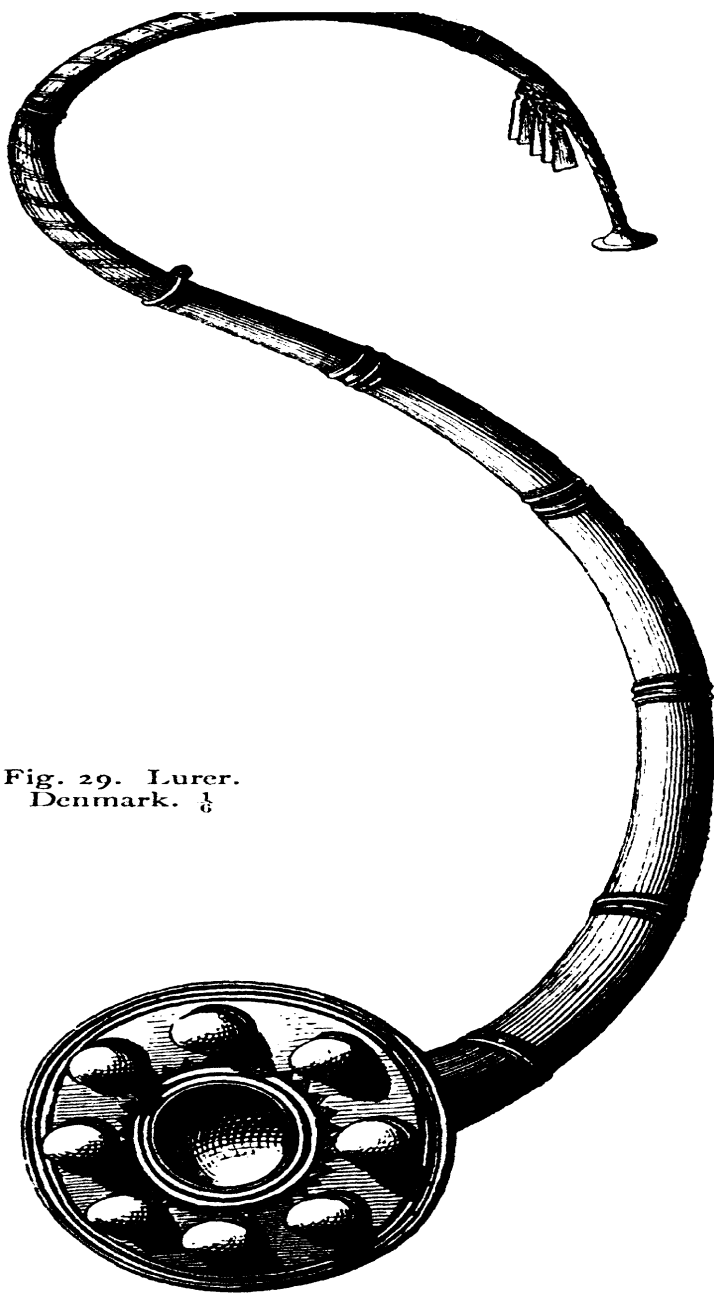


Fig. 29. Lurer.
Denmark. $\frac{1}{6}$

associated. A third native type of urn is that termed by Abercromby "Encrusted". It develops out of the enlarged food vessel in Northern England and Southern Scotland and spreads thence to Wales and Ireland⁽¹¹²⁾. These urns were decorated by applying round pellets or strips of clay to the surface while the vessel was drying and arranging them to form simple patterns—chevrons, squares, concentric arcs or interlaced mouldings. The applied clay was carefully joined up to the body by rubbing with a wet finger, but none the less the strips easily fall off. The strips and even the spaces between them are often incised with a bone point, but never exhibit finger-tip impressions (Fig. 24, no. 5).

Over against these native types, which except for the bucket urns all belong to highland Britain, stands the foreign pottery of invaders as represented in Southern England including Cornwall. The most striking are the globular urns constituting Abercromby's Deverel group 1. The body is globular with four little handles on the line of greatest swell. There is no clearly marked neck, but where it should be comes the decoration, consisting generally of horizontal flutings, simple horizontal incisions, or bands of wavy lines made with a sort of comb (Fig. 24, no. 8). Abercromby rightly noted the similarity of the fluted decoration to that on the urnfield pottery of Central Europe and France.

Abercromby's Type 3, groups 2 and 3, consist of tall bucket-shaped or cylindrical urns decorated with horizontal, vertical or zig-zag mouldings. The mouldings are normally embellished with finger-tip impressions and, in group 2, often form loops suggestive of handles (Fig. 24, no. 6). The rim is generally slightly everted in a manner reminiscent of metal vessels. Plastic finger-tip mouldings had been used decoratively along the

northern shores of the Mediterranean and in Central Europe from Neolithic times. From Italy to Holland they are quite common in the urnfield period. This feature therefore helps to attach the group in question to continental cultures without giving us any clue as to the exact home of its makers.

The third intrusive ceramic type is commonest in Cornwall. It is a slightly biconical urn, the upper cone being much shorter than the lower. Two or four strap handles sit on the keel. The upper part and shoulder is decorated with vertical or horizontal zig-zags, sometimes formed by the impression of a cord (Fig. 24, no. 7). The patterns are thus very similar to those of the Middle Bronze Age overhanging rim urns. But the forms of our group are undoubtedly strongly reminiscent of the Armorican urns of an earlier date described in Chapter v.

One peculiar feature is common to all the three classes of intrusive pottery. On the base of the urn there is often a cross or star in relief on the inside. It has been suggested that these relief patterns were really structural and served to strengthen the base. They would actually be useful if the pot was used for boiling water by dropping in hot stones, and several of the decorated pots came from settlements. Another possibility is that the ridges imitate the stays used to strengthen metal buckets, but these were generally affixed to the outside. Dr Clay regards the crosses and stars as religious symbols. Indeed in some Hungarian urnfields a swastika has been observed in relief inside urns.

A word must be said in conclusion as to the duration of the Late Bronze Age in the British Isles. Quite obviously it everywhere overlaps the Central European Hallstatt period very considerably; the Hallstatt types from our hoards suffice to prove that. Moreover, until

recently no connected settlements or cemeteries other than those of the Late Bronze Age were known that could be assigned to the First Iron Age. It was only in the Second or La Tène period that new groups could be identified. In the last few years it has been proved that people with a very late Hallstatt culture, including distinctive pottery, did settle on our shores notably at Park Brow⁽¹¹³⁾ near Cissbury in Sussex, at All Cannings Cross⁽¹¹¹⁾ near Devizes in Wiltshire and at Scarborough. But though these new-comers did use pottery of Hallstatt character, their safety-pins were already of La Tène type, i.e., though they brought a culture of Hallstatt ancestry, they and it only arrived in La Tène times so that their coming need not be anterior to 450 B.C. Moreover, the intrusive wares at All Cannings and elsewhere are associated with Bronze Age urn types⁽¹¹⁰⁾ so that even in Southern England the survival of our Bronze Age culture throughout the whole of the Hallstatt period of Central Europe seems indisputable. In more inaccessible regions it lasted longer still. That is implied in the late associations of the Irish and Scottish cauldrons. The glass beads from the hoard of bronzes on Lewis and from a cordoned urn at Edderton, Ross-shire, both point to a survival well into the Second Iron Age. And in one urn of Bronze Age fabric from Cornwall Roman coins of the fourth century A.D. have been recorded! On the whole, then, the Bronze Age in Southern England must have lasted till about 400 B.C. and elsewhere till at least 200 B.C., probably to the beginning of our era in Scotland.

The beginning of the Late Bronze Age is less easily determined. The intrusive types with which it opens need none of them be later than Reinecke's Hallstatt A. But if they reached here not by trade but as the results

of ethnic movement, they might have been already out of date on the Danube before they reached the Thames, just as our Hallstatt pottery would have been already superseded by La Tène wares on the Rhine before it was used at All Cannings. On the contrary, the Sicilian safety-pins associated with the British spear-head at Huelva imply that such Late Bronze Age types were current here before 900 B.C. So perhaps a date of about 1000 for the first invasions would not be much too high.

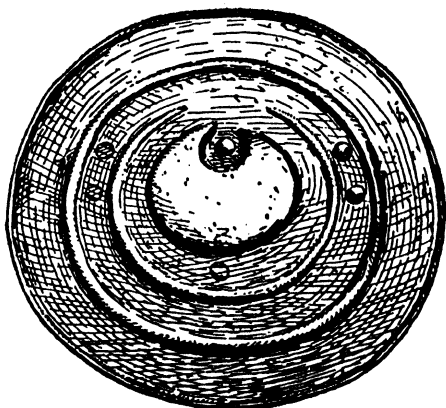


Fig. 30. Bronze shield, Bohemia. $\frac{1}{12}$

CHAPTER VII

RACES

IN the last three chapters we have given a rather cursory account of the culture of the principal communities living north of the Alps between 2000 and 500 B.C. The description of our ancestors' life in Britain towards the latter date is rather an anti-climax after the brilliant civilizations of Sumer, Egypt and Crete with which we started. It is salutary, if depressing, to compare the hovels, dug in the chalk of the Wiltshire downs or built of rubble on Dartmoor, with the great cities of Kish and Harappa that are already two thousand five hundred years older. A single tomb on the acropolis of Mycenae contained more gold than has been collected from thousands of British barrows ranging over fifteen hundred years. And the Mycenaean tombs were poverty-stricken in comparison with the Royal Graves of Ur that are fifteen hundred years earlier. A Middle Minoan II rapier is a foot longer than the finest bronze blade forged north of the Alps. And yet the Bronze Age barbarians had no lack of armourers.

In fact, the northerners were quick to learn and adapt to their peculiar needs those discoveries of the Ancient East that appealed to barbarian requirements. But the techniques and models were in every case supplied by Sumerians, Egyptians, or Minoans. In our period it is not possible to point to a single vital contribution to material culture originating in Europe outside the Aegean area.

And, if it be argued that this poverty in material culture was counterbalanced by an inherent spiritual superiority, we can point to the cannibal feasts of the Knovíz peoples and the human sacrifices depicted on

the Kivik tombstone. Certainly Bronze Age burials suggest a monogamous family and a high status for women. But, after all, few Orientals could actually afford a harem, and the queens of Egypt were buried with sufficient pomp. It would be just silly to say that Scandinavian decorative art was superior to Babylonian or Minoan. And no one in their senses will compare the Swedish rock-carvings with even a poor Egyptian bas-relief or the Trondholm horse with a Sumerian bull of 3000 B.C.

No, it is not with their civilized contemporaries in the Eastern Mediterranean that our Bronze Age ancestors must be compared but with the more backward communities of Africa and Malaysia to-day.

Nevertheless the roots of modern European civilization were struck down deep into this unpromising soil. The general economic and social structure that may be inferred from the Late Bronze Age remains persisted with surprisingly superficial modifications throughout the Roman Period in many parts of the Empire. The native houses and fields of Roman Britain did not differ essentially from those of the latest Bronze Age. And after all the direct ancestors of the Romans themselves prior to the rule of the Etruscan kings had been just an Urnfield folk comparable to the inhabitants of the Lausitz and the Alpine slopes. Even in the British Isles many elements of pure Bronze Age culture survived unchanged by subsequent migrations and invasions till late in last century. For example, travellers describe beehive huts of stone and a foot-plough, exactly like those known directly or inferred in Bronze Age Britain, as still current in the Hebrides. Despite the upheavals of the Early Iron Age and the Migration Period one is inclined to believe in a considerable continuity both in

blood and tradition between the Bronze Age and the modern populations.

Furthermore, the earliest historical data imply that the principal European nations of antiquity must already have existed, either as distinct peoples or at least as groups in course of formation, before the close of our period. It should, therefore, theoretically, be possible to attach to our main Bronze Age groups ethnic labels, derived from the classical authors. Such an attempt is, however, rendered hazardous in practice both by the extensive and complicated popular movements that took place during the Early Iron Age and also by the ambiguous use of ethnic terms by the Greeks and Romans. It is well to close this book with some account of recent speculations in this direction, but the results up to date are frankly disappointing.

The "ethnic" groups considered in this search almost inevitably become confused with the linguistic groups distinguished by comparative philologists. Language is certainly a cultural, rather than a racial, trait and one of those unifying factors that give to a single people that unity which might find outward expression in a "culture" (as defined on p. 42). The equation of language and culture can, however, only possess a restricted validity. In so far as it is applicable, it gives us a means of supplementing the somewhat vague testimony of ancient writers; for place-names often define very accurately the former distribution of a group or people. A comparison of the distribution of place-names of a given type with that of archaeological remains has yielded good fruit already. This line of research will, I believe, if the complicated problems of the Iron Age are concomitantly unravelled, lead to the ultimate solution of our questions.

It is generally believed that, with the exception of the Mediterranean basin and some corners in the extreme North and West, Europe was occupied by peoples of Indo-European (or Aryan) speech (the great linguistic family to which all modern European languages, except Basque, Magyar, Turkish and Finnish, and also Armenian, Persian and Hindu belong) by the beginning of the Bronze Age. In the Mediterranean basin place-names indicate a much longer survival of a predominantly pre-Aryan population. In the Aegean these would be Leleges and Carians of Anatolian affinities, in Sicily and South Italy, Sicels, and in Spain Iberian tribes whose language survives perhaps as Basque. Beyond the borders of the European economic system to the northeast dwelt perhaps already Lapps and Finns, while it is still open to dispute whether some early peoples in the British Isles, such as the mysterious Picts, belonged to our linguistic ancestry at all. For the rest, Aryan languages must have been in general use. It should therefore be possible to connect the several Bronze Age cultures with branches of the Indo-European linguistic family—the Teutons, Kelts, Italici, Hellenes, Illyrians, Thracio-Phrygians, and Slavs of the philologist.

In the case of the Teutons¹ alone is there any considerable approach to unanimity. The bronze culture of Scandinavia and North Germany is continuous with the demonstrably Teutonic culture of the Roman period. We have even seen that Teutonic cult practices can be traced far back in the local Bronze Age. Though

¹ Teutonic is the English term used to denote the whole group of allied languages comprising Anglo-Saxon, Dutch, German, the Scandinavian tongues and ancient Gothic. In Germany the term Germanic is used as by Tacitus. Gothonic has recently been suggested as an alternative by a Dane, Schütte (*Our Forefathers*, Cambridge, 1929).

Scandinavia and North Germany were subjected to strong "influence" from the Lausitz area in the Late Bronze Age and even stronger from the Kelts in the Iron Age, there are no grounds for connecting these foreign influences with a racial or even linguistic change. The only serious problem is the attribution of certain cultures in Eastern Germany which begin in the closing years of the Bronze Age. Kossinna has dubbed them "East Germanic", but the researches of one of his pupils, Petersen, have shown that they disappear from the area in question altogether before the historical Goths are traceable there. An identification with the Bastarnae has been suggested, but rigorous proof is still lacking.

On the origin of the Kelts opinions seem at first hopelessly divided. The issue is complicated by uncertainty as to the antiquity and significance to be attributed to the linguistic division into Brythonic and Goidelic Kelts. The division rests principally on the treatment of the Indo-European guttural *qu* which is represented as a labial, *p*, in Brythonic (e.g. Welsh *pump* for Latin *quinque*) while it is preserved as a guttural, *c*, in Goidelic (Gaelic *coic*). Brythonic survives to-day in Welsh and Cornish and in shepherds' "counts" elsewhere in England, even in Lincolnshire. In Roman times it was spoken by the Britons and most Gauls. Erse and Scots Gaelic, introduced presumably by the Scotti who crossed over from Ireland in post-Roman times, alone illustrate the Goidelic speech, although there are traces of the same branch in the Seine valley (32).

It is quite certain that the La Tène culture of the Second Iron Age (from about 450 B.C.) was created by Kelts and carried by them to Britain and Ireland and eastward far across Central Europe. It is less certain among which group of the Hallstatt period the La Tène

culture arose and whether there were already Kelts outside the cradle possessing a different culture. On the second question at least Great Britain and Ireland might be expected to afford conclusive evidence. Lord Abercromby boldly suggested that the round-headed Beaker-folk spoke proto-Keltic, still preserving the *q* sound, as in Goidelic. That would agree very well with the views of Professor Kossinna who ascribes the Tumulus culture of South-west Germany, that is clearly related to that of our round barrows, to Kelts. Unfortunately as far as Britain is concerned there is no trace of Q-Keltic speech, and Ireland was not reached by the Beaker-folk. At the same time the recognition of a quite extensive infiltration in Late Bronze Age times has greatly complicated the position. If two waves of Kelts are required in Britain, the Urnfield folk have as good a claim to be the first as their round-barrow-building precursors. Correspondingly other Germans like Dr Rademacher of Cologne have modified Kossinna's theory by making an admixture of Urnfield folk with the tumulus-builders a condition for their becoming Kelts proper.

Still more recent researches have resulted in connecting the oldest strata of Keltic place-names in North Spain with a group of Urnfield folk, culturally descended from the Late Bronze Age lake-dwellers of Switzerland and Savoy. It is thus possible to assert with some confidence that these latter were already Keltic. It is not thereby determined whether they were the sole Kelts nor what element in their complex ancestry—Urnfield folk from the East, authors of Rhône culture and perhaps tumulus-builders—made their speech Keltic. The association of Urnfield folk in Britain with the system of agriculture practised there throughout the Keltic period on the one

hand and the linguistic affinity between Kelts and Italic, who were also Urnfield folk, on the other, would encourage an identification of Kelts and North Alpine Urnfield people. The chief obstacle to such an identification is the desire to connect the North Alpine culture with Illyrians which is mentioned below.

The position of the Italic is less difficult. There are very strong grounds for connecting the *terramaricoli* with the Latini at least, and so with the Romans. Professor Pigorini and his disciples go further, and regard the *terramaricoli* as ancestors also of the Umbrians and Oscans, peoples who like Brythonic Kelts changed *Q* to *P*. There is indeed an almost overwhelming case for regarding the Villanovans as Umbrians. And Professors Pigorini and Collini have argued strongly for a derivation of the Villanovans from the *terramaricoli*. Randall-MacIver would, on the other hand, invoke a second invasion from an undefined district in Central Europe to explain the Villanovans—a, to me, gratuitous assumption. But quite apart from this, links between the Oscans and either the Villanovans or *terramaricoli* are not as yet obvious. In particular the Oscans seem to have practised inhumation. Von Duhn therefore has recently propounded a theory of an invasion by “inhuming Italic” who would have occupied both Umbria and the Oscan territory—a theory at the moment very difficult of acceptance. Personally I regard Pigorini’s identification of the *terramaricoli* with the ancestors of Latins, Umbrians and Oscans alike as the most economical and plausible theory.

The ancient writers often mention the Illyrians as a great nation occupying the West Balkan highlands and parts of the Danube valley. The modern Albanians are the sole survivors of this linguistic stock. The greater

part of the Illyrian territory was occupied until the Roman conquest by tumulus-builders directly descended from the Late Bronze Age group who had settled at Glasinac in Bosnia. A group of tumuli in Southern Italy can equally be identified safely with the Illyrian Iapyges. The tumulus-builders practised inhumation even in the First Iron Age when elsewhere cremation predominated. On the other hand, at the head of the Adriatic the Veneti, who are supposed to be of Illyrian speech, were Urnfield folk. This seems the sole archaeological argument in favour of attributing to the Illyrians the Lausitz and even the North Alpine Urnfield culture—a theory that holds undisputed sway in Germany to-day. From the point of view of toponymy the doctrine is supported especially by the distribution of names containing the allegedly Illyrian word for salt **hal*, in places where the Lausitz culture or its influence is discernible—Hallstatt, Hallein, Reichenhall, Halle, Halicz (in Galicia).

Against this it may reasonably be argued that we have in the regions in question during Late Hallstatt times intrusive inhumation graves whose furniture suggests derivation from the south-eastern slopes of the Alps. These inhumationists may have been responsible for the introduction of the Illyrian names in question.

The Thracians have a much stronger claim to the Lausitz culture. Though their centres were in the East Balkans and Hungary, a Thracian or Dacian tribe was to be found on the Lower Vistula as late as A.D. 180 and left perfectly good Dacian place-names in Poland and Silesia. To them at any rate must be ascribed the Pannonian urnfields of the latest Bronze Age in Hungary and Transylvania to which the Lausitz cemeteries are more or less allied. The Late Bronze Age culture of

this Tisza district, subsequently overlaid by elements contributed by Scythians and Kelts, seems to be more or less continuous with the historical civilization of the Thracians of Dacia. It was also, earlier at least, connected with the Bronze Age culture of Macedonia and intrusive, perhaps Phrygian, elements in Asia Minor (Troy VII and perhaps earlier)⁽³⁷⁾. Its attribution to Thracians seems then certain.

As for the Lausitz culture, a third claimant is to be found among the Slavs. The case for a Slavonic attribution of the Lausitz urnfields has been strongly urged recently by several Polish scholars following in the steps of the Czech archaeologist, Pič. The continuity has not, however, yet been entirely demonstrated, and one suspects that political considerations are influencing their championship of this theory as they are the strenuous opposition of all German investigators. Still, otherwise no Slavonic nuclei have been offered us during the Bronze Age.

As for the Hellenes, if they were not already south of the Balkans in pre-Mycenaean times, we cannot identify them to the north. Two northern inroads may indeed have reached Macedonia. The one, marked by fluted ware, started in Hungary but was hardly on a scale to account for the Hellenization of Greece, besides being rather belated for that. The other, bringing inhumation graves, spectacle brooches, and antennae swords ought on the above view to be connected with Illyrians.

The labelling of Bronze Age groups is accordingly in a very tentative and precarious stage. In most cases a closer analysis of the cultures of the Iron Age is indispensable. We believe that with accurate distribution maps of leading fossils at several periods the question might be solved with almost scientific precision. But

in two key areas, France and Hungary, we are likely to have to wait long before such maps are available. In the meanwhile Britain offers a most promising field, and from a co-operation between archaeology and toponymy and folk-lore most fruitful results are to be expected.

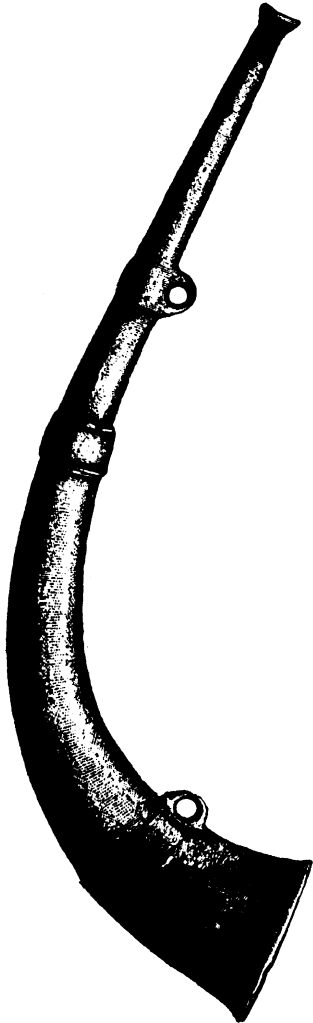


Fig. 31. Late Bronze Age trumpet from Scotland (after Anderson). $\frac{1}{2}$

BIBLIOGRAPHY

ABBREVIATIONS

<i>Antiquity.</i>	<i>Antiquity</i> , A quarterly Review of Archaeology, Southampton.
<i>Ant. J.</i>	<i>Antiquaries' Journal</i> , Society of Antiquaries of London.
<i>Arch.</i>	<i>Archaeologia</i> , Society of Antiquaries of London.
<i>Arch. Camb.</i>	<i>Archaeologia Cambriensis</i> .
<i>B.P.</i>	<i>Bullettino di Paletnologia Italiana</i> , Parma.
<i>IPEK.</i>	<i>Fahrbuch für prähistorische und ethnographische Kunst</i> , Leipzig.
<i>M.A.</i>	<i>Monumenti Antichi</i> , R. Accademia dei Lincei, Rome.
<i>Mat.</i>	<i>Matériaux pour l'histoire primitive de l'homme</i> , Paris (continued as <i>L'Anthropologie</i>).
<i>MSAN.</i>	<i>Mémoires de la Société des Antiquaires du Nord</i> , Copenhagen.
<i>PSAS.</i>	<i>Proceedings of the Society of Antiquaries of Scotland</i> , Edinburgh.
<i>PZ.</i>	<i>Prähistorische Zeitschrift</i> , Berlin.
<i>Real.</i>	Ebert's <i>Reallexikon der Vorgeschichte</i> , Berlin, 1924-9.
<i>WAM.</i>	<i>Wiltshire Archaeological Magazine</i> , Devizes.

GENERAL WORKS

- (1) BURKITT. *Our Early Ancestors*. Cambridge, 1926.
- (2) British Museum. *A Guide to the Antiquities of the Bronze Age*. 1920.
- (3) CHILDE. *The Dawn of European Civilization*. London, 1924.
- (4) DÉCHELETTE. *Manuel d'archéologie préhistorique, celtique et gallo-romaine*. Vol. II. Paris, 1910.
- (5) EVANS, JOHN. *Ancient Bronze Implements of Great Britain*. London, 1881.
- (6) PETRIE. *Tools and Weapons*. London, 1917.

FOR CHAPTER I especially

- (7) SMITH, SIDNEY. *The Early History of Assyria*. London, 1927.
- (8) CHILDE. *The Most Ancient East*. London, 1928.
- (9) PETRIE. *Prehistoric Egypt*. London, 1917.
- (10) FRANKFORT. *Studies on the Ancient Pottery of the Near East*. Royal Anthropological Institute, Occasional Papers, 6 and 8. London, 1924-6.

- (11) WOOLLEY. "Excavations at Ur." *Ant. J.* Oct. 1929.
 (12) EVANS, A. J. *The Palace of Minos at Knossos*. London, 1921 ff.
 (13) HALL, H. R. *The Civilization of Greece in the Bronze Age*.
 London, 1928.
 (14) BLEGEN. *Korakou*, New York, 1921.
 (15) DÖRPFELD. *Alt-Ithaka*. Munich, 1927.
 (16) TSOUNTAS. Κυκλαδικά in 'Εφημερίς ἀρχαιολογική, 1898-9.
 (17) SCHMIDT, H. *Schliemanns Sammlung Trojanischer Altertümer*.
 K. Museen zu Berlin, 1902.
 (18) GJERSTAD. *Studies on Prehistoric Cyprus*. Uppsala, 1926.

CHAPTER II

Mining:

- (19) ANDREE. *Bergbau in der Vorzeit*. Leipzig, 1922. (Also article
 "Bergbau" in *Real.*)

Metallurgy:

- (20) GOWLAND. "Early Metallurgy in Europe," *Arch.*, LVI.
 (21) LUCAS. "Copper in Ancient Egypt," *J. Eg. Arch.*, XIII.
 (22) GÖTZE. "Bronzeguss." *Real.*

Trade routes:

- (23) NAVARRO. "Prehistoric Routes between Northern Europe and
 Italy defined by the Amber Trade." *Geographical Journal*,
 Dec. 1925.

Climate:

- (24) GAMS AND NORDHAGEN. *Postglaziale Klimaänderung... in
 Mitteleuropa*. Munich, 1923.
 (25) WAHLE. "Die Besiedelung Südwestdeutschlands in vorrömischer
 Zeit." XII. *Bericht der römisch-germanischen Kommission*.
 Mainz, 1921.

Chariots:

- (26) EVANS, A. J. "The Ring of Nestor." *JHS*. XLV.

Potter's wheel:

- (27) HARRISON. *Pots and Pans*. London, 1927.

Typological series:

- (28) MONTELIUS. *Die ältere Kulturperioden*. I. Stockholm.

Chronology:

- (29) MÜLLER, SOPHUS. In *MSAN*. 1914-15.
 (30) REINECKE. In *Altertümer unserer heidnischen Vorzeit*. v.

CHAPTER III

Swords:

- (31) EVANS, A. J. "The Prehistoric Tombs of Knossos." *Arch.* LIX.
 (32) PEAKE. *The Bronze Age and the Celtic World*. London, 1922.
 (33) PARKER-BREWIS. "The Bronze Sword in Great Britain." *Arch.* LXXIII.

Spear:

- (34) GREENWELL. "The Origin of the Bronze Spear-head," *Arch.* LXI.

Razor:

- (35) MONTELIUS. *Die vorklassische Chronologie Italiens*. Stockholm, 1912.

Fibulae:

- (36) BLINKENBERG. *Fibules grecques et orientales*. Copenhagen, 1926.
 (37) MYRES, J. L. *Who were the Greeks?* Berkeley, 1930.
 (38) KOSSINNA. *Die deutsche Vorgeschichte, eine hervorragend nationale Wissenschaft*. 1922.

Pins:

- (39) SEGER. "Nadel." *Real.*

Jet ornaments:

- (40) CALLANDER. "Notice of a Jet Necklace...." *PSAS*. I.

CHAPTERS IV-VI inclusive. Special area

Central Europe:

- (41) CHILDE. *The Danube in Prehistory*. Oxford, 1929.
 (42) BEHRENS. *Bronzezeit Süddeutschlands*. Katalog des römisch-germanischen Centralmuseums, Mainz, 1916.
 (43) KRAFT. *Die Kultur der Bronzezeit in Süddeutschland*. Tübingen, 1925.

Italy:

- (44) PEET. *The Stone and Bronze Ages in Italy and Sicily*. Oxford, 1912.

Spain:

- (45) SIRET. *Les premiers âges du métal dans la sud-est de l'Espagne*. Brussels, 1889.
 (46) ——— "L'Espagne préhistorique." *Revue des questions scientifiques*, Brussels, 1893.

- (47) BOSCH-GIMPERA. "Pyrenäen-Halbinsel." *Real.*
 (48) CASTILLO. *La Cultura del Vaso campaniforme.* Barcelona, 1927.
 (49) BURKITT. *Prehistory.* Cambridge, 1924.
 (50) OBERMAIER. "Die bronzezeitlichen Felsgravierungen von Nordwestspanien." In *IPEK.* 1925.

Brittany:

- (51) DU CHATELLIER. *Les époques préhistoriques et gauloises dans la Finistère.* Rennes, 1907.

Rhône valley:

- (52) KRAFT. "Die Stellung der Schweiz innerhalb der bronzezeitlichen Kulturgruppen Mitteleuropas." *Anzeiger für schweizerische Altertumskunde,* Zurich, 1927-8.

Great Britain:

- (53) ABERCROMBY. *Bronze Age Pottery of Great Britain and Ireland.* Oxford, 1912.
 (54) ANDERSON, JOSEPH. *Scotland in Pagan Times.* II. Edinburgh, 1886.
 (55) FOX. *The Archaeology of the Cambridge Region.* Cambridge, 1923.
 (56) WHEELER. *Prehistoric and Roman Wales,* Oxford, 1925.
 (57) COFFEY. *The Bronze Age in Ireland,* Dublin, 1913.
 (58) MACALISTER. *Ireland in pre-Celtic Times,* Dublin, 1921.
 (59) MONTELIUS. In *Arch.* LXI.
 (60) CALLANDER. "Scottish Bronze Age Hoards." *PSAS.* LVII.

CHAPTER IV

Britain:

- (70) FOX. "On two Beakers of the Early Bronze Age." *Arch. Camb.* 1926.
 (71) ——— "A Bronze Age Barrow on Kilpaison Burrows." *Arch. Camb.* 1926.
 (72) CRAWFORD. "Barrows." *Antiquity,* 1.
 (73) CALLANDER. "Recent Archaeological Research in Scotland." *Arch.* LXXVII.
 (74) ALLCROFT. *The Circle and the Cross.* London, 1927.
 (75) Stonehenge: CUNNINGTON AND NEWALL, in *WAM.* XLIV; Arbor Low, GRAY, in *Arch.* LVIII; Stennis, THOMAS, in *Arch.* XXXIV.
 (76) KENDRICK. *The Druids.* London, 1927.
 (77) COFFEY. *New Grange.* Dublin, 1912.

- (78) Dartmoor Research Committee Reports in *Trans. Devonshire Association*, xxvi-xxvii, xxix, xxx.
 (79) FAIRBAIRN. "Further Discoveries . . . in Hut-circles . . . in Ayrshire." *PSAS*. LIV.
 (80) CURWEN, C. "Prehistoric Agriculture in Britain." *Antiquity*, 1.

CHAPTER V

Scandinavia:

- (81) SOPHUS MÜLLER. *Oldtidens Kunst i Danmark*, Copenhagen, 1921.
 (82) SOPHUS MÜLLER. *Ordning af Danemarks Oldsager*. Copenhagen, 1898.
 (83) MONTELIUS. *Minnen från vår Forntid*. Stockholm, 1917.
 (84) SPLIETH. *Inventar der Bronzealterfunde aus Schleswig-Holstein*. Kiel, 1900.

Germany:

- (85) NAUE. *Die Bronzezeit in Oberbayern*. Munich, 1894.
 (86) SCHAEFFER. *Les tertres funéraires dans la Forêt de Haguenau*. Haguenau, 1926.

Italy:

- (87) MUNRO, ROBERT. *Palaeolithic Man and Terramara Settlements in Europe*. Edinburgh, 1912.

Britain:

- (88) NEWALL. "Shale Cups of the Early Bronze Age." *WAM*. LIV.
 (89) FOX. *Arch. Camb.* 1928, p. 145.

CHAPTER VII

Italy and Sardinia:

- (90) Articles by TARAMELLI and BOSCH-GIMPERA in *Il Convegno Archeologico in Sardegna*, Reggio nell' Emilia, 1929.
 (91) RANDALL-MACIVER. *Villanovans and Early Etruscans*. Oxford, 1924.
 (92) Huelva. *Real*. s.v.
 (93) Hoards. *B.P.* XLVII.
 (94) Razor. *MA*. IX, p. 135.
 (95) Nuraghi. TARAMELLI. In *MA*. XIX.
 (96) Hoards. — In *MA*. XXVII.
 (97) Temple. — In *MA*. XXV.

Alpine Urnfields:

- (98) WAGNER. "Prehistoric Fortifications in Bavaria." *Antiquity*, II, 5.
- (99) STAMPFUSS. "Beiträge zur Nordgruppe der Urnenfelder-kultur." *Mannus Ergänzungsband*, v, Leipzig.
- (100) ISCHER. *Die Pfahlbauten des Bielersees*. Biel, 1928.
- (101) CHANTRE. *Études paléoethnologiques dans le bassin du Rhône, Age du bronze*. Lyons, 1875.
- (102) Pouges les-Eaux. *Mat.* 1879, p. 386.

Scandinavia and North Germany:

- (103) NORDEN. "Neue Ergebnisse der schwedischen Felsbildfor-schung." *IPEK*. 1927.
- (104) SCHMIDT, H. "Die Luren von Daberkow." *PZ*. VII.

South Russia:

- (105) TALLGREN. *La Pontide préscythique (Eurasia Septentrionalis Antiqua, II)*. Helsingfors, 1926.

Siberia:

- (106) MERHARDT, VON. *Die Bronzezeit am Jenessei*. Vienna, 1926.

Great Britain:

- (107) CRAWFORD. "A Bronze Age Invasion." *Ant. J.* I.
- (108) CRAWFORD AND KEILLER. *Wessex from the Air*. Oxford, 1927.
- (109) PITT-RIVERS. *Excavations at Cranbourne Chase*. Vol. III.
- (110) CLAY, R. C. C. "The Woodminton Group of Barrows." *WAM*, XLIII.
- (111) CUNNINGTON. *All Cannings Cross*. Devizes, 1923.
- (112) FOX. "An Encrusted Urn of the Bronze Age from Wales." *Ant. J.* VII.
- (113) WOLSELEY. "Prehistoric . . . settlements on Park Brow." *Arch.* LXXVI.

INDEX

- Abercromby, John, 156, 232, 234,
 243
 Adlerberg, 153
 adze, 61, 67, 69, 197
 Aegean, *see* Cycladic, Helladic,
 Minoan, Mycenae
 agriculture, methods of, 159, 226
 air photography, 226
 All Cannings Cross, 236
 alloys, 6, 29
 amber, deposits, 47
 trade, 44, 46, 56, 144, 168, 172,
 213; *see also* trade routes
 use of, 127, 132, 134, 139, 141,
 146, 152, 167, 170, 176, 179,
 188, 200, 204, 208, 212, 214,
 229
 amulets, 132
 animal motive power, 49, 102
 Anklets, 176; *see also* bracelets;
 cylinders
ansa lunata, 180
 Arbor Low, 163
 art, 14, 17, 20, 144, 149, 183, 186,
 205, 212, 214, 216, 221; *see also*
 carving; spiral patterns; figur-
 ines, etc.
 associated finds, definition of, 42
 Aunjetitz culture, 139 ff, 206
 Avebury, 163
 axes, 61, 67, 71, 181, 197, 222;
 see also axe-adzes; battle-axes;
 double-axes; celts
 axe-adzes, 74, 199

 Badarian culture, 13, 24, 132
 barrows, 13, 144, 151, 153 f., 161 f.,
 169, 173, 187, 209, 213, 217,
 221, 227, 243, 245
 battle-axes, metal, 41, 43, 75, 141,
 169, 181
 stone, 155, 158, 187
 beads, segmented, 134, 149, 190, 231
 spacers, 134, 141
 stone, 14, 132
 See also amber; faience; glass; jet

 Beaker folk, 153 ff., 225, 243
 beehive tombs, huts, *see* corbelled
 tombs
 Bell-beakers, 120, 139, 145, 146, 149,
 153, 158, 198
 bellows, *see* blast
 berm, 161
 bits (bridle), 50, 104, 179, 183, 205,
 208, 214, 229
 blast, 28, 30
 Bohemian palstave, *see* celts
 bracelets, 117 f., 130, 141, 170, 175,
 183, 208, 212, 221, 231
 brazing, 38
 Breuil, H., 164
 Bronze Age defined, 1
 buckets, 205, 222, 231
 buckles, 127
 burial, collective, 144, 146, 154
 contracted, 140, 148, 153, 184
 extended, 169, 174
 See also coffins; cremation; kists;
 barrows; ship-graves
 Burkitt, M. C., 1, 150, 153, 162, 171
 buttons, 35, 126 f., 148, 155, 176,
 208, 229; *see also* V-perforation
 Byblos, 39, 122, 127

 callais, 146, 149
 cannibalism, 209
 carvings (rock), 149, 158, 164 f.,
 171, 239; *see also* cup-and-ring
 markings
 casting-on, 38, 98
 cauldrons, 205, 222, 231
 Celtic, *see* Keltic
 celts, flanged, 62, 141, 145, 148, 169,
 175, 179, 185, 199
 flat, 32, 61, 141, 145, 146, 148,
 152, 153, 167
 palstaves, 32, 64, 169, 175, 186,
 199, 228
 socketed, 34, 66, 71, 169, 197, 199,
 208, 214, 222, 227, 228
 stone, 11, 140, 152, 167, 179, 208
 trunnion, 68, 197

- celts (*contd.*)
 winged, 64, 71, 175, 179, 197, 205,
 208, 211, 214, 218, 227, 228
- chains, 35, 129, 141
- chapes, 87, 229
- chariots, 50, 104, 171
- cheek-pieces, *see* bits
- chronology, absolute, 68, 115, 236
 relative, 53
- cinerary urns (British), 159, 187,
 232
- cire perdue* process, 35 f., 117
- cists, *see* kists
- clasps, 127, 176, 212
- Clay, C., 232, 235
- climatic changes, 13, 48, 138, 169,
 174, 192, 215
- Coffey, 93
- coffins, 169, 217
- combs, 14, 146, 170, 180
- corbelled tombs, 146, 151, 158, 161
- cord ornament, 155, 157, 189, 235
- Corded Ware, 144, 153
- core-casting, 26, 34, 71, 92
- cremation, 152, 158, 174, 179, 184,
 187, 194, 201, 204, 206, 211,
 216, 217
- culture defined, 42
- cup-and-ring marks, 150, 164 f.
- cupellation, 19
- Curwen, C., 159
- Cycladic culture, 20, 61, 71, 78, 90,
 93, 101, 105, 111, 132, 137
- cylinders, arm, 117, 121, 175, 182,
 208, 209
- Cyprus, 61, 78, 90, 107, 110, 114
- daggers, flint, 145, 155, 169
 riveted, 26, 41, 75, 78, 141, 145,
 148, 152, 153, 155, 158, 167,
 179, 181, 185, 186, 199
 tanged, 76
 West European, 78, 145, 146, 155,
 198
- Déchelette, J., 56, 152 n.
- diffusionist hypothesis, 10, 24, 40
- double-axes, 30, 34, 53, 72, 199
- Dowris, 232
- Duhn, von, 244
- ear-rings, 118, 129, 140
- Egypt, 9, 11, 30, 35, 58, 62, 67, 68,
 93, 94, 97, 104, 122, 193, 238;
see also predynastic; Middle
 Kingdom; Badarian, etc.
- El Argar, 147, 190
- Evans, A. J., 21
- faience, 133 f., 149, 152, 190, 231
- ferrules, 78, 90, 92, 97
- fibulae, one-piece, 113 f., 180, 196,
 201, 205, 212, 221, 222, 236,
 237
 two-piece, 115 f., 170, 172, 208,
 218, 231
- fields, 161, 226
- figurines, 14, 17, 180, 184, 198
- finger-rings, 123, 125, 170, 175, 201,
 208
- flanges (on hilts), 79, 82, 85, 86
- flood, the, 16
- fluted ornament, 208, 211, 214, 234,
 246
- Folkton, 166
- food vessels, 144, 156, 187
- forts, 13, 148, 153, 160, 178, 190,
 210, 226
- founders' hoards, 45, 193, 197, 199,
 206, 222, 227
- fount, 34
- Fox, C., 159, 167, 225
- fretwork ornament, 157, 176, 184,
 214
- Gáta, 139, 185
- ghost-hole, 194
- girdles, 127, 205; *see also* clasps
- Glasinac, 221, 245
- glass and glazes, 14, 134, 170, 176,
 179, 204, 208, 212
- gorgets, 123, 130, 170, 186, 218
- gouges, 67, 70, 211, 214
- graphite, 206, 211, 214
- Greenwell, Canon, 92
- Grey Wethers, the, 163
- Grimpsound, 226

- grooved hammer-stones, 6, 141, 147
 guards (on swords), 83
 hafting, methods of, 59, 62, 67, 68,
 70, 87, 94, 101
 halberds, 87 f., 144, 146, 148, 152 n.,
 166
 Hallstatt, 115, 214, 236, 245
 harness, 50, 103, 227
 Heathery Burn, 229, 231
 Hellenic cultures, 20 f., 90, 93, 123,
 137, 194
 Hellenes, 246
 helmets, 200, 204
 Helmsdorf, 144
 hilts, 76, 82, 84 f.
 hoards, varieties and value of, 19, 30,
 43; *see also* founders' hoards;
 trade
 horn-shaped fire-dogs, 212, 215
 horse domesticated, 171, 183, 205,
 229
 houses, log-cabins, 206, 210
 megaron type, 19, 22
 pit-dwellings, 140, 153, 210, 226,
 238
 round (hut-circles), 13, 160, 198,
 202, 226, 239
 Huelva, 93, 197, 227, 237
 hut-circles, *see* houses

 Illyrians, 244 f.
 impurities in copper, 8
 incense cups, 188 f.
 Indo-Europeans, 241
 Indus culture, 2, 8 n., 12, 16, 50, 68,
 101, 107, 132, 134
 ingot torques, 30, 44, 74, 122, 141,
 176, 186, 201, 208
 invasions, 23, 153, 181, 209, 222,
 225
 iron, 2, 23, 193, 204, 222
 Italic, 180, 227, 244

 jet, 127, 133, 146, 166, 229

 Keltic fields, 226
 Kelts, 173, 186, 217, 222, 242

 Kish, 16, 49, 238
 kists, megalithic, 140, 144, 150, 151,
 169, 185
 Kivik, 165, 171, 221, 238
 Kličevac, 185
 knee-shafts, 59, 62, 68, 218
 knives, 94 f., 169, 179, 205, 208,
 211, 214, 218
 Knossos, 85
 Knoviz culture, 209, 222, 238
 Kossinna, G., 85, 242, 243
 Kraft, G., 56

 lake-dwellings, *see* pile-dwellings
 language and culture, 240
 La Tène culture, 236
 lathe, 51, 136, 170, 188
 Latins, 202, 204
 Lausitz culture, 206, 210, 222, 227,
 242, 245, 246
 lead, 5, 172
 Leubingen, 144
 Levkas, 20, 90, 123, 194
 lip-plugs, 127
 lock-rings, 129, 141, 183; *see also*
 ear-rings
 Los Millares, 146, 148
 Lucretius, 2
 lunulae, 41, 43, 124, 137, 166
Lurer, 221, 232, 233
 lynchets, 226

 Maes Howe, 161
 malachite, 14
 megalithic monuments, *see* burial,
 collective; corbelled tombs;
 kists, megalithic; Avebury;
 stone circles, etc.
 Mesopotamia, 38, 53; *see also* Pre-
 diluvian, Sumerian
 Middle Kingdom defined, 16
 midrib, 76, 85
 mining, 6, 28, 210
 Minoan culture, 19, 50, 53, 58, 68,
 71, 78, 82, 83, 85, 93, 98, 101,
 113, 125, 127, 132, 136, 137,
 142, 166, 179, 190, 196, 212,
 222, 238

- monogamy, 239
 Montelius, O., 55, 56, 66
 moulds, 32, 147, 167, 179, 186, 206
 Müller, Sophus, 55, 66, 85
 Mycenae, 13, 22, 82, 89, 104, 113,
 148, 196, 238
 Myres, J. L., 113

 native copper, 3, 5
 navigation, 20, 51; *see also* sails;
 ships
 New Grange, 158, 164, 166
 New Kingdom defined, 16
 nozzles, 28, 30
nuraghe, 198

 Old Kingdom defined, 16
 open-hearth process, 32, 61, 76
 ores, 3, 5, 7, 14, 28, 147, 192, 197,
 210, 222

 Palmella, 146
 pendants, *see* wheel-pendants
 people defined, 42
 peristalith, 161
 Perjámos, 139, 185
 Pigorini, 180, 202, 244
 pile-dwellings, 145, 179, 185, 213
 pins, 14, 106, 141, 152, 153, 172,
 180, 183, 186, 205, 212, 214,
 218, 221, 228
 place-names, 240
 ploughs, 49, 171, 226, 239
 pommels, 82, 87
 potter's wheel, *see* wheel
 Pouges-les-Eaux, 215
 Prediluvian culture, 16, 25, 61, 71,
 101, 127
 Predynastic culture, 14 f., 24, 39, 51,
 61, 78, 101, 107

 Q-Kelts, 242
 queens, 239

 Rademacher, 243
 Randall-MacIver, 201, 202, 244
 rapiers, 32, 82 f., 175, 179, 181, 186,
 196, 238

 rattles, 206, 215
 razors, 97 f., 170, 180, 187, 196 f.,
 199, 201, 205, 208, 211, 214,
 216, 218, 228
 reduction, 5
 Reinecke, P., 55
 Remedello, 14
 retardation defined, 57
ricasso, 83, 85, 228
 rivets, 37, 83, 89
 Romans, *see* Italic
 routes, *see* trade

 sails, 9, 52
 salt, 204, 210, 224
 science, 3
 Scyths, 222, 246
 seals, 10, 53, 125
 seam, 34, 71
 self-sufficiency of neolithic com-
 munities, 4, 9
 Shardana, 191, 193
 shells, marine, in inland regions, 141,
 153
 shields, 175, 213, 229, 237
 ships, 52, 171, 200
 ship-graves, 217
 sickles, 101 f., 169, 175, 179, 186,
 199, 202, 208, 211, 224, 227, 228
 Silesian culture, 209
 Siret, 147
 slaves, 10, 172, 192
 Slavonian culture, 145
 Slavs, 246
 smelting, 28
 smith, position of the, 4, 10
 Smith, Sidney, 39
 solar symbols, 135, 205, 212, 218
 solder, 37, 85, 172
 spears, socketed, 34, 92 f., 175, 181,
 186, 197, 199, 205, 208, 211,
 222, 229, 237
 tanged, 90, 180, 224
 specialization, industrial, 5, 15, 30,
 213
 spectacle brooch, 115
 spiral ornament, 75, 122, 164, 165,
 172, 180, 184, 212, 222

- spouts to vases, 136, 206
 Stennis, 163
 stone circles, 162 f.
 Stonehenge, 162
 Strabo, 172
 Straubing, 139, 210
 sub-boreal, *see* climatic changes
 Sumerians, 7, 8, 17, 26, 35, 37, 39,
 50, 53, 71, 78, 90, 97, 101, 105,
 106, 111, 125, 128, 129, 136, 238
 swords, 85 f., 148, 169, 179, 197,
 205, 208, 211, 218, 222, 227,
 228, 246
- terremare*, 104, 178, 184, 202, 244
 Teutons, 169, 172, 216, 241
 Thomsen, 2
 Thracians, 245
 tin, 5, 8, 11, 28, 40, 140, 147, 214
 toilet-sets, 101
 torques, 118, 123, 186
 torsion, 122, 219
 Tószeg, 139, 145, 180, 183
 trade, conditions of, 38, 39
 evidence for, 14, 17, 20, 44, 139,
 144, 146, 167, 172, 179, 181,
 190, 202, 205, 208, 213, 227
 routes, 46, 56, 139, 144, 168, 213,
 222
 Troy, 18, 19, 50, 61, 71, 78, 90, 94,
 102, 107, 123, 129, 136, 140
 trumpets, 171, 221, 232, 247
 Trundholm, 220, 239
 tutuli, 118, 128, 170, 176, 183,
 219
 tweezers, 100, 170
 types, function of, 42
- typological chronology explained,
 13, 53
- Ur of the Chaldees, 13, 16, 17, 26,
 39, 49, 128, 238
 urnfields, 194, 201, 204, 205, 207,
 209, 212, 227, 243
- V-perforation, buttons with, 133,
 149, 155, 158
 valve moulds, 32, 62, 71, 76
 Vapheio, 142
 vessels, metal, 36, 135, 189, 201, 204,
 208, 212, 214, 219
 stone, 14, 136, 189
 Vikings, 217
 Villanova culture, 202 f., 214
 violin-bow fibula, 113
 votive hoards, 44
- wart ornament, 176, 180, 206, 211
 weights, 53, 74
 wheel, potter's, 50, 137
 wheel-pendants, 135, 176, 212
 wheeled vehicles, 9, 49, 150, 220
 Windmill Hill, 160
 wire, 37, 106 n.
 woodwork, 137, 157, 228
 wrist-guards, 120, 148, 152
 writing, 9, 53
- X-section of torques, 123
 xerophilous plants, 174
- youths employed as bellows, 30
- zinc, 7

AnA
HG9454
EL

PRIMITIVE
MAN



BY
DR. MORIZ
HOERNES

5459
27/7/02

ALDINE HOUSE
J. M. DENT & CO.

1900 & 29 & 30 BEDFORD STREET LONDON



All rights reserved

TRANSLATOR'S NOTE

WITH the object of avoiding any possible misunderstanding of Professor Hoernes' meaning, I have frequently preferred erring on the side of literality, and in cases where the English equivalent might not be perfectly clear to readers of a popular work, I have attempted to overcome the difficulty by giving in the form of notes the explanations of well-known authorities, such as Lord Avebury and others, whose books I freely and gratefully consulted in the course of my labours.

J. H. L.

CONTENTS

	PAGE
1. WHAT IS UNDERSTOOD BY PRIMITIVE HISTORY?	1
2. MAN'S PLACE IN NATURE	1
The earth, animals, and man—Pre-eminence of man over beast—Primeval home of man ; migration, classification of races.	
3. CHARACTERISTICS OF HUMAN CULTURE	7
Language, religion, and society—Cattle-breeding and agriculture—Hearth and home—Clothing and decorations—Implements and weapons—Intercourse with nations and commerce.	
4. EARLIEST TRACES OF MAN	20
Man and the Glacial period—The Stone Age—Diluvial man — Open encampments and caves — Human remains.	
5. THE LATER STONE AGE	31
Progress of the Neolithic period—Attempt to explain the same—New conditions of life—Early Neolithic kitchen-middens—Development of the later Stone Age : pile-dwellings, caves, Terramare—Embankment dwellings—Graves—Human remains.	
6. ARYANS AND SEMITES	44
Primitive history of Aryans — Early development of Mesopotamian culture—The contrary in the life of the shepherd and husbandman—Importance of the town—Navigation—Semitic culture.	
7. PILE-DWELLINGS	54
Statistics—Dimensions—Stone and Bronze Age—Transition stages—Abandonment of Lake-villages. Terramare —Statistics, method of erection, age—Nationality.	

	PAGE
8. METALS	64
I. SURVEY OF THE GLOBE:—	
(a) <i>Africa</i> : [Stone Age—Metals in Egypt—Iron amongst the negroes—The negro-smith—Copper].	
(b) <i>Asia</i> : [Hither India—Farther India—The Malays—China—Japan—Northern Asia—The Tchuds].	
(c) <i>America</i> : [Mexico—The Chibcha Indians—Peru—The Esquimaux—Copper in North America—The North-West].	
(d) <i>The South Sea Isles</i> : [Long duration of the pre-Metal Age—Reception of European iron].	
II. METALS IN THE EAST AND IN GREECE:—	
Egypt—Chaldæans and Assyrians—Persia—The Caucasus—Cyprus and the Isles of Greece—Mycenæ—Tiryns and Athens—Greek grave chambers—Chronology.	
9. THE BRONZE AGE	97
Introduction of Bronze into Europe—Forms of Early and Later Bronze periods—Countries with different durations of Bronze periods—Chronology.	
10. THE HALLSTATT PERIOD	103
Iron in the East (Assyrians and Chalybes)—Extent of the European Hallstatt sphere of culture—Countries with different durations of Hallstatt culture—Earlier and Later periods of same—The Necropolis on the Salzberg, near Hallstatt—Forms of graves and of the chief “accompanying gifts.”	
11. THE LA TÈNE PERIOD	118
The Celts—Character of the La Tène culture—La Tène forms in weapons, implements, and decoration—Conclusion.	
BIBLIOGRAPHY	127
INDEX	133

LIST OF ILLUSTRATIONS

FIG.	PAGE
1. RECONSTRUCTED VIEW OF A PILE-VILLAGE	<i>Frontispiece</i>
2. RING-MONEY OF THE BRONZE AGE (MORAVIA)	13
3. FLAT COPPER AXE (FROM THE PILE-DWELLINGS OF THE MONDSEE)	15
4. WOODEN HANDLE OF A PAALSTAB (HALLSTATT)	16
5. BRONZE PAALSTAB (HALLSTATT)	17
6. IRON HOLLOW CELT WITH HANDLE-REST (HALLSTATT)	17
7. IRON AXE WITH WOODEN HANDLE (LA TÈNE)	17
8. ORNAMENTAL STONE AXE (DENMARK)	18
9. IRON AXE (CARNOLIA)	18
10. FLINT KNIFE	23
11. FLINT NUCLEUS OR CORE, FROM WHICH SPLINTERS OR FLAKES—KNIVES—WERE CHIPPED OFF	24
12. FLINT SCRAPER	24
13. FLINT ARROW-POINT	25
14. AWL FROM THE BONE OF AN ANIMAL	25
15. REINDEER ANTLER, CUT, PERFORATED, AND ENGRAVED	26
16. EARLIEST GRINDING STONE FOR CORN	31
17. CLAY VESSEL FROM A NEOLITHIC PILE-DWELLING OF THE ATTERSEE	32
18. FLINT AXE-BLADE	33
19. STONE AXE—NEPHRITE BLADE IN STAG-HORN, FIXED IN A WOODEN HANDLE LIKE A CLUB (SWISS PILE- DWELLINGS)	33
20. "HAUSBERG" AT GEISELBERG	40
21. DOLMEN (FRANCE)	42
22. DOUBLE-HANDED GOBLET OF CLAY (HISSARLIK—TROY)	92
23. CLAY FACE-URN (HISSARLIK—TROY)	93
24. BRONZE RAZOR (PILE-DWELLINGS AT PESCHIERA, GAR- DASEE)	98
25. GRAVE (OF A BURNT BODY) FROM THE NECROPOLIS ON THE SALZBERG, NEAR HALLSTATT (SIDE AND FRONT VIEW)	106

LIST OF ILLUSTRATIONS

FIG.		PAGE
26.	SKELETON GRAVE (SALZBERG)	107
27.	BRONZE SWORD (SALZBERG)	108
28.	IRON DAGGER WITH BRONZE HANDLE AND BRONZE SHEATH	108
29.	BRONZE HELMET (SALZBERG)	109
30.	IRON KNIFE (SALZBERG)	110
31.	WHETSTONE, WITH STIRRUP AND RING (SALZBERG)	110
32.	BRONZE DRESS-PIN WITH BUTTONS AND POINT-PROTECTOR (SALZBERG)	110
33.	ENGRAVED BRONZE BOAT-SHAPED PIN WITH LONG SHAFT AND CLOSING BUTTON	111
34.	ENGRAVED PIN WITH CHAIN CRESCENT AND RATTLE- PLATES	112
35.	ARMLET WITH KNOTS (SALZBERG)	113
36.	BRONZE BASIN WITH ENGRAVED EDGE AND FIGURE OF ANIMALS AS HANDLE (SALZBERG)	114
37.	BRONZE VASE IN FOUR PARTS (SALZBERG)	115
38.	WIDE-RIBBED CISTA OF HAMMERED BRONZE	116
39.	BRONZE BASIN WITH ENGRAVED EDGE AND TWO TURNED HANDLES (SALZBERG)	117
40.	NARROW-RIBBED CISTA	118
41.	CAST FIGURE OF AN OX IN BRONZE (SALZBERG)	119
42.	BRONZE PAIL WITH PICTURE FRIEZE (KUFFARN)	120
43.	CLAY DISH WITH FLAT AND RAISED ORNAMENTS	121
44.	IRON SPEAR-POINT (LA TÈNE)	123
45.	IRON SHEARS (LA TÈNE)	123
46.	IRON PIN (LA TÈNE)	123
47.	BRONZE FIGURE OF A WARRIOR (IDRIA)	125
48.	GERMAN IRON SWOPD (SPATHA)	125

PRIMITIVE MAN

1. What is understood by Primitive History.

PRIMITIVE History, or Prehistoric Archæology, treats of that period of man's past concerning which we possess no historical records. All over the world and in every country we meet with a certain number of single facts anterior to what we may term reliable tradition, which do not allow of the construction of a connected story upon the basis of names and dates. It is the task of the student of Primitive History to discover the connection between them and throw more light upon their origin.

Whilst, on the one hand, Primitive History forms a chapter of Anthropology (the general object of which is to explain man's place in Nature), on the other, it widens our horizon beyond historical limits and describes the infancy of mankind. It originates with the history of the earth, and forms a connecting link with the history of mankind.

2. Man's Place in Nature.

Our own planet originally detached itself from the sun in the form of a loose gas-ball, and entered on its new path equipped with the same chemical matter as all other planets. It became incandescent, hurled its satellites into space, and gradually cooled down. Formerly surrounded by a thick atmosphere of vapour, it subsequently attracted the aqueous and other matter contained therein. Seas formed, and after an inconceivable lapse of time the *seeds of a new, differently conditioned life* germinated in their depths. No definite date can be assigned to the beginning of this phenomenon, nor

would an observer of the process have been able to perceive it; here and there, vital activity of the lowest order must have set in and the propagation of the primitive beings thereby generated was carried on by a process of disintegration. The formation of further organisms was continued from and out of these, advancing to the highest types at present in existence.

In the development of these living beings the high standard attained by man is such that we can only form a correct opinion of it from a suitable distance, as it were, by stepping out of ourselves and out of our natural powers of perception. Millions of years elapsed from the creation of the world to the appearance of the primitive organisms which are still living, and further immense periods of time glided away until the age of the fossilized remnants belonging to animals, which at that time already must have been of a highly organised nature. No fossilized remains, however, can prove by an absolutely complete chain of evidence that these living organisms derived their origin from one single, simple prototype. Recourse must be had to Comparative Anatomy and to the history of the development of present existing plants and animals. The quantity of matter precipitated by organic life and higher vital activity is insignificant in comparison with the totality of earthly matter. A modern naturalist has aptly compared it to the delicate bloom on freshly gathered fruit which a simple touch of the hand can disperse. Nor can the date of the *first appearance of man* on earth be definitely fixed. To do so in the face of the gradual development of mankind would be of no value or importance to the problem. The space of time which has elapsed since the Pliocene, or last epoch of the Tertiary period where we may locate the "first man," embraces, possibly, but a fifteenth of the sum of all terrestrial epochs represented by fossilized remains, and scarcely a fiftieth part of the effluxion of time since the beginning of organic vitality.

The cosmogonies, *i.e.* the theories concerning the Creation,

among all nations, represent man as having been created by a supernatural act, and the Creator himself as a human being, because minds capable of such reasoning could not imagine a thing which has "come into being" otherwise than as having been "made or created." On the other hand, science teaches us to regard the highest form of mammals as our nearest blood-relations, whilst Anatomy and Embryology expose to our view the hereditary proofs of the animal origin of mankind; and although fossil proofs of the transition are still wanting, we need not feel discouraged, since evidences of this particular nature have only recently been found worthy of attention, and even then only in a comparatively small area.

Physically, intellectually, and morally the *animal creature* has attained a high degree of perfection. All the organs of the human body have been gradually developed in animals as necessary and dearly-bought adjuncts adapted to their particular condition of life. The same is the case with their intellectual capacity. The higher the organisation, the more varied and complicated is the response to exterior provocation or "expression" of susceptibility or sensibility which exists even in the lowest animalculæ, and is in reality nothing but the consequences of their formation out of easily decomposable, chemical combinations. The brain consists of an accumulation of nerve-cells, and increases in size according to requirements. The plaster-casts of skulls of extinct animals prove that the latter possessed a very small brain. Nor should the moral feelings of a highly-developed animal be underrated. Maternal love is a hereditary impulse in animals, the propagation of which is absolutely dependent on the care of the young. And equally social vices—as vanity and lust of power, and social virtues, as generosity and faithfulness, which lead to the foundation of families and societies—are developed and maintained for the sake of their utility. The first dawn of specifically human development is to be recognised in the upright position. Whilst apes, with the exception of baboons, live in trees and are adept climbers,

primitive man must have lived in rocky, treeless places. Apes use their front and hind extremities for the self-same purpose of grasping and climbing. Even anthropoids can only walk upright a short distance, and then only with a great effort. And it is in this respect that the superiority of the human body is made apparent, for as soon as a child has ceased using its hands for moving from one place to another it has already secured a high position in creation.

Among created beings organisms which possess special limbs for special purposes are of a superior class. Creatures of a lower order employ one and the same organ for various functions. Whilst we use both jaws for crushing and chewing food, other animals employ them for grasping and defensive purposes, and some birds even for locomotion. We thus discover the latest degree of progress in the principle of division of labour and in the various modes of employing each individual organ, and a similar advance in the subsequent divergence between weapon and implement, decoration and dress. The same may be said of savage nations, like our northern ancestors who were led by climatic influences to brew beer from the white crop and to eat the fat of animals, whilst cultured southern nations despised beer and butter, but derived intoxicating drink and the fat required for their food from the vine and the olive-tree, the symbols of a higher civilisation.

Primitive man was therefore endowed with freedom both of arms and hands which he might use as organs of touch and implements of work. His upright position secured him a wider view. He could move his head more easily, whilst of all his senses, sight gained that superiority which had been previously possessed by smelling and hearing. The chest, being freed from the pressure of the bowels, was now in a condition to develop the organs of speech, and the influence of speech on the power of thinking was greater than can be imagined. The intellectual possessions of the individual were now not only transmitted to his descendants, but were spread and disseminated by the process of intercommunication. In

the opinion of ancient philosophers, man is distinguished from animals chiefly by the manner in which he judges the objects of the exterior world, and by the opinion he forms of them; in other words, by his powers of perception and remembrance. Consequently, his actions appear more and more not as a mere reflex, but as the outcome of an intellect peculiarly his own.

The true worth of *Society* is now for the first time recognised. In the "home"-life of savages (if we may be permitted to use the term) the injurious instincts of selfishness are brought under continual restraint, in the first instance, by the female. Already on the lowest rung of the social ladder, the sense of duty, *i.e.* conscience, makes itself felt in the form of some obscure consciousness. Conspicuous qualities and useful acts on the part of single individuals in the warlike life of tribes give rise to differences in rank, such as royalty, aristocracy, and commoners.

However great the number of races of mankind known to Ethnology may be, it is highly probable that they all had one common, original prototype which developed into several species by the persistent augmentation of the trifling influences of chance or climate. (Monogenistic theory.) The unity and uniformity of the human species is a fundamental law of Anthropology. Comprehensive comparisons prove that man ever followed the same intellectual impulses and fell into the same strange errors.

Where should we seek the *primeval home of mankind*? Opinions, even of the best known authorities, differ considerably on the subject. They hesitate between North America, Europe, Southern Asia, and Australia, thus variously following diagonal lines right across the globe. Wherever the original "Eden" of the Bible may be, it required extensive migrations to account for the distribution of mankind all over the world. Such migrations cannot possibly have been rapid, carefully-planned journeys or colonising enterprises, but a slow progress, halting often and long, following the uneven course of river-valleys and sea-coasts, rarely

crossing mountains or streams. Primitive savage hordes were more contented and more capable of resistance than we. They knew nought of the inexorable law of mortality. Many a tribe may have died out to the very last man, but they were followed by others who were better equipped, and thus were Nature's terrors overcome by obstinate insistence on the part of man, the all-overpowering product of her own creation.

Like the various countries of the world, all differently endowed by Nature, so the various human groups, temporarily or permanently settled there, also differ in point of individual fortune and lot.

The geographical position, configuration, and strata of the various portions of the globe collectively and individually, in conjunction with the characteristics acquired by the people in previous settlements, *decided the destinies* of their inhabitants. The oldest areas of higher civilisation were countries with mild climates, fertile soil, passable roads, favourable boundaries towards neighbouring territories, and sufficiently extensive to admit of many people living together under the same conditions, as in large riverlands. Thus, Egypt, Mesopotamia, the East Indies, and China emerged early from the list of countries of poor culture. In the New World, Mexico and Peru left the Indian areas in the north and south far behind, and in Europe the low-lying lands of the Po and the Thracian rivers, of the Garonne and the Loire, exhibit a more civilised and friendly character than other districts. In close proximity we often meet with areas which subsequently attain historic importance, but which by virtue of their apparently uninviting nature demanding some particular effort, urge on and eventually qualify their sturdy inhabitants for higher deeds. Such countries are Phœnicia, Hellas, England, North Germany, Scandinavia, North America, the Malay Archipelago, and the Islands of Japan. Between the primeval home of mankind and the settlements in which we now find its individual groups, are situated the ancestral seats of the latter, *i.e.* the areas in which the

various races of mankind and their subdivisions sufficiently developed their physical and intellectual characteristics to enable us to recognise them as separate members of the human race even at that particular era. Frequently we can identify the ancestral home with the modern home. Sometimes the former is as distinct as the primeval home of man itself. In this manner the original home of the Aryans has been sought in various portions of Europe and Asia, whilst that of the Semites also awaits final location.

The large groups called races are scarcely to be distinguished from one another with absolute certainty. The only value so far attributed to the classification of the races is to mark and distinguish the most conspicuous differences. Thus Linné distinguished four races according to the four largest divisions of the globe: the Americans, the Europeans, the Asiatics, and the Africans, to whom he ascribed different temperaments, colours of the skin, characters, and habits. Blumenbach assumed five races: the copper-coloured Americans, the white, red-cheeked Caucasians (Europeans); the yellow Mongolians, the chestnut-brown Malays, and the dark-brown Ethiopians; the formation of the skull being also taken into consideration. Others, like Huxley, formed their system purely on physical characteristics, with special regard for the various formations of the hair of the head.

That little is proved by language, culture, and dwelling is shown by the negroes of North America, who speak English and dress in European fashion. Nor is the population of Europe of uniform origin, although at the present day they mostly speak Aryan (Indo-Germanic) languages.

3. The Characteristics of Human Culture.

However much man may have in common with animals, science, to be true to herself, cannot fail to recognise in him, wherever he is met with, even on the lowest rung of the ladder of civilisation, a creature equipped with an abundance of higher distinguishing features. Amongst such earliest

possessions of mankind, language stands out in bold relief. The "alalus," the speechless primitive man, only exists in the theory of development. The language of animals communicates facts which are the reflex of perception, whereas the language of human beings transmits the results of knowledge. We are unable to discover a primitive language of man; indeed, it is permissible to doubt whether one ever existed. At the present day, mankind is divided according to construction of language into several large groups. We distinguish *monosyllabic* languages like Chinese which only consist of roots of words; *agglutinative* languages in which the sense is defined by suffixes to the roots, like the Ural-Altai idioms; incorporating languages which enable the American aborigines, for instance, to build up a single word out of a confused mass of thoughts; and finally, *inflected* languages like those of the Semites and Aryans, to whose highest degree of development the construction of their language bears ample testimony.

The word-root is in itself useless, but, when inflected and transformed, serves as valuable material for the artistic construction of an equivalent for the sense intended.

Originally the language of human beings was very poor in words, a fact which is proved by the lack of the higher numerals among many primitive tribes, and the absence of general expressions, such as "animal," "tree," &c., in languages which otherwise possess good equivalents for individual animals and trees; further by the scant stock of words of which even our own lower classes avail themselves, and which represent but a modicum of their entire treasury. Language grows in proportion to its higher ideals, to its accumulating reserve of thoughts, and to its perfected manner of expression. It being impossible to imagine a primitive man without speech, we are equally precluded from picturing to ourselves a human being of the earliest epoch of time without some religion. Religious impulses belong to the earliest possessions of mankind. They are as necessary to man for the purpose of satisfying the ineradicable impulses of

his mind as the expression of his thoughts through the medium of speech and the decoration of his body. The object of endeavouring to ascertain the reason of these phenomena is to be explained by the desire to influence their manner of coming into existence. This, at least, was the original intention. Incapable of cold, dispassionate observation the child of nature sees in a chance incident, in an independent sequence, the desired causal connection between two circumstances, and yields to an unimportant matter or proceeding in order to influence that which, in his judgment, is important. Thus that which is lifeless is regarded as animated, and as the creed of the ignorant is not very complicated he finds himself engulfed by a surging mass of higher forces which drag him down to the level of a slave of his own unbridled powers of imagination, instead of standing at the end of a long chain at the other extremity of which there appears to him the Unity of a grand Creator of all things!

In the present enlightened times we call this lamentable condition of mind Superstition. It was the source of anxious longing on the part of man to know and understand the powers that surrounded him, and it developed and assumed ever changing, higher forms. He abandoned the worship of the Fetish for the higher adoration of visible, working powers, such as water, fire, and animals. His religion rose to a service of the planets, and he finally recognised an only God in yet higher spheres far beyond human ken and the limits of science. In animals we note the instinctively special form of the herd: Human Society rests more firmly on the family. The latter is the nucleus of the State, the foundation of the large groups of families, the original "stock" with an existence based on legal guarantees. The sense of possession, or the idea of property, unknown to animals, was early developed in man. It acted in him as an incentive, and enabled him to look forward beyond the immediate present to an assured future. In the "stock" of the Family and the State man discovered the foundation on which he might usefully put into practice the desire inherent in him

to yield to a superior power. His religious impulses were also successfully transferred to this area. His most ancient divinities were the gods of his tribe (defunct kings), or family gods (ancestors). Class-distinction in the State led to division of labour, as well as to the competition of individuals in life's battle for power and dignity. In permanent settlements the sense of tribal connection was strengthened by man's affection for the soil to which he was accustomed; in other words, by his patriotism. Man grows up in and with his surroundings, animals never. He requires to be in sympathy with others. The inner solitude in which animals live their life is unbearable to man. In the primitive days of man's material existence he lived on the edible matter which he collected promiscuously, without intentional limitation to vegetable food, from Nature's storehouse, or by hunting. But as soon as he had laid the foundation of a higher development, he possessed himself of useful animals, plants, and herds, and occupied himself with tilling the ground, *i.e.* agriculture and cattle-breeding, both industries showing marked progress in the nature of man's occupation. His longing for society led him early to include animals among the dwellers in his hut or tent, and among the playmates of his children and his own associates in leisure hours. He tamed the young of wild game, and taught them to recognise a certain connection with the family, and through it also an assured future otherwise denied to animals. The dog was his comrade, his partner in the chase, the guardian of his flock. In agriculture we can also see the same gradual transition from a simple acceptance of Nature's gifts to the creation of a systematic plan by which her store-houses might be widened, her treasures wrung from the bowels of the earth, and safely transferred to the granaries of the husbandman. Nomad tribes frequently settled temporarily in certain localities at the time of the ripening of the fruits, and kept their market-festival like the tillers of the soil. Stocks of seeds were taken from wild plants, and carried along by the tribes during their wanderings, by which means various descriptions of grain and other field produce which were

capable of cultivation, became known far and wide. The earliest agricultural implements were so primitive, that we should nowadays scarcely know what to do with them. But as a matter of fact, they were not used then in the same way as we employ our much more perfect implements now. The cultivation of the soil lay in the hands of the women. With great effort—and then only superficially—a piece of land around the dwelling-place of the family was sown with seed, and abandoned immediately after the harvest was over, whereupon the wandering tribe passed on again.

In the earliest times man was well acquainted with fire, which animals fear and avoid. Man is a fire-kindling being, and, in a sense, fire is the mother of all higher civilisation. Fire favours the desire for society. Around it centre the delights of the domestic hearth: in it arts and crafts find their strongest helper: it cooks the food, it burns out the forest roots, it fashions the tree-trunk for the boat, it points the piles for lake-dwellings and spears for the fight, it scares away the wild animals, it beats up the game for the hunt, and overcomes the unbending metals.

The use of fire now made it necessary to dig a hole, or erect a hoarding, to enable the protected flame to burn steadily. Such was the prototype of the shelter which, however, was also called into existence and conditioned by other dangers and requirements. When primitive man in tempestuous weather took shelter in hollow trees, or caves, according to the nature of the locality, there lay concealed in these hospitable retreats, unintentionally offered him by nature and chance, the fruitful seeds of a long, high-soaring civilisation, to which the first steps led through the medium of imitation. By knitting together branches of trees and leafy bushes the natural shelter of the forest could be artificially enlarged and more firmly established, whilst caves could be fortified by surrounding them with pieces of rock, or they could be independently imitated. In a similar manner the natural growth of trees was replaced by piles rammed into the ground, and as a result the huts became either circular or square in form,

according as the piles were gathered together at the top into a point and bound with brushwood, or erected perpendicularly, with cross-beams placed over them, and covered with roofing. The former constitutes the circular hut, forming its own roof. In order to stand upright in it, it was necessary to dig a hole in what we should call the flooring, in the centre of which the hearth-fire burned. Tent-like huts of this description could only be of a permanent nature in localities in which man was not exposed to sudden inundations, as, for instance, on hill-tops. Where these misfortunes were to be feared, man erected the "pile-hut," which allowed for a dwelling-platform a little above the soil. But as man could not exist without water, and its immediate vicinity offered great advantages, he soon learnt to erect his hut on the very edge of lakes and rivers, indeed, even on and in the water itself, and to live and lord it over the watery element as a "pile-farmer."

It is characteristic that in man's primitive condition clothing was less the outcome of the necessity of protection from exterior influences or of considerations of modesty than of his craving to make his person appear more pleasing by all sorts of suitable additions. Thus clothing clearly originated in man's desire for ornament, a desire which is so evident in the world of to-day that we only take pleasure in fashions which adorn, or at least are supposed to adorn, our person. It is another mark of distinction between mankind and animals, and the more arbitrary the form of adornment appears to us by which he endeavours to mark his peculiar nature, the more important is the difference. The "child of nature" attaches most importance to his exterior appearance. He is comparatively more extravagant in the matter of luxuries than the rich citizen of civilisation, who never fails to catch the savage by means of cheap jewellery, a bait eagerly held out and as eagerly taken. We shall therefore not be surprised to find primitive man better equipped with decoration than with clothing. Our sense of modesty is frequently offended by the appearance of the

savage, although in the case of dark-skinned people many things appear more bearable in our eyes than their description leads us to imagine. But primitive man never infringed the prohibition to appear without ornament; for ornament was equivalent to distinction, and in the earliest stages of culture no one desired to appear without exterior distinction. Ornament was equal to riches, since it frequently constituted a man's sole possessions. Much decoration signified a well-filled purse, for the ornaments mostly in use were the representatives of money, for which more useful articles were exchanged. Nor could a more secure place for them be found than on the person of the owner. For this reason the most ancient money recognised as European has the form of rings (see Fig. 2). They are recognised as current coin by the fact that they are all of different weight, whilst an additional proof is furnished by the circumstance that they are held together by another ring which takes the place of the purse.

But there were other ornaments in addition to the foregoing. There were the decorations which man paints on or incises in his own skin. The savage heroically suffers the torture of tattooing in order to stalk about with coloured curves and arabesques on chest and shoulders. Even if this fashion loses its value as an article of barter and exchange, it retains its higher importance as an exterior mark of distinction. The scars or painting denote the tribe and family of the wearer, the battles in which he was engaged, the enemies he has killed, the relatives he has lost by death, and other personal matters. But it was not only the skin which served the purpose of writing material for the first record of human pride. In other parts of the world they file down the front teeth, break them out entirely, chop off fingers,

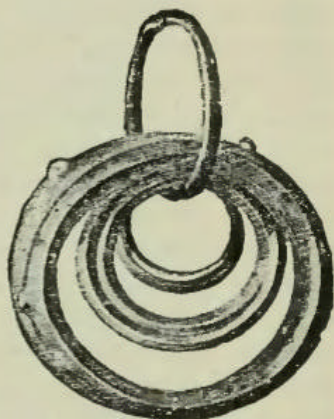


FIG. 2.—Ring-Money of the Bronze Age (Moravia).

pierce lips, nose, and ears, introducing ungainly plugs to fill the holes, or finally prepare their hair in grotesque "buns" and strangely-pointed crowns. All this entails much personal inconvenience, but man submits to it as willingly as he does to any national fashion so long as he gains his object, which is to stand out conspicuously as an individual, or as a member of a whole group of select ones in striking contrast to those who are not like him. The same reasoning underlies the action of a nation in calling itself by a name which terminates in the syllable "man," to denote that only its own people are "men," whilst a less honourable nomenclature is attributed to other nations. If clothing and ornament, which are almost inseparable, constitute a distinguishing mark between man and animals, the same may be said of weapon and implement. The stone axe of the savage was whetted for the skull of the enemy as well as for the trunk of the tree, the missile of the hunter was aimed at the stranger to the tribe as well as at the object of the chase. Peaceful work and war were not in so sharp a contrast then as now, and consequently possessed partly the same implements of execution. That man, a being so poor in natural means of defence, should have been able in the fight for existence not only to maintain himself, but also to gain superiority over animals, must be ascribed to what we call the "projection of the organs." Physically weak, but strong of intellect, man delved into Nature and extracted from her the means of strengthening his own organism. The prototype of the implement was found when primitive man endeavoured to imitate the functions of his own body, and continue them outside and beyond his own person. The bone of the arm and the fist suggested the club; the tooth, the chisel; the row of teeth, the saw; and the finger and sharp nail, the awl and scraper. With the prototypes once in existence, there was no further difficulty in developing an endless number of wooden, bone, horn, stone, and metal implements and weapons, every design with its own numerous additions and modifications, down to the marvellous machinery

of modern times, which would almost appear to deny its parent. It is clear that, next to the almost ideal principle involved in the projection of the organs, the nature of the material out of which man fashioned his weapons and implements must have had a marked influence on their exact form. For this reason the earliest creations of man's dexterity were of the simplest type, scarcely distinguishable for a practised eye from chips, splints, or blocks formed by nature. This influence extends beyond the period in which primitive matter was worked up, and in which new and better material was known. Thus the ancient form of the flat stone axe was retained in bronze and iron with but few modifications for many centuries, and all inventions which emanate from the necessity of having a light but firm shaft or handle, or from the more malleable character of the metal, are directly traceable to their incomplete prototype.

Fig. 3 shows a copper axe from the Neolithic pile-buildings in the Mondsee (Lake of Mond, Moonlake) which only differs from the stone axe of the same period by the larger cutting surface. It had a wooden handle with a knee-bend (see Fig. 4), the shorter arm was split and able to take either a stone or a metal blade.

The latter was then furnished with hammered or cast ridges which, in the case of the "paalstab" (Fig. 5), deve-

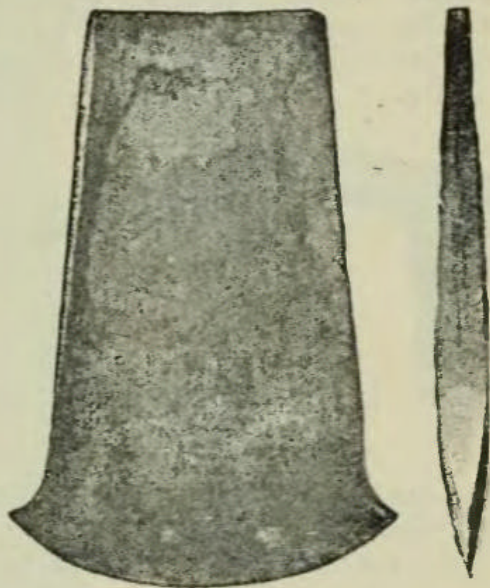


FIG. 3.—Flat Copper Axe. (From the pile-dwellings in the Mondsee.)

loped the handle-lappets, which partly or entirely surrounded the split end of the handle.

In Fig. 5 the strings which otherwise bound the blade and the handle together are imitated in bronze.

Fig. 6 illustrates the so-called "hollow celt." Its handle-end is not slit, but fixed in an opening at the top end of the blade, another mode of replacing the string by a more durable material. The last two examples are taken from the grave-fields of Hallstadt of the Iron Age.

Fig. 7 represents a more recent example, the opening being at the back; its



FIG. 4.—Wooden Handle of a Paalstab
(Hallstadt).

form is something between a paalstab and a hollow celt. This type is characteristic of the second prehistoric Iron Age, and belongs to the La Tène category. The figure shows a specimen

dug out of the earth in La Tène itself, the well-known area of "finds."

At the same time, but less frequently, we find axes like ours with a hole at the back for a straight handle. They appear in the latter Neolithic Age in the form of hammers of some softer stone, and look rather like ornamental axes. They are rarely to be found in the Metal Age. Should we meet with a piece similar to that shown in Fig. 8, made of stone (note the small hole intended for a thin handle), we shall not allow the nature of the material to lead us astray and ascribe the article to the Stone Age. Here the reverse is the case. An earlier material selected, perhaps, for religious reasons, has been influenced by a younger form which can only have existed in a different material, *i.e.* in bronze, which could only be cast. The article in question, therefore, must be of the Bronze Age. Fig. 9 belongs to the

earliest axes with pierced backs, and may be regarded either as a real weapon or as an implement. It dates from the last

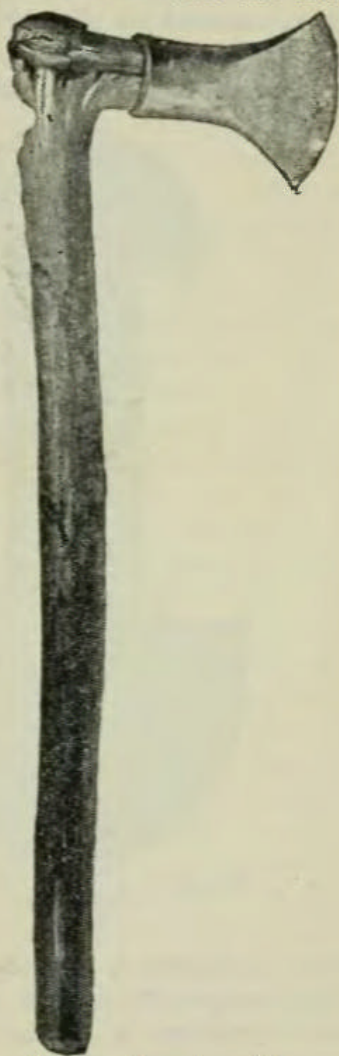
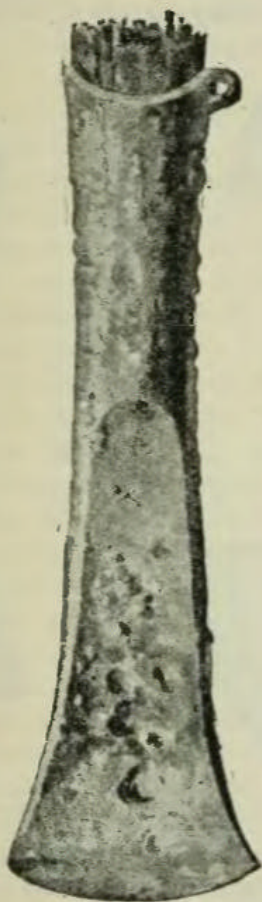


FIG. 5.—Bronze Paalstab (Hallstadt).

FIG. 6.—Iron hollow Celt with handle-rest (Hallstadt).

FIG. 7.—Iron Axe with wooden handle (La Tène).

stages of the Hallstadt period, and shows a type of limited distribution in the grave-fields of the Eastern Alps.

Whilst animals are strictly bound to the natural area in which certain foods are obtainable and to suitable climates, man, assisted by the earliest forms of culture, soon spread all over the world. He thus came into possession of the various treasures of the earth according to the district in which they

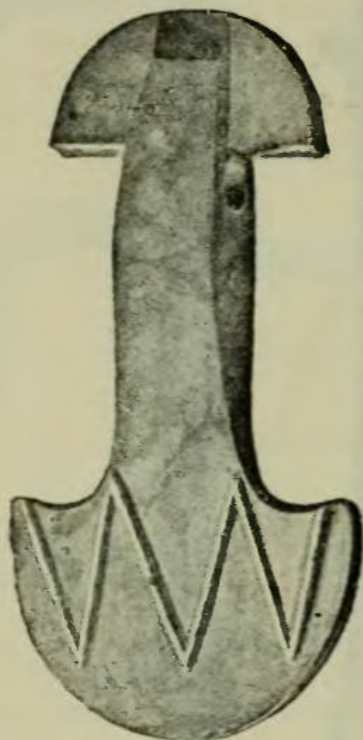


FIG. 8.—Ornamental Stone Axe
(Denmark).



FIG. 9.—Iron Axe (Carnolia).

were indigenous, and the exchange of such products between the groups of people living in the different areas began at a very early date. This gave rise to communication among nations, and to commerce, exchange and barter, a civilising element in the savage life of primitive man, which softened the unbending, hostile seclusion of individual tribes, created mutual, peaceful relations, and inaugurated simple

treaties for their protection and maintenance. Primitive man had no sense of possession outside his own family and tribe. A stranger's property was for him nobody's property, which any one might seize if he were able. But later on he became acquainted with property which neither power, nor cunning, but only friendly arrangement with strangers could secure, and he straightway began to barter and exchange, either taking the necessary equivalent with him and obtaining the desired possession from afar in exchange, whilst observing some prescribed formula, or finding at a neighbouring settlement the goods which found their way from tribe to tribe, or finally satisfying his desires and requirements through the medium of the trader from distant lands under the protection of recognised laws of peace. In this manner coloured earths for painting the body, salt as a condiment in the preparation of food, hard stones for the manufacture of weapons and tools, shells, amber, and ivory for decorative purposes, later on metals, such as copper and tin, for the restoration of bronze, and subsequently iron were thus brought immense distances, and through hostile tribes, from the place where they were found to the localities where they were required. In some cases, it is true, relapses into the animal form of acquiring property take place. Trading caravans were plundered and sanguinary battles waged for the treasures resulting therefrom. These, however, are incidents, which are by no means limited to primitive ages, but have penetrated all historical periods. War and the assertion of the right of the strong exercises a form of communication between nations by which progress is effected or inaugurated. Wars lead to this result, even when they are waged, like those of savages against savages, for the purpose of utterly exterminating one or the other side; in any case the result is obtained more rapidly when the object is to spread some feature of civilisation, to spare the enemy and merely to insist on his acknowledging the supremacy of the victorious party. On the other hand, peaceful relations among nations of different degrees of culture and ideas of life have results

which the most sanguinary war fails to bring about, namely, the gradual dying out of the weaker party, a phenomenon which, in the case of large groups of men, is termed the extermination of races.

4. The Earliest Traces of Man.

Primitive Archæology is concerned neither with the question of the origin of man, nor with the considerations of the lowest types of culture in human beings; the former is one of the main problems of Physical Anthropology, the latter belongs to the ethnology of uncivilised nations. Its object is clearly expressed in the title; it is Archæology, pure and simple. It endeavours to discover the earliest traces of the presence of man on earth, and to base thereon a chapter of history concerning the state of culture which prevailed prior to the existence of written records.

Having once admitted that language is one of the oldest indications of primeval man, we are justified in saying that the age of prehistoric antiquities extends principally from the moment man became possessed of the faculty of speech to the time when he acquired the art of using a written symbol, an assumption which accounts for the indefinite era attributed to the beginning of the Prehistoric period and for its unequal duration in different countries of the world. The most ancient testimonies of the presence of man are lost in the obscurity of the past, and the Prehistoric Epoch of Culture, or that which lacks the substantial proofs of written records, lasted in some parts of the world thousands of years longer than in others.

We may reasonably seek man in the tertiary or penultimate period of the development of our earth, but there is nothing yet to show that he has actually been found there, nor has his existence been traced there with any degree of certainty. The same may be said of the earlier portion of the Diluvial period which constitutes the last stage of development in the history of the earth, although there would

seem to be scarcely any doubt that man did exist at that time.

The Diluvial or Quaternary period was followed by the Glacial period, when glaciers were widely distributed over almost every portion of the globe, and fauna existed and flora sprang up suited by nature to thrive under extreme conditions of cold. These periods of immense duration were again separated by others termed Inter-glacial periods, which had a milder climate, and therefore gave rise to the development of different forms of animal and plant life. In Europe, a large quantity of remains have been found showing that man existed there in the latter portion of the Diluvial period, and consequently his existence would seem to date from the first Inter-glacial and the last Glacial period, which may be further proved by the traces found in the calcareous tufa of Taubach, near Weimar, and by the Schussenried discoveries on the plateaux of Upper Suabia.

In the district of Taubach, after the older glaciers had retreated, man lived contemporaneously with animals of a milder climate. The principal representatives of the brute creation in Central Germany at that time were the elephant, the rhinoceros, the cave-lion and the cave-hyena, and later on we meet with modified forms of indigenous animals related to the foregoing, as the bear, the wolf, the beaver, the wild boar, the bison, the stag, and the roe. The Northern types of animals, as the reindeer and the smaller rodents, are, however, missing.

At the mouth of the Schussee, near Schussenried, man lived under very severe climatic conditions and in the midst of animals and plants of a Northern zone. Here on a moraine,¹ originating from the last European Glacial period, we meet with the remains of the reindeer, the red and the arctic fox, the whistling swan, the bear, the wolf, and moose from Lapland and Greenland.

The majority of Diluvial "finds" exhibiting traces of

¹ *Translator's Note.*—A moraine is an accumulation of sandstone and other débris found at the base and along the edges of glaciers.

man belong to post-glacial periods when the last masses of glaciers began their retreat; in other words, in Diluvial Europe. Man appears to have been more frequently coeval with the reindeer than with the mammoth, although it is certain that he was also contemporaneous with the latter.

The next question which most naturally suggests itself to our mind is: what did these traces of man look like?

They are, as the student may well imagine, of a very insignificant character. The state of culture of Diluvial man is termed the older Stone Age or the Palæolithic period. Both terms are synonymous, and indicate an epoch in which man employed stone as his material for making implements (although he also used a few other easily obtainable substances, such as wood, bone, and horn), and had already acquired the art of hewing and whetting it by hammering, instead of rubbing and smoothing it on a fixed base.

French scientists call this the "Epoque de la pierre taillée," in contradistinction of the "Epoque de la pierre polie," the later Stone period or "Neolithic Age," to which we shall refer later on. The two Stone periods are also taken together, and termed the "Pre-metal" period, as opposed to all the subsequent periods of the development of prehistoric culture.

But the former exhibit such great differences themselves that it is preferable to make a marked distinction between them. The above-mentioned difference in the manner of treating stone in producing weapons and implements is but a comparatively insignificant indication, and it is necessary to direct our attention to both periods in their entirety in order to grasp the immensity of the separate changes in the culture then possessed by man.

Palæolithic man knew neither agriculture nor cattle-breeding. He did not even know how to form vessels of clay and bake them. Nor would such knowledge have been of much use to him, for he lived a wanderer, a frequenter of deep caves or overhanging walls of rock which sheltered

his hearth-fire from the wind and his body from the cold. In the various pre-glacial, glacial, and post-glacial periods he hunted the denizens of the park-like meadowland, the steppes, and the forest. In baited trap-holes and with spears he killed the woolly-haired mammoth.

In caves he found and fought the terrible cave bear, whilst the powerful ure (*bos primigenius*) and the bison (*bison Europæus*), which we now call the aurochs, succumbed to his arrows. The reindeer played an important part in the life of the huntsman, but his habitations rarely expose any traces of the elk or giant-stag. In the drift of rivers and brooks, or in the mountains where stone was near at hand, he found quartz and quartzite, lime and sand-stone, horn-stone and jasper, especially the much esteemed flint-stone, the favourite material for knives, scrapers, borers, awls, axes, arrow-heads and spear-points. The selection of appropriate pieces was quickly followed up by a simple, but clever mode of treatment.

Long and strong splinters or flakes as keen as a razor, and of prismatic form (Fig. 10) could be detached from a larger block by a single blow of a round pebble (Nucleus, see Fig. 11).

Even in the Neolithic period they could not make a different or better knife.

If a scraper was required for cleaning the skins of animals, or for treating wood or bone, a rather thick blade was taken, and by pressing some wood or bone implement against its sides thin layers were chipped off and delicate facets produced, called "retouches" (Fig. 12). This method of "touching up" was employed less frequently in the earlier, but very often in the later Stone Age over the entire surface of the blade, and allowed of any



FIG. 10.—
Flint Knife.

desired shape being given to the implement in process of formation.

This finer workmanship is not to be found on any of the most primitive forms of hammering implements produced by man, such as the large stone, almond-shaped axes, which were probably held in the grip of the bare fist, and swung

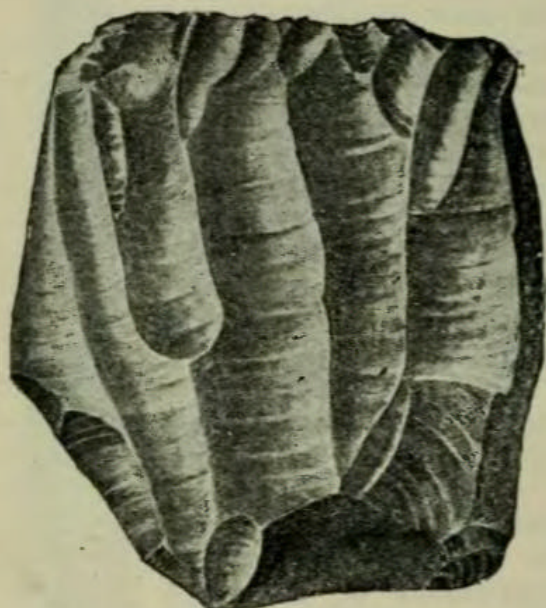


FIG. 11.—Flint Nucleus from which splinters
—knives—were chipped off.



FIG. 12.—Flint Scraper.

round and only roughly hewn on both sides. The next stage shows this “touching-up” on one side only, namely, on that side which was not intended for grasping or for handles. Later on, implements of stone were touched up all round (Fig. 13), or the entire surface was treated in this manner.

Towards the end of the Diluvial period other substances, such as horn and bone (Fig. 14), seem, in some places at least, to have been preferred to stone, since the art of

smoothing and sharpening the more pliable material appears to have become more general. The softer substance, by reason of its pliability, also appealed to the artistic sense which now began to develop in man, for he exhibited a surprising, inborn talent for drawing and scratching pictures of animals or arabesques (Fig. 15) on bone surfaces and antlers.

The body was decorated with shells, and perforated teeth of wild beasts, threaded on strings, were hung round the neck. To this they probably added skin-painting or tattooing and conspicuous feather ornaments for the hair. Skins of animals were taken in their raw state or depilated, joined together with sinews, and then thrown over the shoulders. It required a strong hand to swing the spear for the chase. One end of the handle was split to receive the pointed end of the stone, and the two bound together by a sinew, and possibly further cemented with bitumen.

The blade of the axe was similarly jammed in a wooden knee-shaped handle. Bows and arrows completed the equipment of these mighty hunters.

Barbed harpoons were made of horn and bone. The treatment of stone, vegetable, and animal matter was carried on in caves by the light of the hearth-blaze or on open spaces around their dwellings where the spoil of the chase was divided and the remains thrown away.



FIG. 13.—Flint Arrow-point.

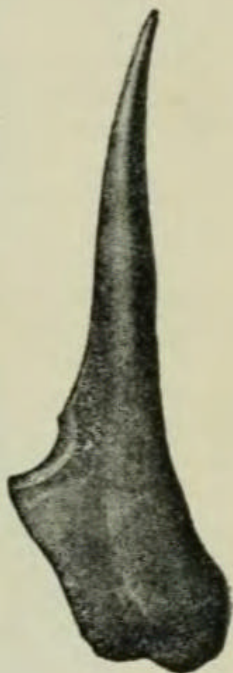


FIG. 14.—Bone Awl.

Stone-kernels, refuse, half-finished fragments and complete articles, undoubted proof of primeval industry, are still to be seen lying next to the coal and ashes of the hearth-fire and the broken, gnawed bones of animals.

As regards dwelling-places, a distinction was made between open and covered habitations.

Wherever caves existed, primitive man very soon discovered them, wresting them from the wild beasts and using them as dwellings, at least during the winter season. Caves were, however, not always available, and man could not live at all seasons of the year in their mouldy atmosphere.

Outside the cave-district he found natural hollows or sheltered spots which, with a little natural intelligence and physical labour, he was soon able to convert into habitable, though temporary dwellings. He was attracted to certain spots by the appearance of herds of animals which were the favourite objects of his hunting expeditions, or by the frequent discoveries of good material for implements or weapons.

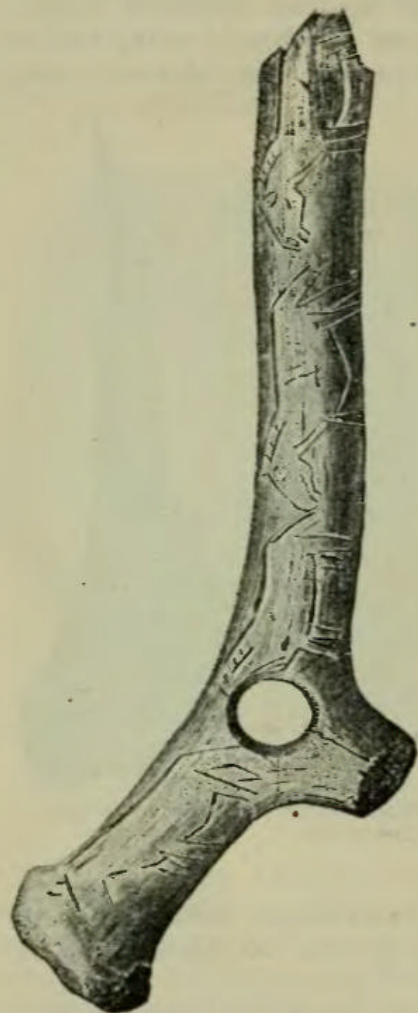


FIG. 15.—Reindeer Antler, cut, perforated, and engraved.

It was in open settlements or encampments of this description that the celebrated finds of the valley of the Somme, in the north of France, were made, the first proofs of Diluvial

man. For these finds we are indebted to Boucher de Perthes, whose labours were not recognised and appreciated by the world of science until many years had passed in patient discussion. The rich layers of flint in the chalk of the valley of the Somme are one of the foundations of early culture in that portion of Western Europe. The bones found in the same layer of gravel next to axes, scrapers, and flint spear-points are those of the mammoth, the rhinoceros, the bison, the horse, the reindeer, the giant-stag, the cave-lion, and the cave-hyæna. Some of them show traces of the stone-weapons used for slaying animals and cutting them up.

Similar finds, the age of which can be fixed without any possible doubt, have been made in the loess¹ or loam of the valley of the Danube and in that of other river-basins of Central Europe, which now form vast, compact strata, owing their existence to the huge sand-drifts of the post-glacial period of the Steppes.

One of the encampments has been opened up in the vicinity of Willendorf, not far from Spitz, on the Danube, beyond Krems, in Lower Austria, where, running through the centre of a loam-wall or bank which had formed in the laying out of a brick-field, they found a dark, narrow strip, consisting of ashes, coal, and other organic matter, remnants of food of some primeval tribe, stone implements and fragments, all of which show proof of primitive industry and activity.

In the Diluvial caves already discovered we are frequently confronted with a higher degree of human culture than may

¹ *Translator's Note.*—According to Burmeister, "loess" is the term given in the district between Bale and Bonn to a mixture of loam, lime, sand, and mica.

The *Deutsches Museum* defines "loess" as a layer of loam belonging to the group of Diluvial strata.

Sir John Lubbock says:—"While the water had sufficient force to deposit coarse gravel at any given level, at a still higher one it would part with finer particles, and would thus form the "loess" which at the same time would here and there receive angular flints and shells brought down from the hills in a more or less transverse direction by the rivulets after heavy rains."

be inferred from the remains found in open settlements or encampments. In the former there are the curious carvings of the reindeer hunter of the Dordogne, and generally many proofs of greater intelligence. This has led to the conclusion that the open settlements belonged to the generation that lived in the pre-glacial period, and that the race of men following them in glacial and post-glacial times, or, strictly speaking, the Reindeer periods, were forced by extreme cold to search after caves, in which, in the stern battle of life, they also developed higher abilities.

We must consequently distinguish two degrees of Palæolithic culture: the Mammoth Age, a warmer preliminary or intermediate period, with open habitations on the plains; and the Reindeer Age, with a cold climate and better forms of implements derived from caves. But the mammoth was not restricted to the warmer periods. It existed also in the last post-glacial period, but more in open, well-watered districts, whilst the reindeer was to be found in hilly places. So it is possible that the two phases of human culture into which we separate the Diluvial period could very well have prevailed simultaneously in places which were far apart. On the banks of the Dordogne (Périgord, France) numberless grottoes are to be found on the rocky slopes of the valley. The foundation of these caves consists partly of calc-sinter, through which the relics of the ancient Troglodytes (cave-men) have been, as it were, baked together into a firm mass. In this mass are to be found coal and burnt stones, numerous stone knives, awls, saws, points of lances, axes, and remains of flint and horn—stone, needles, arrow-points, harpoons, daggers, articles made of bone, &c., carved out of reindeer horns, and a quantity of pieces of bone belonging to animals killed in the chase. Among the last-mentioned are recognisable those of the cave-bear and the giant-stag, the saiga-antelope, the wild goat, and the musk-ox. No animal remains are so numerous, however, as those of the reindeer, the horse, and the European bison. These animals afford the surest evidence, apart from the caves and the stratifica-

tion, of the Diluvial Age. In these very old remains we fail to discover manufactures in burnt clay (such as vases and the spinning-wheel), or any traces of cattle-breeding, agriculture, or stone-smoothing (bones of domestic animals, grinding-stones, whet-stones, and polished stone implements).

Verified proofs of the existence of Diluvial man are most numerous in Europe, where more serious study has been given to the subject than in any other part of the world. Traces have been found and verified in France, England, Spain, Portugal, Belgium, Germany, Austria, and Italy, but they are missing in those continental countries which did not become habitable until after the last retreat of the Glaciers. Thus no traces have been discovered either in Scandinavia, the greater part of North Germany, or in the Alpine district. Outside of Europe we meet with them in the Quaternary strata of Northern Africa (Algiers and Egypt), India (Deccan), and the Western North America. All bear the same indications, pointing to the fact that there must have been some very early beginning of industrial activity extending, in the first instance, to the treatment of the hardest description of stone within reach of man. Wherever the quantity of useful material at his disposal was scant, the implements and weapons were also of a smaller size, but the shape seems to have been everywhere the same and dates back to the Neolithic period.

The question might be asked whether amongst the earliest proofs of man's presence on earth any physical remains have been discovered, such as whole skeletons, or portions of them, or skulls of primitive human beings. Even if such remains do not extend further back than the Diluvial period, they will at least serve to give us some idea of the physical structure of Diluvial Man.

Was he more closely related to the brute creation than the generation of to-day? Could he have resembled in any way the present existing races of lower type? Was there one uniform type of man, and, if so, what were its features? Unfortunately the material at our disposal, our stock of

undoubtedly genuine Diluvial skulls and other portions of human skeletons, is too small to enable us to answer these inquiries with absolute certainty. The little that we possess originates almost exclusively from Europe, and could therefore only help us to reconstruct one or two European primeval races. All we can boast of is one single cranium found in a cave in the Neander Valley, near Dusseldorf, which has formed the subject of much discussion on account of the peculiar marks it bears, and of a few fragments of skulls and entire skulls from caves and quaternary strata in France, Belgium, Italy, Bohemia, and Moravia, as well as several skeletons from a cave near Furfooz in Belgium and from Cro-Magnon, in Périgord, France.

Without going into the question of the formation of these bone relics, it is clear that the Diluvial inhabitants of Europe can scarcely have belonged to a race of one uniform type, as we already find amongst them men with short heads (brachycephalic), and men with long heads (dolichocephalic). Moreover, all these human beings of whom we are now in a position to form an opinion, owing to the above-mentioned finds, were well-formed men who, judging from their physical structure, could have mixed among us to-day without being in any way conspicuous. They had no simian racial indications, their skulls were no smaller and their face had no animal formation. They were fully developed in every respect, and during the slow change which gradually transformed Diluvial Europe into the Modern Continent of the same name, some of them probably remained in their own country, whilst others left their primitive home and migrated northwards to hunt the reindeer in regions which had now become habitable for man and afforded him the same facilities of living as formerly the ice-free portions of West and Central Europe.

5. *The Later Stone Age.*

The transition from the last of the great epochs to the present period in the history of the earth was accomplished almost imperceptibly. Nevertheless when we consider the results in their entirety, the difference between the two is very great. In place of the cold dry atmosphere, which was a characteristic feature of the Reindeer period, Europe now enjoyed all the advantages of a temperate climate. The animal and plant worlds were in the main almost identical with those of modern times. The mammoth and the cave-

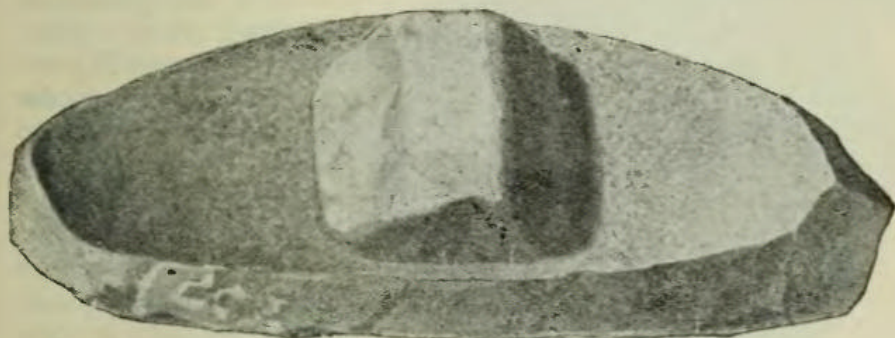


FIG. 16.—Earliest Grinding Stone for Corn.

bear, together with a few other less important mammals, entirely disappeared. The lion, the leopard, and the hyæna migrated to warmer countries, the reindeer and other representatives of Diluvial fauna wandered northwards, whilst the chamois, the marmot, and the ibex sought the regions of the high mountains, to make room for the tame domestic animals which now took their place next to man, whose mode of living also assumed a more permanent character. He made agricultural implements and began in a perfunctory manner to till the ground. He soon learnt to grind corn with millstones, to make meal or bread, to twist cords or threads from appropriate textile plants and make clothing, to shape vessels out of clay, without any knowledge of the potter's wheel, and to

ornament and bake them. He was now able to treat stone not only by hammering and striking but also by whetting and grinding.

In a word, he produced the polished stone implements which gave their name to the whole period, although the previous art of striking the stone with the hammer was still

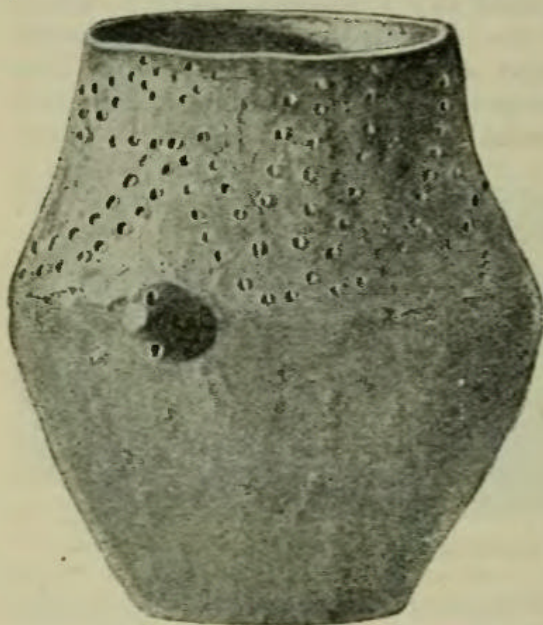


FIG. 17.—Clay Vessel from a Neolithic Pile-dwelling of the Attersee.

retained and, indeed, was bound to continue as a preparatory process prior to smoothing the stone.

It is the period of polished stone ware, the later Stone Age or Neolithic period, the word being derived from the Greek νέος "young" and λίθος "stone."

What was the reason of all this progress? Whence did it originate? Another difficult question! In the caves of Western Europe the Palæolithic and Neolithic strata

are frequently separated by vast layers of heavy boulders or rubble-stone or of calc-sinter, so that after the disappearance of the Diluvial inhabitants centuries may have elapsed before a better equipped race arose in their place. In Austrian caves finds have been made which fill up these yawning gaps. Consequently if, on the extinction of Palæolithic culture, Western Europe perhaps became entirely or partially uninhabited for any great length of time, during which a new generation from the East sprang up in their turn, it may be argued that in the East, in Asia or on the boundaries

between Asia and Europe, the civilisation of the Reindeer period gradually developed into that of Neolithic culture, a revival of the Stone Age being scarcely intelligible without the assumption of a new population.

There is, however, no reason to immediately suggest any vast movement of people in the nature of a catastrophe.

Slowly, step by step, the immigration of a few tribes, endowed with a higher degree of culture, took place, and their assimilation with the remnants of the primeval populations of our Continent was only a matter of time.

Kindly nature soon led man to the river, where she had prepared implements almost ready for his use in the shape of axe-like fragments of boulders with which he easily learnt to smooth and whet stone by rubbing it on a rough surface. This art was, therefore, the result of independent discovery in different parts of the world, and the various forms produced in numerous countries of the Old and New World show a resemblance which extends even to the character of the shaft or handle.

Possibly a few imported stone axes may have served to divert into new channels the industry carried on in individual dwellings. The production of polished stone implements requires not only skill in hammer-

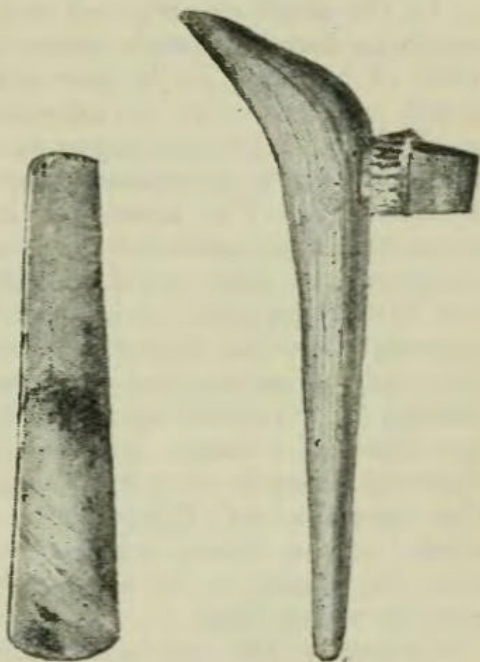


FIG. 18.—Flint Blade.

FIG. 19.—Stone Axe, nephrite blade in staghorn and fixed in a wooden handle like a club.

ing and pressing, but also great patience and perseverance. In order to produce the desired form and to polish an axe-blade on a firm base by means of rubbing, it requires many hours' work and, in the case of particularly hard and tough descriptions of stone, such as nephrite or jadeite, it means weeks, indeed months of labour.

In the same manner, and at about the same period, they began to breed domestic animals in Europe. A very few yoke of breeding cattle may have sufficed to introduce the breed gradually over an extensive area. The ox and the goat, the lamb and the dog and, later on, the hog constitute the oldest stock of domestic animals in the lake-dwellings of Switzerland. The horse was known to the inhabitants of these Neolithic sea-board settlements, but was not yet bred. A glance at other parts of the world immediately shows the advantages enjoyed in ours by the possession of these primeval races of domestic animals. Up to the time of its discovery America had not progressed further than dog-taming. Mexico, in spite of all its high civilisation, could not boast of a single tame animal. In Polynesia the only domestic animals were the hog and the dog. Africa, with the exception of Egypt, only recognised the hog as an animal of the chase, and even within the area of the Nile it does not appear in the order of herded animals until a comparatively late date.

Originally the ox was entirely missing in Australia, Polynesia, and South America. On the other hand, Central Europe, Central Asia, and Africa were the territories on and from which a race of large and strong oxen, the progenitors of our best modern breeds, were bred and distributed.

Amongst the more important European kinds of grains, barley and wheat belong to the Stone Age, while the Bronze Age added rye and oats. All of them probably owe their origin to plants which grew wild on Asiatic plains, and their dissemination to nomadic tribes which carried small quantities of seed with them on their wanderings.

Babylonia, already a fruitful country, obtained its barley first from the North; and Egypt, also blessed with abundance, derived its wheat from the same source. The two latter cereals were then followed, in the later Stone Age of Europe, by millet, which was sown in large quantities. In addition to grown fruit they collected and consumed the produce of the forest, such as apples, pears, cherries, wild plums, whortle-berries, briar, raspberries, blackberries, elderberries, water-nuts, beech-nuts, and acorns.

In the period of the later Stone Age man was still a valiant hunter, whose trophies were found in pile dwellings and land encampments in such quantities as to fill entire museums.

The principal victims of his arrows and spears were the red-deer and the roe, the bear and the wild boar, the fox, the wolf, the beaver, and other animals and birds.

The inhabitants of the Northern sea-board led a peculiar life. They were people whom we only know by their "Kitchen-remains" or "Kjökkenmöddinger," "Kitchen-middens," as they are termed on the eastern coast of Denmark. The scraps and refuse which remained from their meals collected in vast heaps extending over a distance of 100 to 300 metres, a breadth of 50 to 150 metres, and a height of 1 to 3 metres.

They contain ashes, coal, potsherds, implements of flint, bones, and hartshorn; but they consist chiefly of bones (which in many cases have evidently been split by man for the sake of the marrow, or gnawed by dogs) belonging to animals slain in the chase, such as the stag, the doe, the wild boar, the wolf, the fox, the dog, the bear, the lynx, the marten, the hedgehog, the beaver, the seal, and the cat; they also contain the bones of herrings, eels, cod, and glahrke, and finally millions of shells of edible muscle-fish, such as oysters, mussels, cockles, and shore-snails. The shell-mounds of the Baltic also contain the bones of the whistling-swan, the auk, and the turkey, but no traces of agriculture or cattle-breeding, whilst sharpened stone implements, the

real sign of Neolithic culture, are altogether missing. The stone implements found in Danish shell-mounds are, to some extent, different from palæolithic products, and have always been made by simple hammering without being subsequently polished.

The graves of the "Roten Felsen" (Red Cliff) on the sea-shore at Mentone exhibit a similar degree of culture, which the French call *néolithique ancien*. The absence of diluvial forms of animals marks the age as the beginning of the later Stone period. It is natural to assume that the men of the shell-mounds were direct descendants of the diluvial population of Western Europe who retreated northwards as soon as the Baltic coasts became habitable. The assumption is, however, weakened by the fact that they were not really reindeer hunters, but rather fishermen and mussel-dredgers, and that they failed to show a trace, however small, of that artistic talent which surprises us so much in the later period of the Diluvial Age. Similar shell-mounds, which in many cases have been washed off the shore by the inroads of the sea, are also to be found on the coasts of France, Portugal, Ireland, Sardinia, Florida, Japan, Chili, Massachusetts, and Georgia in North America.

If the Danish shell-mounds belong to an early Neolithic period, the numerous finds of dwellings and graves, which present a more imposing picture of the progress of man, will afford us an insight into the nature and characteristics of the fully developed later Stone Age.

We shall revert to the pile-dwellings and their distribution over Europe in a special chapter; meanwhile we are only desirous of emphasising their importance as regards the history of the Neolithic Man.

The Swiss pile-dwellings exhibit three periods of development. In the first we only find small, badly-polished stone hatchets of serpentine, diorite, and saussurite taken without particular selection from the nearest available spot. Coarse, cylindrical clay pottery shows no ornamentation whatsoever. The second period embraces most of the Neolithic lake vil-

lages of Switzerland, with weapons and implements—amongst them large perforated hammer-axes—of a better shape, and frequently of very tough and rare stone, such as nephrite, jade, and chloromelamite. The clay or earthenware pottery is simple, and ornamented with the wolf's tooth, the shaded triangle, and rows of dots.

The third and last period produced a large number of perforated stone-hammers and various well-formed tools of wood and staghorn, earthenware pottery with richer ornamentation, and, in the absence of nephrite and jadeite, the first articles of copper, such as axes, awls, and daggers, which justify us in describing this period of transition from stone to metal as the Copper Age of the Swiss pile-dwellings.

The Neolithic race did not exclusively inhabit the seashores, dwelling upon the extensive mounds of their own food-refuse, nor were the cleaner pile-villages erected over the surface of shallow lakes their only habitations, but they also continued to live in caves and built huts on dry land. The habit of living in caves is not easily abandoned in districts where they abound; for instance, in the North-Slavonian countries of Austria (Bohemia, Moravia, and Galicia), in Franconian Switzerland, between Bayreuth and Bamberg in Bavaria, in the districts at the foot of the Ligurian Apennines and to the north of the Adriatic.

Nor is there any very great difference between the modes of living of the Palæolithic Troglodytes and that of the Neolithic cave-dwellers. The ancient classics contain numerous references to them at periods of which we possess historical records; for instance, in Persia, Arabia, Ethiopia, Macedonia, Crete, Sardinia, the north of the Caucasus, and Scythia.

In the Canary Isles, towards the end of the fifteenth century, the Spaniards discovered the Guanches, a people living in caves, and unacquainted with metals. We shall not be surprised, therefore, to find that the caves, which to this day are used by shepherd tribes as temporary places of refuge, afford rich finds of Neolithic antiquities, and even some of the later Bronze and Iron periods.

The Neolithic cave groups present a characteristic inventory of the contents of the settlements of the later Stone Age, and embrace bones of oxen, goats, lambs, hogs, dogs, and frequently bones of the horse, and relics of the chase, such as stag-bones; on the higher points of the sea-shore we find numerous shells of edible mussels, mill-stones, earthenware pottery, tools made of stone, horn, and bone; ornaments for the person, pigment for tattooing, and sometimes clay stamping-blocks, which may have served the same purpose.

In the case of cave-dwellers agriculture seems to have made less progress than among the more civilised inhabitants of lake-villages, and, in accordance with the nature of cave-districts, hunting and cattle-breeding must have been their chief means of subsistence.

In upper Italy, where the Terramare (pile-dwellings on dry land) date exclusively from the Bronze period, certain phases of culture among cave-dwellers are undoubtedly coeval and may belong to some other tribe than the inhabitants of lake-villages, an exception which is, however, by no means convincing.

In the early phases of civilisation Nature held mighty sway on man, and compelled him to submit, without murmur, to the exactions of the soil. Where she provided caves and hunting, there he remained a cave-dweller and a hunter, but where periodical inundations of low-lying plains induced him, not without a little compulsion, to go over to agriculture and live together with his fellow-man in communities, in artificial sheltered dwellings, as a protection against hostile attacks and the force of the elements, there, to his good fortune, he obeyed Nature's dictates, and followed the paths of progress.

In addition to caves and pile-dwellings, we find in the later Stone Age, as well as in the Bronze Age, and extending even into the Iron Age, curious little circular huts erected on dry land, and possessing a moat or ditch as a foundation, which latter is all that remains of them at the present day. These ditch-dwellings are so grouped together, that whole villages can be traced as they still existed among ancient

savage nations in historic ages. On the site of such settlements we now find circular excavations from $1\frac{1}{2}$ to 2 metres in depth, containing coal, hearthstones, potsherds, broken bones of animals, and stone implements, and frequently slabs of clay, which served to plaster the brushwood walls. On the destruction of the hut, generally by fire, the slabs were found to be hard, and burnt to a red colour. In favourable cases, one still finds the holes for the piles which were erected around the hearth as supports for the roof, and other details, such as passages communicating between two or more ditch-dwellings in a circle surrounding the principal hut, which afford us further information as to the establishment of these primitive land-villages.

In laying out these ditch-dwellings there was very little displacement of earth, but the excavated soil was shot down in a circle around the hut to better secure the piles. In the above-mentioned terramare a square embankment was raised embracing the entire area. Other embankments, dating from the Neolithic and later periods, are to be found on isolated hills, promontories, and mountain-summits. Either they extend in a circle around the space occupied by a prehistoric village, and served to protect it, and legally separate the family property from that belonging to the entire tribe, or they run in one straight or crooked line across that portion of the hill which connects it with the neighbouring property.

We frequently find on a hill several concentric embankments of prehistoric times, and at once perceive by the small extent of the area so carefully enclosed that it cannot have been the demarcation of a dwelling-place.

Such sites as the "Hausberg at Geiselberg" in Lower Austria (see Fig. 20) must be regarded as sacrificial mounds, or as the dwelling of the chief of a tribe. On numerous other enclosed and open hills excavations have proved incontestably that Neolithic villages did exist there.

There are no graves of the Palæolithic period in existence; at least none can be identified, and, for this reason—but wrongly so—the primitive Europeans of the Diluvial

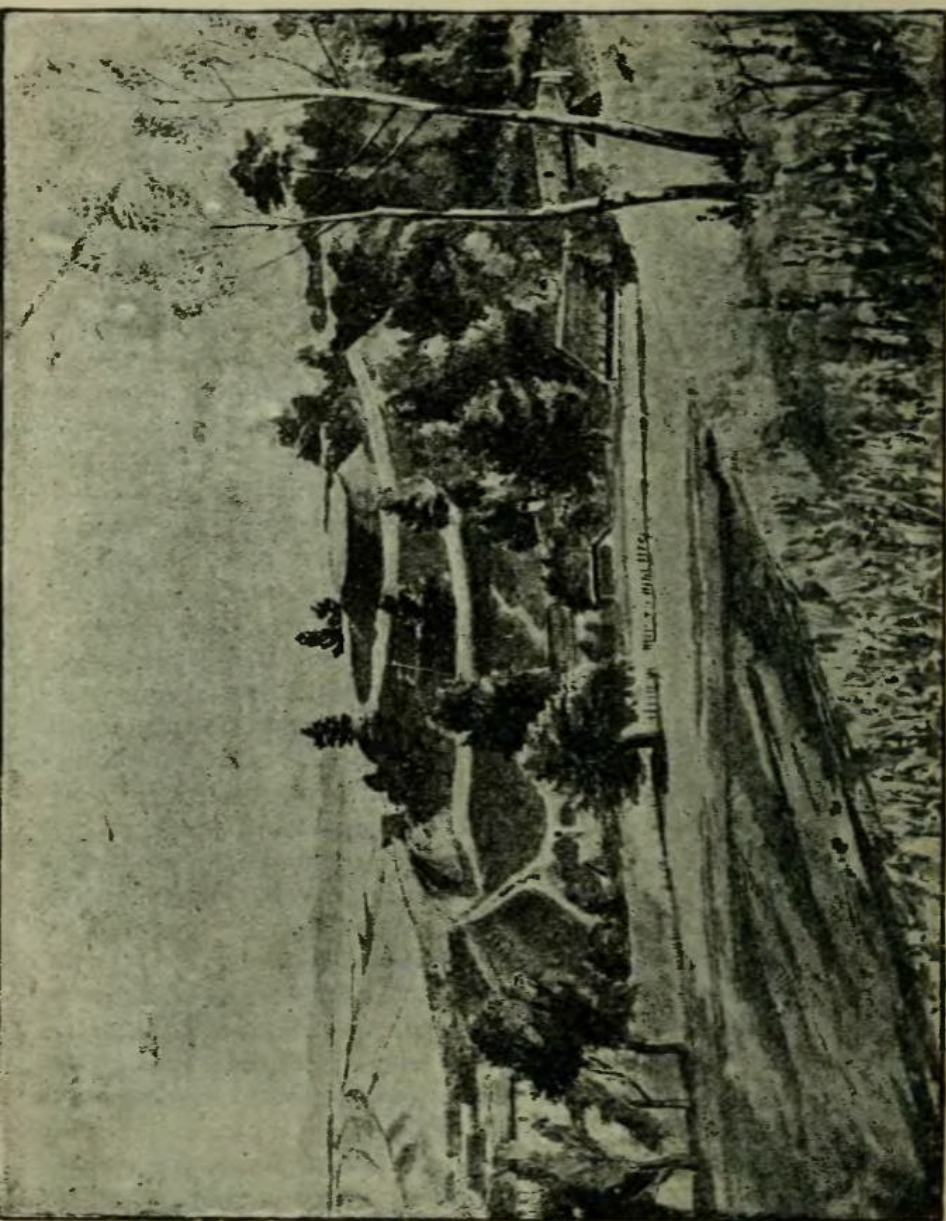


FIG. 20.—Hausberg at Geiselberg.

Age are not credited with piety towards their dead or with a belief in a future state. On the other hand, numerous finds have enlightened us on the burial customs of the later Stone period, but it frequently happens when habitations have been found that we cannot always assign to them the correct burial-places, whilst, in other cases, we find numerous graves, but fail to show the necessary number of dwelling-places. Thus, the subterranean flat graves of the pile-dwellers of Central Europe are, to this day, for the most part, hidden to us, whilst, on the other hand, we know of numerous superimposed graves in Scandinavia, the rich "find" region of the Northern Stone period, but of very few Neolithic dwellings.

During the later Stone Age, the custom of burying bodies uncremated prevailed throughout Europe. Cremation did not come into practice till afterwards, and even then was never and nowhere carried out to the exclusion of burying, which accounts for the number, more or less, of graves containing skeletons which were found in the burial-grounds of the Metal Age in addition to, or next to, graves containing urns with ashes.

The form of burying varied very much. The most ancient form was probably to remove the body into clefts or caves in the rock, such as we find in the early Neolithic period in the grottoes of Mentone and Finalmarina in Liguria, in the cave district of Franconian Switzerland, in England and in France. Artificial grottoes with graves belonging to the latest Stone Age have also been found in the chalk cliffs of the Department of the Marne in France. Wherever there was a lack of natural caves or of soft stone for artificial burying-places, the people of that generation resorted to stone-vaults which they built in the solid cliff. These are the "Megalithic" graves which are missing in Central Europe, but which have been found to extend over a vast area from Syria, over Northern Africa, Spain, France, Great Britain, and North Germany as far as Scandinavia, where they are most numerous. They

consist of immense blocks of stone, little or not at all hewn, set up in the form of a hut with a flat roof. (See Fig. 21, which represents a French Dolmen.¹) Smaller stones are then used to fill up open spaces. Over the whole there was sometimes an earth-mound, which, in the case of "passage-

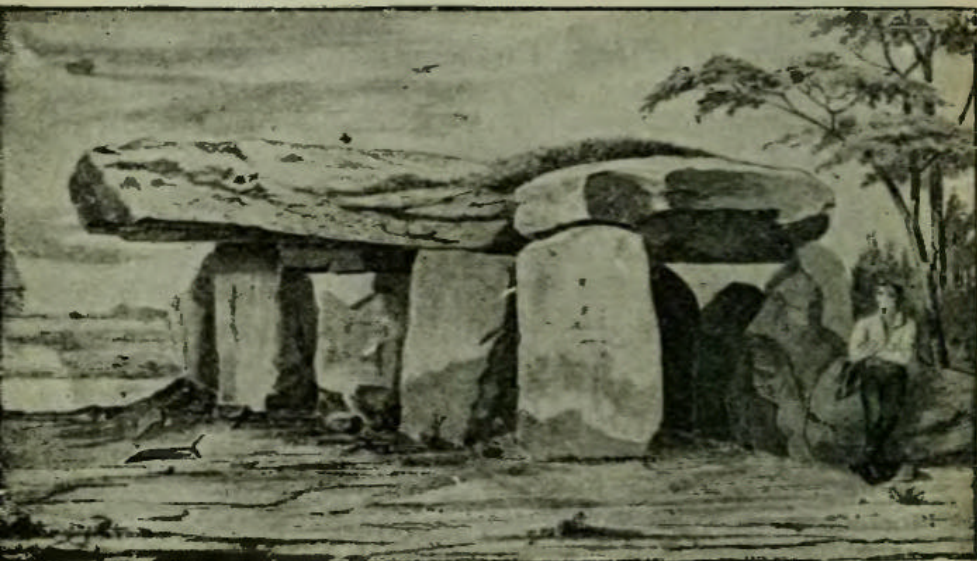


FIG. 21.—Dolmen (France).

graves," left the entrance to a radial corridor of similar slabs of stone, uncovered.

This form of grave belongs to the latest phase of the Northern Stone Age, and may be found chiefly in the whole of the Eastern portion of Sweden, whilst the real "Dolmen," without entrance-corridors, was restricted to the Southern and Western coasts of that country, and is of somewhat earlier age.

¹ *Translator's Note.*—Sir John Lubbock (Lord Avebury) gives the derivation of "Dolmen" as follows: "Daul," a table, and "maen," a stone, and advises the retention of the word "Dolmen."

In the West of Germany as far as the Oder (especially in Hanover) and in Holland the so-called "Hun-beds" or "Giant-graves" extend almost to the end of the later Stone period; in Western Europe they are found still later, and in Northern Africa they are even found as late as the Metal Age. They each consist, as a rule, of two rows of large blocks of stone frequently exceeding twenty paces in length. In the northern portions of our Continent, the Age of Megalithic Sepulchral Monuments shows an undoubted advance as compared with the earlier Neolithic period of the Baltic shell-mounds, which, according to an approximate estimate of its time in Denmark, is said to have been about 3000 to 1500 B.C., and is followed by the Megalithic period from 1500 to 1000 B.C. Such definite statements, however, are very open to doubt, and should be received with the utmost caution. According to other calculations the later Stone period is said to have terminated also in Northern Europe about 1500 B.C.

Whilst Sepulchral Monuments of the Megalithic Age were being erected in the regions skirting our own Continent, the inhabitants of Central Europe, the Rhine Provinces, South Germany, Bohemia, and Hungary, in addition to cave-burials were only acquainted with a simple interment of bodies in graves in which the deceased was generally placed, his limbs drawn up, and in a recumbent or sitting posture.

Owing to these burial customs and to a few skulls of pile-dwellers thrown up by the sea, the later Stone Age yielded a much larger supply of craniological material than the Palæolithic period, which is a further proof that already at that time Europe was inhabited by several races of men, amongst which we believe we can recognise with certainty the Dolichocephalic Aryan Race. The Stone Age proper of the Swiss pile-dwellings shows Brachycephalic skulls only; on the other hand, in the Transition Age to Metal and Bronze we only find distinctly Dolichocephalic skulls with wide facial angle.

The skulls from the pile-graves of the Northern Stone Age are chiefly Dolichocephalic, and bear an almost certain Aryan character. In France, both the Cave-skulls and Dolmen skulls show very diverse forms, whilst many a cemetery of the latest Neolithic Age in the Rhine Provinces has furnished us with skulls exhibiting conspicuous similarity to the typical form of head amongst Germanic tribes.¹

Now what is the meaning of the appearance of Aryan men amongst the primitive population of Europe? How is the archæological colouring of our portion of the world affected by this circumstance? The following chapter will answer these questions, and deal with some fundamental features of Aryan character and Aryan history.

6. Aryans and Semites.

All civilised nations of Europe derive their origin from one primeval tribe, whose home their ancestors left at an early period, thenceforth to go their own separate way. On the occasion of their first appearance in history they already differ so much that it is only by the aid of Comparative Philology that we are able to trace their primitive uniform origin. This science also teaches us what degree of civilisation the primeval tribe possessed, and what culture was acquired by the offshoots of the primitive stock² in the course of their wanderings or in their subsequent settlements.

We do not know the locality of the primeval settlement of the Aryans before they branched off, nor what space of time elapsed until the separated tribes settled down in their subsequent dwellings. In the course of these wanderings the peaceful shepherd became the warrior to whose deeds of prowess we must ascribe the second great epoch in the

¹ In a forthcoming Primer of Göschen's Collection, special articles will be found on "Brachycephalic," "Dolichocephalic," and "Facial Angle."

² See further on this subject in the Primer No. 59 of Göschen's Collection, entitled "Indo-Germanic Philology," Supplement.

history of the European world. It is in the obscurity of ages that we must seek the foundation of the deeply-rooted distinctions between the European Aryan and the Asiatic Aryan, the Hindu.

Perhaps it was from the vanquished stranger-foe that our ancestors learnt the art of agriculture. In their later habitations we meet them as Greeks, Italians, Kelts, Germans, Illyrians, Slavs, and Letts.

The primeval Aryans had no knowledge of the sea. They lived inland, surrounded by mountains, and were a pastoral tribe with settled habitations, unacquainted with agriculture, metals, or life in towns, indeed, without any culture of higher degree.

According to the teachings of Comparative Philology the primitive Indo-Germanic race possessed herds of cattle, flocks of sheep, pigs, and goats, which were guarded by dogs. The open river-valleys served as pasture-fields. In the dense forests skirting their settlements they collected wild fruits and hunted the deer, the boar, and the wild bull, whose flesh they consumed and in whose skins they clothed themselves.

Weapons and implements were made of stone, bone, and antlers. Leather was sewn with bone needles and bullock-sinews. Leather straps were used to tether and bridle draught cattle, and willow wicker-work covered with leather served as a shield. The hunter's bow was made of yew, the spear-shaft of ash.

The giant trees of the "forest primeval" were felled by means of fire and blows of the stone-axe and then hollowed out to form canoes for use on rivers and lakes ("single-tree" boats).

At a very early date we find the wheeled cart carrying the entire possessions of the family on their wanderings, in use with and common to all Aryan tribes. They made coverlets, cloths, and caps out of lambs' wool, and ropes, matting, material for clothing, hunting, and fishing-nets out of tree-bass.

The chief possessions of these primitive tribes consisted of their stock of cattle, which were always exposed to the dangers of the forest, the wild beasts, and to the influences of wind and weather. The idea of covered cattle-pens or barns had not yet occurred to them, and the absence of these necessities accounts for the bad condition and consequent low value of the earliest domestic animals. Cattle also served as a means of payment, and took the place of money; wooden piles, brushwood, and straw were the materials with which they built their huts. The culture of the vine was unknown.

In warfare our Indo-Germanic ancestors were savage and bloodthirsty. Even the Cimbri and Germanic tribes referred to by Tacitus slaughtered or mutilated their prisoners to render their escape more difficult when it was desired to retain them as slaves. Old men and incurables laid down their lives voluntarily. Religion required human and animal sacrifices as an atonement for sins or on the death of a chief. Men secured wives by raids and forcible abduction, and on the birth of a child the father decided whether it should be allowed to live or exposed to die.

These most primitive forms of government clearly indicate that they owe their origin to the simple association of families. Artificial scars (tattooing) distinguished the members of the "aristocracy." The forces of Nature were the subjects of divine adoration. Much importance was attached to prognostic signs, the power of formulæ, of incantation, and other growths of superstition.

The Aryan languages are typical of a tree with a profusion of branches, of rich growth and beautiful form, which develop and spread luxuriantly for a time, but shrink up and become stunted when they stand in the way of the requirements of more rapid communication.

Whilst the Aryans remained in this low state of culture, other nations in more favourably situated regions had made vast progress. In the valley between the Euphrates and Tigris a Turanian tribe had first established its dominion,

and subsequently lost it to Semitic conquerors. This tribe bore the name of Accadians in the north and Sumerians in the south. Surrounded by the halo of the dawn of history they appear to us as teachers of the Babylonians and pioneers in the van of Asiatic-European civilisation. From their knowledge and inventions the Semitic race derived their principal power. Assyrians, Phœnicians, and Israelites are indebted for their early development to the Babylonians, who assimilated with the Sumerian-Accadian stock.

The Sumerians, and similarly the Babylonians, were, in the first instance, great agriculturists. They drained Mesopotamia, which was a land of marshes, by means of canals, and drew the plough where there was formerly nothing but virgin woodland. They possessed themselves of the metals treasured up in the depths of the earth, and produced therefrom implements, weapons, and current coin.

Down the mighty rivers and ingeniously constructed canals, into the Persian Gulf and to the countries along its shores, on rafts and in ships, the products of industry and commerce were carried directly from their place of origin to the very stalls in the markets at home and abroad. Towns, temples, and palaces were built of baked brick and walls drawn around them. These edifices contained valuable inscriptions, for writing had been invented and was employed to fix and retain the historical records of incidents and important scientific discoveries. A permanent system of weights and measures was introduced, and astronomy served the nautical requirements on the high seas.

The natural foundation of the surprisingly early and high development of Semitic nations is to be sought in the nature of the soil of Mesopotamia, the land between the two rivers. The Aryans were shepherds, the Semites husbandmen, from time immemorial. The former inhabited a mountainous country which could not inspire the invention of the plough, because the formation of the ground did not lend itself to the use of such an implement, but favoured in its stead the breeding of cattle and the cultivation of pasture and grazing

lands. On the other hand the Semites possessed in Babylonia an unusually fruitful and level country naturally adapted to agriculture, which encouraged man to devote himself faithfully to it, even under more difficult circumstances. However, notwithstanding such favourable conditions of the soil, the husbandman is called upon to exert himself more than the cattle-breeder in order to gain a livelihood. The true blessing of agriculture consists in man's being compelled to work, just as the shepherd is cursed by his opportunities for idleness. Indolently the latter watches his herds seeking their own food, whilst the husbandman "eats his bread in the sweat of his brow." Profit by hard work entails economy in its expenditure; easy gain leads to extravagance. The former was the distinguishing feature of the Semitic character, the latter has often been held up as the blemish in the character of the Aryans.

But the intelligence required by the husbandman is different to that of the shepherd, whose daily work is a simple matter of routine, whilst that of the former is manifold and complicated. His first idea was to make a series of important inventions which, though thoughtlessly passed over by his successor, the modern agriculturist, were once the objects of admiration as the highest production of human intelligence. The earlier occupation is that of the shepherd, the later that of the husbandman. If biblical tradition reverses the position, attributing agriculture to Cain, the elder son of Adam, and a shepherd's life to Abel, the younger, it would appear to prove the greater age of the former occupation amongst the Semites, whose traditions alone connect agriculture with the initial existence of our generation. Cain kills Abel. He is the victorious brother, but also the inventive, unstable one, the founder of the first town, as it is stated in the Bible. Amongst Semites and Chamites the town, as such, is the first sign of progress, and tradition is also right in attributing to the husbandman the founding of towns. This seems very strange to us at the present day, since we have been taught to regard town and country as

direct opposites, just as we fail to find the ancient, untiring husbandman in the modern Semite. Originally however, the town was not called into existence as a domicile for traders, nor as a market for the merchant, but was intended as a fortified place for the mass of the agricultural population. In the beginning, and long after, the town-walls and towers were the principal objects, and not the dwelling-houses, streets, or squares. The most ancient towns were half-empty sites on hilltops, if possible, near rivers and steep walls of rock, difficult of access and protected by earth and stone works and palisades, behind which the whole population retreated on the approach of the enemy, bringing their cattle along and hiding any property they carried with them. As a consequence they also met there at other times when occasion required. It was not until later that the lower town, also surrounded by a wall, was built at the foot of the hill-fortress which now became the upper town.

Subsequently, in addition to times of war and periodical festivals, the town became a natural centre for those who were not agriculturists, but lived by trade or commerce. If the defences of the town originally enclosed more space than the inhabitants required, the latter gradually filled out the whole area, and in consequence of the increasing population the fortified hilltop could not be used in times of war for their original purpose.

That towns were founded by agriculturists is demonstrated by the ceremonies on such occasions which the Etruscans took over from the Romans. According to their custom the line of the proposed walls had first to be drawn by the plough, the share being lifted off the ground wherever a gate was to be placed. Had merchants been the founders of towns, instead of husbandmen, they would not have employed the plough in marking the area, nor would they have drawn the line for the walls, but they would have set the boundaries of the market-place, around which the town would then have developed of its own accord. Nowadays the walls of defence of most towns have fallen and disappeared, and

what was once of secondary consideration only, namely, dwelling-houses, public buildings, streets and squares, has now become the principal object.

As agriculturists and inhabitants of the plains, the Babylonians were bound to proceed to the building of towns before the dwellers in the mountains. The open land offered them no protection from hostile attacks, whilst hilly districts formed natural bulwarks. Thus the Aryans who lived in the mountains were able to exist for thousands of years without towns, whilst the Hamites in the lands of the Nile, the Semites in Mesopotamia, were compelled to create artificial shelters in order to preserve their characteristics and independence. Another advantage of a town is that it binds man to the locality, and induces him to introduce the developing principle of civilisation, division of labour.

The Greeks, Italians, and Kelts became acquainted with these and other advantages of the life in towns from their intercourse with Oriental nations. Perhaps the Etruscans themselves, the earliest town-building people of Italy, were not of Aryan Oriental origin. Possibly the Teutons and Slavs only appear so late in history because intercourse with the East was denied them.

In the same sense that town is opposed to country, so does stone stand in relation to wood. Although stone is to be found in abundance in the mountain ranges, the husbandman who wishes to build takes wood in preference, because it is easier to fell trees than to break stone.

Mesopotamia possesses neither forests nor stone quarries, but the Akkadian-Sumerians already formed bricks from clay and baked them, with bitumen as mortar. Thus the absence of both wood and stone inspired man to an invention of which he may justly be proud. According to Holy Writ, the Tower of Babel, that monument of human temerity, was made of bricks, which were either burnt in the heat of the sun or baked in an oven.

The clay tablets, a convenient and cheap writing material, which have survived the mark of time and afford us informa-

tion of a past of which we scarcely dreamt, were also baked in ovens. They were able to impart a coloured glaze to their bricks in burning them, and their walls were thus painted with variegated tints. But as fuel was expensive in a land so poor in timber, burnt bricks were only used for public edifices, and private dwellings were made with bricks dried in the open air. This was the origin of the celebrated Babylonian architecture, which boasts of a greater age even than the Egyptian.

The first in Europe to follow the example of the Semites and Egyptians were the Greeks, judging from the puzzling prelude of Mycenaean culture,¹ which tells of splendid specimens of stone architecture (see further, and at end of Chapter 8). But they also have traditions of an age in which they only knew of wooden buildings. Traces thereof are more frequent among the Italians (Latins), and although, at the beginning of our time, the Kelts lived in towns, the houses consisted of circular huts, constructed of planks and brushwood, and roofed over with straw.

The walls of their towns were timber scaffolding, filled out with stones and clay. The Germanic race, at that period, had wooden huts which they could take to pieces, load up on waggons like tents, and carry along with them. The most dangerous enemy of wood huts is fire, and if the incentive to isolate their dwelling-places distinguishes the Germanic people from all other nations, the simplest explanation is the fact that they did not possess any towns and feared the fire.

Amongst Slav nations, especially in Russia, wood architecture has survived to this day. Only churches and monasteries, as edifices of greater and exceptional importance, were from time immemorial built of stone, and during the incursion of the Mongolians these buildings alone afforded the oppressed people refuge and protection.

Navigation was another mighty foundation-stone and

¹ *Vide* No. 49 of Göschen's Collection, "Grecian History," § 2; and No. 16 of the same Collection, "Grecian Archæology," § 69.

mainstay of Oriental, and especially Babylonian, and then Phœnician culture. Nature had provided the Mesopotamians with wide, navigable streams, and a far-stretching inland sea, teaching them in turn river, coast, and open sea navigation. The latter required a knowledge of the stars, which they, in fact, possessed, and thus developed the science of astronomy. By visiting distant coasts they became merchants on a large scale, and consequently had to thoroughly master the art of calculation, adjust their weights and measures, and regulate their legal institutions.

Treasures from all quarters of the globe flowed in upon the Mesopotamians, raising them above all other nations, but eventually proving their downfall, as the Persians were thereby tempted to rise and conquer the country.

Before the destruction of Babylon, what was of permanent value within its walls was saved to future generations. Already four thousand years before the Christian Era there must have been intercourse between Babylon and Egypt, otherwise the latter would not have been able to learn from the former how to build with baked bricks. But the last and true heirs of the Babylonian culture were the Aryans, who received their heritage through the medium of commerce. The Babylonians participated but little therein; the Phœnicians, a sister nation, appeared as intermediaries. They possessed no rivers, nor narrow lakes, but a broad sea-board very favourable to commercial relations abroad. They had trade settlements, trade consuls, and trade concessions.

The Carthaginians transplanted Babylonian-Phœnician civilisation to the coast of Africa, and to many points on European shores. Carthage soon outstripped Tyre and Sidon, where a republican constitution flourished which had not found a home in Asia.

The Babylonians created Semitic culture. Phœnicians took it over and brought it to the Aryans across the sea, for the Asiatic Aryans (the Indians and the Persians) received their culture direct from Babylon.

Thus Greece first awoke from her primitive slumber, then Italy, and at last the Kelts, whose culture was eclipsed by that of the Greeks and Italians, but was of a much higher degree than is ordinarily supposed. The most backward were the Germanic races and the Slavs. The Aryans, in receiving Oriental culture, brought with them, in the first instance, their high plasticity. The Oriental always directs his mind to that which is practical. He had certain fixed limits which the Aryan, by his higher powers of reception, has overstepped. He was the pupil of the Semite, whom he subsequently outstripped. The same was done by the Greeks in arts and science, by the Romans in law and war, and by modern nations in all those arts which make up the pride and boast of modern culture.

The Semites of old accomplished a great task when they carried out the mission which had been entrusted to them, but there were still greater things to do.

From this point of view, in the history of the world, it is of surpassing interest to become acquainted with the Aryans at the time of their first appearance in Europe according to records on monuments, and to examine the degree of culture they possessed prior to their earliest connection with the Semitic civilisation of Western Asia. Looking around amongst the prehistoric antiquities of Europe, we find that the primitive culture of the Aryans, as ascertained by Comparative Philology, is archæologically represented almost identically in the pile-dwellings of the later Stone Age.

These settlements show at the same time by the manner of their foundation a characteristic and well-appreciated degree of progress in the civilisation of mankind, which we, however, cannot at so early an age trace back to Oriental influence. Judging from our general consideration of the Neolithic period we might be justified in attributing the numerous antiquities of the later Stone Age from North German countries (Scandinavia) to the Aryan, and more especially, Germanic inhabitants. But from this district we know of nothing similar to the lake-villages of the region

of the Alps and Upper Italy, or to the villages of huts on dry land in Central and Southern Europe. We thus light upon the historically proved distinction between the Southern and the Northern Aryans of Europe. The former (the Greeks, Italians, Kelts, and Illyrians) arrived at great power before they came into historical contact with the Semitic Oriental, possibly in consequence of their hostile collisions with a primeval stock of lower type, and they produced by the force of their own power and will forms of culture which facilitated their gradual transition to higher conditions, whilst the latter (the Germans and Slavs), weakened by internal strife, remained behind in a backward condition for many centuries on formerly uninhabited tracts of land until a path was opened to them also which led to their appearance as a military, and, consequently, as a political power.

7. *Pile-Dwellings.*

The pile-dwellings of prehistoric times exist to-day as larger or smaller groups of wooden piles rammed into the bottom of lakes close to the shore. Ages ago the projecting parts must have broken off down to the level of the water, and in the course of thousands of years the dashing of waves and the surging of drift-ice must have still further destroyed them, so that the fact of their existence can only be ascertained by thorough investigation. But there was a time when they topped the highest crests of the storm-tossed billows and carried on their cross-beams a staging of planks on which stood the wood and straw huts of the inhabitants (see Frontispiece). It was then that thick layers formed at the bottom of the lakes, and to these layers primitive archæology is indebted for all its various proofs and evidences. Broken saucepans and scraps of food were thrown into the water together with coal and ashes. Now and then, some still useful articles would slip out of careless hands, or in the course of attacks, fights, or conflagrations, many an object

must have fallen into the water. In all probability most of the pile-dwellings were destroyed by fire.

Incredibly large is the number of articles which have come into our possession in this manner, found lying in undisturbed rest, and therefore doubly valuable. The pile-dwellings in Europe centre around the zone of the Alps which divides the middle Southern peninsula of this hemisphere from the principal body.

They are located in Switzerland, where they were first discovered in 1853-54, in France, Italy, Germany, and Austria. Some lakes and turf-moors—old, dried-up lakes—frequently contain whole rows of such settlements. We append a list (according to Mortillet) of the pile-dwellings hitherto discovered in the foregoing countries:—

(1) SWITZERLAND (160 Settlements).

The following lakes:—

Zurichersee	7
Greifensee	5
Pfaeffikersee	3
Untersee	6
Nussbaumersee	1
Zugersee	6
Bildeggersee	1
Sempachersee	9
Wauwylersee	1
Mauensee	1
Inkwylensee	1
Moosseedorfersee	1
Bielersee	20
Neuenburgersee	51
Moratsee	18
Luiselsee	1
Genfersee	27

(2) FRANCE (32 Settlements).

Lake of Geneva	17
Lac d'Annecy, Savoy	6
Lac du Bourget	8
Lac de Clairvaux,—Jura	1

(3) ITALY (36 Settlements).

Turf-moor of Mercurago, near Arona, south of the Lago Maggiore	I
Lago Monate, near Varese	3
Lago di Varano	I
Lago di Varese	I
Turf-moor of Lagozza	I
Lago di Pusiano	I
Lago d'Annore	4
Turf-moor of Polada, near Desenzano	I
Lake of Garda, west of Desenzano and east of Peschiera	9
Turf-moor of Saline, Prov. of Verona	I
Turf-moor of Cascina, Prov. of Verona	I
Turf-moor of Loffa di Sotto, Prov. of Verona	I
Lago di Fimon, near Vicenza	I
Lago d'Arquà, in the Colli Euganei	I

AUSTRIA (11 Settlements).

Moor of Laibach	I
Keutschachsee, Carinthia	I
Attersee	6
Traunsee	I
Mondsee	2

(The three last in the Salzkammergut.)

GERMANY (46 Settlements).

Tegernsee, near Munich	I
Roseninsel, in the Starnberg Lake	2
Federsee, near Buchau, Wurtemberg	I
Bodensee	11
Ueberlingersee	13
Untersee	18

In the zone of the Alps we thus know of 284 lake-villages, the majority of which (160) are in Switzerland; then follow Germany, Italy, France, and Austria. The largest number of finds are in the Neuenburgersee. The Bodensee contains the same number of Settlements (51) if we reckon its extensions; then comes the Lake of Geneva with 44, the Bieler See with 20, the Lac de Morat, the Lago di Verese, the Gardasee, &c. The most westerly are the

lakes of Bourget and Clairvaux; the most northerly the Federsee and the Starnbergersee; the most easterly the Laimacher-moor, and the most southerly the Turf-moor of Lagozza. The region of pile-dwellings lies around the chain of the Alps in the foot-hills or on their plains, but does not penetrate it. In the interior of the chain there are a number of small lakes, such as the Vierwaldstaedtersee, the Hallstaettersee, in which, however, no pile-dwellings have been met with. But also in the immediate vicinity of densely populated lakes in Carinthia, Carniola, Upper Austria, Bavaria, and Switzerland we find many apparently eminently suitable basins in which no pile-dwellings have been hitherto discovered; whether it is that the remains are obstinately hidden from our view, or whether, for some unknown reason, these lakes were purposely avoided by prehistoric pile-dwellers, it is impossible to say. The size of the pile-dwellings varies very much. At Staeffis, in the Neuenburgersee, there are two lake-settlements of the Bronze period, near together. One of them only measures a few square metres, whilst the other is over 200 metres long and almost 50 metres wide.

The Stone Age pile-dwelling at Concise, on the other shore of the lake of the same name, was almost as large. The so-called "Great Settlement" of Morges, in the Lake of Geneva (Bronze Age) is 360 metres long and 30 to 45 metres wide, or of an area of more than 10,000 square metres. It is quite possible in such lake-settlements to distinguish single farms, villages, and town-like places, the latter having undoubtedly a large population for whose requirements ample provision was made by an extensive system of division of labour.

In point of time, pile-dwellings may be divided into those belonging to the Pre-metallic period and those of the Metallic period of primitive archæology. In the former, weapons and implements consist only of stone, bone, horn, or similar substances, but never of metal. In the latter, in addition to implements of stone, we also find some of copper, and especially of bronze. Towards the end of the Bronze period

iron appears here and there, not to the extent of importance which it subsequently attained, but as a rare metal for ornamental purposes.

As pile-dwellings of the Stone period may be regarded, *e.g.* Settlements of Robenhausen in the Pfaeffikersee, near Zurich; Wangen, on the Bavarian shore of the Untersee, near Konstanz; Locras, in the Bieler-See; Concise, in the Neuenburger See; Clairvaux, near St. Claude, in the French Jura; then the Settlement on the Garda-See, where it empties itself into the Mincio.

As examples of pile-dwellings of the Bronze period we may mention the Settlements of Steinberg-Nidau, to the north of the Bieler-See; Auvernier, on the west shore of the Neuenburger-See; Grésine, in the Lac du Bourget; Savoy and Peschiera in the Garda-See.

Of these forty-four pile-dwellings of the Lake of Geneva the age of six—according to Mortillet—cannot be fixed, whilst fourteen belong to the Stone period and twenty-four to the Bronze period. All the pile-dwellings in Austria are of the Stone Age. In general, the lake villages of the north belong for the most part to the Stone Age, those in the south to the Bronze Age. The pile-dwellings of Europe supply an incontestable proof of the existence of a Stone Age proper, and of a subsequent Bronze period in which iron was unknown.

This becomes perfectly clear if we pay a little more attention to the situation of certain individual groups of pile constructions. Between the "Great Settlement" of Auvernier, belonging to the Bronze period and the shore of the Neuenburger See, there are two small settlements of the Stone Age which lie so near together that there is only a space of thirty metres between the two earlier finds and the later one. Near Morges, in the Lake of Geneva, there is a pile-construction of the Stone Age close to the shore, and at a distance of two hundred metres from the latter we have the "Grande Station" of the Bronze period. Similar observations were made in other lakes. The pile-dwellings of the Stone Age were built

so close to the shores that their remains may frequently be found entirely or in part on dry land. The Settlements of the Bronze period were situated farther out in the lakes. Consequently the little foot-bridges which connected them with the shore varied in length; those of the Stone Age were from 10 to 20 metres long, and 1·20 to 3 metres wide, whilst that of the pile-dwelling of the Bronze Age at Nidau was 198 metres long and 6 metres wide; that of Moerigen, of the same period, was 270 metres long and 4·80 metres wide. We obtain the clearest insight into the condition of affairs at that period when towards the end of the Stone Age implements of metal were used for the first time to a small extent. The pile-dwelling of Meilen, in the Lake of Zurich, belonged otherwise entirely to the Stone Age, but contained two small bronzes—a flat axe and a simple bracelet. In the Settlement at Concise they found, next to innumerable stone objects, one single article of bronze, namely, a curved knife, ornamented with etchings.

There are a good many instances in which copper articles occur singly at an even earlier date, as in the Mond See, Upper Austria, but in such surroundings that we must, nevertheless, attribute the pile-dwelling to the Stone Age.

Other lake villages may be at once designated as transition Settlements from the Stone Age to the Bronze Age. Thus, at Morges, in the Lake of Geneva, in addition to the two Settlements of the Stone Age, and a third of the later Bronze Age, there is a fourth, which in point of time falls between the two; for it contained, besides awls, knives, arrow-heads, and other stone objects, also eighteen bronze hatchets of ancient form with simple edges. The "Great Settlement" of the Bronze Age is not only much richer in metal (there are 450 bronzes, viz. needles, bracelets, chisels, knives, swords, daggers, and spear-points), but it possesses also more advanced forms of axes; for instance, a hollow axe and sixty so-called palstaves, or flat axes, the edges of which have developed into four broad shaft-lappets. The transition Settlements are also of importance, because they teach us how

to separate the earlier types of the Bronze Age from the numerous types which are frequently handed down to us without proof of their origin, and so enable us to follow the development of culture in the Bronze Age in Central Europe, at least through the medium of two great periods, an earlier and a later one.

The pile-dwelling in Gévosin in the Bieler Lake yielded, in addition to a large number of hewn and polished stone articles, a flat axe with edges, a treble-edged blade of a dagger, with rivet holes in the lower part, a double needle, and a small, massive bracelet of bronze. Such finds repeat themselves in other lakes, and the strict separation of the localities enables us to regard the discovery of bronzes of this description next to numerous stone articles as a fixed point for the determination of their chronological order.

As copper announces the coming Bronze Age and the period when pile-dwellings flourished, so the very rare appearance of iron indicated the end of those dwellings which were vouchsafed the longest existence.

Near Moerigen in the Bieler Lake they found bronze bracelets (inlaid with iron) and sword-handles. The new metal was probably regarded as very precious, as it would not otherwise have been employed in the ornamentation of articles of bronze. In other not too distant countries, such as South Austria, Upper Italy, and France, they used iron at that time to a much greater extent.

For some reason or other it did not penetrate into the region of the pile-dwellings till afterwards, and then the greater part of the lake-villages were already abandoned, burnt, or sunk. The inhabitants had retreated to the dry land and begun a new life.

The "terramare"¹ of Upper Italy (pile-dwellings on dry

¹ *Translator's Note.*—In the revised translation by E. B. T. of Louis Figuier's "Primitive Man," London, 1870, p. 232, the following explanation of terramare is given: "The term 'terramara' is applied by MM. Strobel and Pigorini to the accumulation of ashes, charcoal, animal bones, and remains of all kinds which have been thrown away by man all round his dwellings, and have accumulated there during the

land) are a peculiar feature in the pile-habitations of ancient Europe. They are situated in Western Emilia, in Parma, Reggio, and Modena, and consist, for the most part, of little hillocks of more or less rectangular form, flat, about 2 to 5 metres high, by 97·200 metres long, by 74·150 metres wide.

At a later date they frequently erected churches, monasteries, vicarages, and even castles, on these artificial earth-mounds. Large quantities of ashes and coal, bones of animals, potsherds, and other relics of human culture were subsequently found in these terramare, and for this reason they were said to be the cremation-grounds of savages. But as soon as portions of huts, primitive mill-stones, castings, and many articles of daily use, were discovered in the interior of these mounds, there was no longer any room for doubt that the latter were the remains of living-rooms and workshops of human beings.

We now possess information respecting no less than 80 terramare; 68 are on the right bank of the Po, and extend from the foot-hills of the Apennines to the basin of the river, in the provinces of Ravenna (1), Bologna (6), Modena (17), Reggio (20), Parma (20), and Piacenza (4). On the left bank of the Po there are no more than about 12: in the provinces of Cremona (2), Brescia (1), and Mantua (10). Of the terramare of the province of Modena 9 are on hills (one of them 150 metres above the level of the sea), 5 in the plateau between the promontories of the Apennines and the ancient Roman Via Æmilia, and 2 are in the valley below the Roman Road. One of the last-named is only 30 metres above the level of the sea; in the province of Parma there are still lower lying terramare. In general they are to be found more frequently on the plains than on hills. In early days they were fortified encampments. An earth-

lapse of centuries. The name which has been given to them was derived from the fact that they furnish a kind of earthy ammoniacal manure, known in the district by the name of terramara." Another term is "Palustrine Settlements," or "Marnieras."

work mound was drawn in straight lines at right angles to the habitation. Beyond the mound there was a moat filled with water, and in some instances we can recognise both the canal which fed it, as well as the spot where the water emptied itself, and the bridge over the moat. Within the mound there was a wooden railing, and in the basin thus created there were the huts, which were built, like the lake-villages, on a pile-staging. This staging or scaffolding was constructed as a protection against the dampness of the soil, and to enable the inhabitants to survey the whole plain. The platform was covered with clay, and the huts built of brush-wood and lined with clay, and rested on a scaffolding of wooden piles. Formerly it was thought that these basins were filled with water throughout the year, but it appears that only fortuitous inundations took place periodically, in consequence of the excessive rains or snows. We rather incline to believe that only a portion of the interior was furnished with piles, and large areas were left free from wooden structures as a refuge for cattle.

The inhabitants of the terramare were cattle-breeders. This is proved by the numerous bones of oxen, goats, and pigs which, to judge by the remains, were slaughtered and consumed. They also hunted and tilled the ground, and carried on a few primitive industries.

They carved in wood, staghorn, and bone; they polished stone, and knew how to cast bronze, although they could not refine it. The terramare of Montale, which by no means belong to the richest in bronze, yielded, in a cubical space of 950 metres, 5 stone implements (1 dagger and 4 saws), 53 articles of bronze, 268 articles of bone and staghorn, and 1000 clay spinning-wheels. In other terramare stone articles are more frequent than bronze, whilst some contain, almost exclusively, stone or bone implements.

The inhabitants of the terramare were in the habit of burning their dead, and interring the ashes in plain urns outside their settlement. They were extremely saving in the matter of accompanying presents, and their vessels of clay

are very seldom ornamented, and when they are decorated, it is in a very simple manner. The terramare villages belong to the early Bronze period, about 1500-1000 B.C. The types found in them consequently serve as indications, when it is desired, to distinguish the finds of the initial and early Bronze period from the discoveries made in the Swiss pile-dwellings, some of which have lasted much longer than others.

The pile-dwellings of Italy are restricted to the northern portion of that country, and are not met with on the other side of the Apennines. Consequently, in point of site, they belong to the great central European region of pile-dwellings. They form two groups: one to the west of Piedmont and Lombardy, for instance, Lagozza, Varese, and one to the east of Venice and Emilia. The former is certainly poor in metals, and belongs to some extent purely to the Stone Age, lacking certain forms of implements or utensils which are characteristic of the other group, for instance, the "ansa lunata," the ornament on the handles of clay dishes or cups in the form of a half-moon.

The second group is richer in metals. Here we meet both with real lake villages like those of Lake Garda, which, on account of the long duration of their Bronze Age, are associated with the Alpine settlements, and with the terramare described above, which represent, in a certain degree, the closing form of life in pile-dwellings in a rapidly developing region. For whilst the inhabitants of Alpine countries and partly also those of Western Upper Italy, after the appearance of the pile-builders, were vouchsafed a long period of rest and undisturbed development, the progress made in Eastern Upper Italy, and partly also in the Eastern Alpine countries was more rapid, and was hastened by exterior influences.

Pile-dwellings were abandoned in Eastern Alpine countries shortly after the first appearance of metals. In Eastern Upper Italy they lasted a little longer, but not so long as in Switzerland, and exhibit, as we have seen, very marked

differences in the manner in which they are built. Whilst not venturing to make any definite statement, the archæologist of prehistoric times may suggest as a reason for the foregoing, that the extensive but low-lying region of the Eastern Alps and the Eastern portion of Upper Italy were settlements of the wandering nations which moved from their original habitations in western and southern directions.

Italian tribes, the Illyrians, and perhaps the Etruscans, inhabited these portions of the Alps and Upper Italy and established either temporary or permanent settlements, bringing greater activity and change into these regions, whilst in the West the Keltic tribe alone developed mightily, but to the detriment of the non-Aryan Iberians and Ligurians, some of whom still lived in caves in historic times. Thus the nature of their settlements was the cause of the varied fortunes which awaited the Aryan nations. The Italians in Upper Italy, south of the Po, and in Central Italy, wherever the Latin stock had settled between the Tiber and the Albanian Hills, occupied such territories as were more easily accessible to and generally favoured by Oriental merchants on their sea-journeys. The Illyrians participated in the advantages afforded by the Adriatic as a road on the high seas for trading-vessels. The Etruscans, whose origin is a mystery to this day, formed by their position and early political development a powerful connecting-link between the Orient and the Occident, and the influence of the higher civilisation of the East found here a ready soil for the seed it was destined to disseminate.

8. Metals.

The history of Metals in the hand of Man is equivalent to the history of his higher culture. Consequently it begins in many different parts of the world in relatively later ages. The most important metals of culture are iron, copper, tin, and bronze, which is a fusion of the two latter. The so-called precious metals are less important, as is evident in

Mexico and Peru. As gold and silver are found in a pure state in alluvial soil, and are, therefore, immediately visible to the naked eye, they were easily discovered, but only used for decorative purposes and as money, but as soon as coins were made of the precious metal it led to mighty strides in the development of culture.

I. GENERAL SURVEY.—If for the moment we put aside the two most important spheres of culture in the Old World, *i.e.* Western Asia and Europe, which require special consideration in their own historical order, and, with the Mediterranean as a starting-point, allow our glance to take in the whole universe, we see that each nation entertained a different feeling in regard to the metallic treasures of the earth.

(a) *Africa*.—The Negro-World of Africa forms a sphere of culture of its own, in which the knowledge of iron followed immediately upon a pure Stone Age. The use of iron appears to have spread from the north-east to the south-west; for in the territory of the Nile and in the neighbouring districts we find the highest development in the production of iron, and it is probably here that we have the earliest traces of the metal. Ancient Egypt had its Stone Age like every other land, equally so, Tunis, Algeria, Morocco, and Upper Guinea. We possess rich finds of the Stone Age in South and Central Africa and in Somaliland to the east of the Black Continent, for instance, some only hammered, some polished implements and weapons, frequently of astonishing similarity to those of Ancient Europe, axes, chisels, scrapers, spear and arrow heads, and knives. Discoveries have been made of extensive workshops for the manufacture of these articles, in which the raw material, flint, basalt, greenstone, &c., were treated.

On this common foundation Africa developed very unequal degrees of culture. In Egypt, as with all more civilised nations of the world, copper, and especially bronze, enjoyed a favourite position, preventing iron for a long time from taking its natural and rightful place. In the frescoes of Egypt all iron articles are coloured blue. Instruments

or weapons painted blue do not, however, appear on the walls of the ancient kingdom. As a matter of fact most of the Ancient Egyptian articles of daily use in our museums are made of bronze. Therefore, if iron was at all known, it could only have been used to a small extent compared with bronze. The treatment of iron in the land of the Nile does not seem to have made any progress towards development until after the middle of the second millennium before the Christian era. It has rightly been suggested that the negroes received the knowledge of iron from Ancient Egypt. Even now the weapons and implements of the negroes exhibit conspicuous similarity to those of the Ancient Egyptians. The same may be said of the bellows, which they used for smelting and working iron. The knowledge of this metal, which was very abundant in the form of fusible mineral ore, spread over the entire continent of Africa, although it may have passed over some tribes. The ore was treated in a very primitive manner. Charcoal-burning was still very undeveloped. We never meet with brick smelting ovens, but frequently with clay ovens, or simple holes in the earth. On the other hand, bellows without valves were known everywhere. The product they obtained, however, was not molten raw iron or cast-iron, as is the case with our modern blast-furnaces, but a soft lump of malleable iron in the subsequent purification of which the smith had all his work cut out for him. This method is termed the direct winning of iron, and was the universal custom in Ancient Europe after the metal became known. Only in a few places wrought-iron is steel-hardened by immersing it red-hot in cold water, a process which was known to the Greeks in Homeric times.

The negro smith, who still leads a wanderer's life, uses very simple tools. Anvil and hammer are frequently only two stones or pieces of iron. The hammer is sometimes furnished with straps or cords of bast to hold it by, but it never has a handle. A chisel or a spear-head is used for cutting and forming the more delicate parts of the red-hot

metal. The pincers consist of a half-split piece of wood or a similar instrument of iron with a movable ring.

With the exception of weapons, implements, and ornaments, the articles produced in this industry with the help of such simple means compete, to some extent, with the best of European wrought work. The above exception accounts for the small quantity of material used. But as soon as they are brought into the slightest connection with European culture, the primitive industry of the blacks succumbs rapidly to cheap European importations. Amongst all primitive nations there was always something mysterious about the smith and his work ever since the beginning of the Metal Age. As he is a stranger to the earlier demons, and hated by them, they are exorcised by iron, by nailing horse-shoes on the stable-doors, or by throwing knives in the contrary direction of the wind to compel the spirits riding the storm to turn back. The Arab hurls the word "iron" into the face of the "Djins" hidden in the sand-wind. On the other hand, we find ancient divinities worshipped on altars over the stones of which no iron has been swung. Similarly, the African negroes sometimes despise the smith, and sometimes they hold him in high respect, and both for the same reason.

All over Africa the smiths form a class by themselves; here the principle of division of labour obtains, whilst, for instance, weaving and pottery are carried on by all as domestic industries. The smiths are frequently of a different origin to that of the people, *i.e.* when the land was taken and the former inhabitants driven out, the smiths remained back and became an outcast class. Sometimes they came voluntarily at the call or request of those who were ignorant of their art and required its assistance, in which case the smith was highly honoured and respected. In some places on the Congo royal origin is attributed to him. Amongst other tribes they are priests and medicine-men at the same time. Sometimes the "Prince of the Iron-workers" is a Court appointment. Tribes which produce no iron

consequently worship bellows as a fetish, and among certain tribes of Western India, which have remained in a backward condition, spear-points or plough-shares are hung up on trees, and first-fruits or shares of spoil are brought to them as a sacrifice. This, however, would appear to be contradicted by the fact that, here and there in Africa, the smiths form a degraded class, into which not even a slave would marry; and the word "smith," if used as an offensive epithet, is a deadly insult.

With the exception of Egypt and the countries bordering the Mediterranean, Africa does not appear to have known a Copper or Bronze period as a connecting link between its Stone Age and Iron Age. Copper is not rare in Egypt, but is mined in a proper manner only in few localities, whence it is distributed in the ordinary way of trade. The mineral ore is smelted, like iron, in a coal furnace and delivered for transport in bars in the shape of rings, ovals, or crosses.

The cold-smelting of pure copper, as is done by the North American Indians, does not appear to have been customary in Africa. According to the frescoes in the temple of Medinet-Habu, Ramses III. of Egypt possessed large slabs of copper, silver, and lead in his treasure-chambers.

The Pharaohs received tribute from Syria and Assyria in the shape of copper-bricks. The bronze forming the material of so many ancient Egyptian articles which have been preserved to us was called by the same name as copper. But as tin cannot be traced in the written records and monuments covered with signs and symbols of the Ancient Egyptians, it must be assumed that they obtained many manufactured bronzes from Asia. Tin was not quite unknown to the primitive nations of Africa, but it was not used for producing bronze. They used copper chiefly for ornamental purposes as we do silver. They employ it in the manufacture of necklets, bracelets for arms and legs, coverings, long wire-ribbons for rolling round the handles of

swords and knives, spear-shafts and bows. Nobles carry weapons of copper. In Uganda, for instance, only kings and chiefs may carry spears with copper points. Some blacks, especially wives of chiefs, burden themselves with bracelets on arms and legs to such a degree that they are hindered in walking.

The blacks never cast iron and seldom copper, but on the Gold Coast they make rings, chains, brooches, and figures of animals of cast gold. They make a model in wax and a clay form over it, the wax is melted out and molten gold poured in.

(b) *Asia*.—We now turn to the Eastern, Southern, and Northern regions and islands of the largest of the great divisions of the earth, to Further Mora, Indo-China, to the island world of the Malay tribes, to the ancient East Asiatic kingdoms, and to the savage North of Asia.

Further India also had a Stone period which reached far back into past ages. Then followed a period of copper and bronze work. The Sanscrit word “ayas” originally only meant metal, *i.e.* copper or bronze “ore”; later on it signified iron.

In the ancient Indian epic “Mahabharata” iron is seldom mentioned; iron arrow-heads appear to have been introduced from the East. This would agree with an age similar to our Early European and Hallstadt period, or with the Homeric period, in which iron was known, but rarely used. Copper appears to have been produced in India in ancient epochs of culture, and used in the manufacture of axes, chisels, spear-heads, &c.

Tin for making bronze was procured from the West, as the rich sources of tin in Indo-China were not opened up till later. Old bronzes from India are rare. They consist more often of ornaments than of useful articles, and are not made of the same alloy as in the Occident. This disposes of the statement, which was now and again brought forward, that bronze was originally first produced in India, whence the knowledge of the alloy was spread East and West.

We do not know how far the production of iron in India dates back. The country is rich in iron ore; it is smelted in a very antiquated fashion by the natives, after the manner of the negroes. Amongst the half-savage mountain tribes it is always the same family which collects the mineral, produces the charcoal, manufactures the iron, and works it up into such articles as are required by the villagers. Frequently they go from place to place and build their clay furnaces where there is a demand for implements of iron and a good supply of ore and wood.

When they proceed on their journey they leave large quantities of slag to mark the spot of their activity.

The home product is sufficient for their requirements, and is cheaper than European iron.

The Indian smith is the counterpart of his African brother. His anvil is of stone, and his remaining tools consist merely of pincers, hammer, beater, and file. He works in a sitting posture like the negro, and like his relative the gipsy smith in Europe and Asia Minor. In the Indo-Chinese Peninsula, also, bronze belongs to an earlier age than iron.

The kingdom of Cambodia under French suzerainty deserves special mention. In this country traces of a later Stone Age have been met side by side with bronze finds.

In "kitchen-middens" on the banks of rivers, polished stone axes and stone chisels, similar to ancient European models, have been found lying next to bronze axe-blades, arrow-heads, fish-hooks, and rings which agree very nearly with the prehistoric bronzes of Europe. But, as the entire culture of the peninsula is under the influence of China, it appears that the knowledge of bronze must also have come to Indo-China from the ancient sphere of culture of China proper.

At the present day, in Cambodia, they have a certain ore from which they produce iron which is well adapted for welding and hammering, and here, as in Further India, it is used in a very primitive fashion for making axes, knives, saws, and agricultural implements.

In Burmah the production of iron is on a yet lower level.

In smelting it they do not even employ an artificial blast. Consequently the product is very impure, *i.e.* mixed with slag, pieces of unconsumed coal, sand, and other foreign bodies.

Nevertheless, when subjected to subsequent proper treatment at the hands of the smith, who turns it into knives and other articles, it develops excellent qualities.

The Malay Islands differ from the Asiatic continent, and approach nearer to African conditions, inasmuch as they had no Bronze Age, a direct transition being effected from stone to iron.

The inhabitants of the Malay Islands are capital workers in metal. They have special terms for gold, iron, and tin, but use Sanscrit names for silver, copper, and bronze, so that we might surmise that these metals were originally transplanted from the continent to the islands when the Brahmins penetrated from India to Java and built large temples, now in ruins.

The peninsula of Malacca and the isle of Sumatra are regarded as the place of origin of the Malay race. From there they spread in the East as far as New Guinea, in the North to the Philippines, and in the West to Madagascar.

Wherever they went, the Malays transplanted their peculiar and easily recognised method of producing iron, especially by means of the bellows. In the Philippine Islands the native Negritos have not risen to the height of a metal industry, as little, indeed, as the Papuans of New Guinea. It is intelligible that the Malays entertain great respect for the smith. In Java the word "Pandi" signifies both the smith and the learned man, and amongst the Igorrotes on the island of Luzon the smiths constitute the only and real labouring class.

The last-named tribe had long carried on copper mining and smelting.

For centuries the Spaniards of Manilla used the copper articles of the Igorrotes without troubling to ascertain whence they came. This Malay tribe employs fire in obtaining the ore. In the islands of the Malay Archipelago copper is found both pure and in ore, the former in primitive times having probably been hammered cold and worked up into various implements, whereupon, under Indian influence, they learnt the art of melting the metal and casting it. In the Indo-China peninsula the Malays have a very primitive method of obtaining tin, which is so indispensable for the production of bronze, and which, of all metals, is the easiest to manufacture from its ore.

But this method does not date very far back, and certainly not to prehistoric ages. The Arabian writers of the Middle Ages are the first to afford us precise information concerning the trade in Indian tin.

The soil of China holds the remnants of an obscure Stone Age.

In this large country there are provinces in which, not very long ago, axes and cutting instruments were made of hard flint, a circumstance which, on account of its peculiarity, has not escaped mention in written records. Tradition is even said to know the names of the various discoverers who in turn gave man a better material for the manufacture of his implements.

First came "Fuhi"; he made weapons of wood; then "Schimung" appeared and produced them of stone; and finally "Tschigu," who made them of metal.

The Stone Age was followed by a Bronze period, commencing in the second millennium before the Christian era and lasting until the first centuries of the last millennium B.C.

Remnants of this ancient period of culture are found in the Loess¹ (loam and sand layer), and considered very

¹ *Translator's Note.*—In addition to the explanations of the word "Loess" given on p. 27, I find on reference to "Prehistoric Europe," by James Geikie, LL.D., F.R.S., London, 1881 (Edward Stanford), p. 144, the following interesting remarks:—

"One of the most representative and typical of the qualities now

valuable. There are six different recipes for bronze mixtures for bells and cauldrons, axes and spears, knives, swords, arrow-heads, and mirrors, a fineness of distinction which far exceeds all that we have observed in prehistoric Europe.

According to Chinese traditions weapons, in old times, were made of copper, *i.e.* of bronze, but iron did not replace copper until a period which corresponds with the third century before the Christian era. In distant Japan, the anthropologist meets with phenomena of prehistoric culture which are quite similar to those of Europe, namely, shell-mounds or kjoekkenmoeddinge, kitchen-middens, mound-graves, burials in large stone troughs or chests containing amongst other things stone implements, which have only been hammered, or finely-smoothed tools of horn and bone, as well as some of bronze. The most primitive (only hewn) stone articles were found in shell-mounds, for instance near Amoria, in the Bay of Yeddo, without a trace of bronze.

The kitchen-middens (or scraps) indicate the degree of culture of a primeval population of Japan, justly regarded as the ancestors of the modern Ainos, who decorate their vessels of clay, to this day, with the primitive patterns to be found in those very ancient shell-mounds. Then there came, probably from the continent (of Asia), according to a
under review is the Loess of German Geologists. This may be shortly described as a yellow or pale greyish-brown, fine-grained, and more or less homogeneous, consistent, non-plastic loam consisting of an intimate admixture of clay and carbonate of lime. It is frequently minutely perforated by long vertical root-like tubes, which are lined with carbonate of lime, a structure which imparts to the Loess a strong tendency to cleave or divide in vertical planes. Thus it usually presents upright bluffs or cliffs upon the margins of streams and rivers which intersect it. Very often it contains concretions or nodules of irregular forms which are known in the Rhone District as Loessmaennchen or Loesspueppchen, and in that of the Danube as Loesskindeln. Land-shells and the remains of land animals are the most common fossils of the Loess, but occasionally freshwater shells and the bones of freshwater fish occur. Such is the typical character of the Loess." Readers who take a deeper interest in the subject will find more information in the above chapter.

questionable tradition, about 1240 B.C., a race of advanced culture, which drove the primeval tribe from its home and away to the North. These conquerors, the ancestors of the present Japanese, possessed polished and decorated weapons of stone and bronze. The stone weapons of these men are of choice material, such as can rarely or never be proved to have been natural to Japan. They are found in the earth and preserved in temples, as the Japanese regard them as relics of the "Kami," *i.e.* beings of a higher order, from which they derive their own origin.

According to their belief they also fall from the sky when raging spirits ride the winds.

At the present day mining and smelting are highly developed both in China and Japan, whilst in the latter country metallurgy ranks even higher than in Europe. The iron industry in China is very old, and, owing to the great wealth of mineral and coal, also very extensive, but it has this peculiarity, that in the productions of the raw material they use smelting-pots instead of furnaces, in which they manufacture cast-iron as well as wrought-iron. Mining was carried on in Japan towards the end of the eighth century after the commencement of the Christian era. Records of the seventeenth century relate the strange circumstance that at that time copper was the commonest of all metals, and they employed it for manufacturing nails, clasps, hooks, and other objects which were elsewhere made of iron, for iron was by no means cheaper—in fact it was dearer than copper or brass. It is of course impossible to talk of a Copper or Bronze period there, but in any case it shows us how the long possession of other metals and the knowledge of the method of treating them could stand in the way of a more important development of iron.

In Ancient Egypt we have already met with an example to prove this, from which we may derive much instruction, although some doubt is unreasonably cast upon it.

As regards metals, China and Japan form together one large clearly defined sphere of culture which may well vie

with that of Hither Asia and the Mediterranean countries, to which we shall refer later on. In the Western countries of the Old World, Hither Asia, together with Egypt, represent China, the slowly developing and "giving" country, whilst Europe, and especially the South, represents Japan, the "receiving" and further developing country.

But as culture emanated from one part of the Mediterranean regions and reached the Negro tribes of Africa, so was civilisation transplanted from China and Japan to the lower types of human beings in the North of Asia. When the Russians crossed the Ural in the seventeenth century and began the conquest of Siberia, they found but few tribes acquainted with iron and its treatment. Many of them only knew weapons and implements of wood, stone, and bone; some few rare iron tools reached them through trading channels. Like the South Sea Islanders on the landing of European ships, so the half-savage tribes of Siberia, on the arrival of the Russians, seized upon brandy, tobacco, and iron, and their insatiable appetite for this metal gave rise to very advantageous transactions of barter and exchange. An ordinary knife was the price of a sable fur, and for an iron or copper kettle one could obtain as many sable or black-fox furs as could be packed in it.

The Kamchatkans of the Stone Age were a nation of this character, even at the beginning of the eighteenth century. Their cuneiform axes of stone, walrus, or reindeer bone were jammed into knee-formed shafts like the ancient European stone axes. With miserable tools of this description they hollowed out their wooden canoes, dishes, and troughs, and it may well be imagined that this work took them a very long time. And yet we are astonished when we hear that it took them three years to finish a boat, and one year to make a wooden dish! But what value had time for the half-savage man, intellectually indolent and with scant physical requirements? It is scarcely credible that the very same nation should have produced articles of luxury, marvels of ingenuity, with such primitive tools! An

ancient traveller in Kamchatka once saw a chain forty centimetres long with the most delicate links carved out of a piece of walrus-tooth.

The Korjaeks, neighbours of the Kamchatkans, received iron from the Russians. They themselves do not know how to treat it, but they understand the art of tastefully inlaying their knives and spear-heads with copper wire.

Amongst the Tchukts, who live farther north, iron did not make its appearance till the end of the last century, but the new material was completely powerless against ancient prejudices. They receive American and European iron in large proportions, but it fails to exercise any important influence upon their habits and customs. Their sticks are tipped with iron, and they have iron rings to their sledges, but even now they prefer wood and bone to the new metal for their arrow-heads, fish-hooks, and spoons. Their hammers are generally of stone, and for igniting their fuel they use either steel and stone or the old wooden drill. Amongst such backward nations of Northern Asia there are, however, still some tribes which were acquainted with iron before the arrival of the Russians, a circumstance which, as a parallel to certain ancient European conditions, is deserving of full consideration. The Ostjaks are said to have produced iron formerly, but the art became lost when Russian trade supplied them with a cheaper article than they could themselves manufacture.

The Turkish tribe of Jacuts on the Lena have not abandoned the production of the metal by their ancient method in spite of Russian iron. This tribe is more acquainted with iron than any other, and proves that Metallurgy is by no means incompatible with a nomadic life. The Jacuts are excellent smiths. They make knives, axes, spear and arrow heads, bear spears, helmets, plates for leather-armour, scythes and shears, &c., and know how to ornament them in an artistic fashion. Much of their iron-ware is tinned or silvered. Northern Asia was inhabited by tribes which had a knowledge of iron not only prior to

the occupation of the country by the Russians, but there were tribes there at a much earlier age which were acquainted with other metals, especially copper, but not with iron.

These were the Tchuds (Cudaki) as they are called by tradition. The ancient mines of the Tchuds (Cudskije Kopi) extend from the Ural to the Altai, and as far as Transbaikalia.

In the Ural, where the Woguls do not carry on any mining operations but know of the Tchuds as a mining people, deep shafts and galleries, neither timbered nor supported, are to be found in all districts where ore is abundant.

These old mines, the continuations of which are still to be found in the majority of modern mines (at least in the Government of Orenberg), frequently yield very interesting finds; for instance, round cakes of fused copper, clay smelting-pots (but neither hearths nor furnaces), slag heaps, containing 2 per cent. of copper, copper weapons and flat axes and perforated hammers of various descriptions of stone. In the Altai Mountains there are old burrows for gold which have been driven more than ten metres deep, but do not reach the ore. The loose material containing the gold was worked with copper wedge-shaped hoes or mattocks; as beaters they used round stones with small grooves round them in which a strap was inserted to serve as a handle. We find similar implements in use among the iron smiths of Africa. As little was done to protect the workmen, we frequently discover the bones of buried miners. Next to one of them there still lay the leather bag containing the gold he had mined!

The burrows of the "Tchuds" (Tchudski) are of a purely pre-Iron Age. The similarity of the name and the reports from classical ages concerning Asiatic tribes of the North, who knew copper and gold but not iron, had already led people to identify the Tchuds with the Scythians. But the latter were not a uniform nation with a uniform degree of culture. The Tchuds have thus been considered the

ancestors of the modern Finn tribes, because, according to linguistic evidence, the earliest metallic art of the Finns was that of the coppersmith, and because the Finn names for bronze and iron were borrowed from strange Indo-Germanic languages.

Still richer finds were made in the graves of the Tchuds. "Accompanying gifts" from Tchud graves opened by robbers were to be found distributed over the regions along the Yenesei towards the north up to the point where the winter temperature often falls to 40° R. below zero. In the plains near Krasnoyarsk we meet with beautiful bronze knives, daggers, axes, and spear-heads partly ornamented with figures of animals. If we go up the Yenesei towards the south as far as the boundary of Mongolia, we find in a milder climate the centre of the area of graves which yielded these ancient metal articles. They are *tumuli* (grave-mounds or "Kurgans") which follow the banks of rivers and are distributed all over the shore regions, whilst the later graves of the "Kirghiz" lie in groups of from sixty to eighty mounds on the mountains on the fringe of the steppes.

The graves of the Kirghiz contain iron; those of the Tchuds, on the other hand, almost exclusively copper. The bodies of the latter were deposited in wooden receptacles covered with the bark of birch-trees or slabs of stone. The "accompanying gifts" were placed at the foot, and consisted of vessels of clay, copper kettles, wooden pots and pans, and copper tools of every description, whilst in the region of the belt or waist they placed pieces of ornamental work representing figures of animals (stags) sewn or riveted on leather; then daggers, knives, and other small articles. Remnants of head-ornaments are also found very frequently, such as silk material stitched with gold, furs, perforated bones of animals strung on cords, sticks with copper handles, &c. The sticks and dagger handles were wound round with ribbons of gold plate. Little plates of gold were worn as an ornament of the body.

But the graves of the Tchuds did not exclusively contain

unconsumed bodies, but we frequently discover next to one or several skeletons a little heap of calcined remains of bones of a person whose body had been burned on a pile after death.

The mysterious Tchuds, who knew little or nothing of iron, were followed on the Upper Yenesei, about the beginning of the Christian era, by a tribe of horsemen of Turkish stock, whose degree of culture could only be ascertained from their graves, which contained little copper, but many articles of iron, especially stirrups, portions of harness inlaid with gold and silver, silver trappings and gold plates, &c. Chinese sources tell us that the Turks in the Altai Mountains smelted iron and spread the art to a limited extent in Siberia.

Copper and iron must have been long known to Turkish tribes, since in all Turco-Tartar languages there are similar terms for both metals.

(c) *America*.—America affords us the interesting spectacle of a large continent inhabited by many tribes of different character, in which, with one single, strange exception, iron was totally unknown before the appearance of Europeans. All Western Europeans who participated in the discovery and development of the New World, the Spaniards, Portuguese, and English, and who carried culture and civilisation into that country, agree in this. We gather from their reports that this peculiar feature, the absence of iron, made a deep impression on all who came into contact with the Red Indians.

The artistic manner in which, for instance, the natives of Western Hayti produced idols, wood carvings, richly-carved chairs, and ornaments for ships' figureheads, as well as the poor implements of stone or shell employed in the manufacture of them, created the greatest astonishment and wonder. Metal was only used for articles of ornament. The Kaziks wore golden crowns, others had thin strips of gold hanging from their noses. But it was apparent that the red men were ignorant of the method of melting their gold, and only understood how to hammer it cold.

Cortez found the Mexicans, and Pizarro the Peruvians, much more developed.

In Mexico, on the arrival of the Europeans, copper and bronze existed as well as stone. The condition was one which we might term the "Restricted copper and bronze" Age. Although this period of culture in Europe dates back to a very remote epoch, as it corresponds with that of the pile-dwellings of the latest Stone and earliest Bronze Age, it ranks nevertheless in America considerably above the degree of culture of the people dwelling north and south of Mexico and Peru, who had not yet advanced in agriculture. In Mexico artificial drainage had already been employed. Weaving and dyeing, painting (the language of symbols), and architecture flourished. The goldsmith's art yielded excellent results. Cortez reported to the Emperor Charles V. that Montezuma possessed copies in gold, silver, coloured feathers, and precious stones, of everything in his empire. Amongst useful metals, copper, lead, and tin were known, but comparatively little appreciated. Implements and weapons of copper and bronze were seldom used, but stone objects were very frequent, especially articles of obsidian, the sharp splinters of which were used for the cutting edges of wooden swords, daggers, saws, and lances. Bone implements were also used.

Copper was employed for ornament as well as for tools, needles, rings, bells, figures of tortoises, axes, and spearheads.

The scant use of this metal is further proved by the small size and the rarity of copper axes; we only know of copper spearheads from written traditions. The axes were cast in forms and finished off by hammering. They have short blades, like the ancient European flat axes, but the edge is elongated in such a manner that the whole blade assumes the shape of a T.

It is not improbable that these axes may once have circulated as money, like the iron axe-blades in Africa. Of these T axes they once found 276 specimens, 11 centi-

metres long and 15 centimetres wide, in two large clay vases.

The Mexicans are said to have known the art of hardening copper to such a degree that they could fell trees and even work stone with tools made of such hardened copper, whilst similar experiments with ancient European copper axes entirely failed; copper without the addition of tin is suitable for weapons, but not for tools, whilst bronze properly treated can be used with the hardest substances. But the Mexicans were only beginners in the use of bronze.

Old American bronzes, which are very rare, contain 9 to 10 per cent. of tin, like the ancient European, but the employment of this proportion was not due to external influences.

The science of metallurgy and the practical use of metals amongst the Aztecs may be regarded as the natural creation of a state of culture peculiarly their own, and in general of a high degree of development. They knew how to cast and hammer metals, but not to solder them. Metal founders and goldsmiths formed a highly respected class, to whose tutelary god, on fixed days of the year, human beings were sacrificed. The decadence of the native metal industry began immediately after the conquest of the country by the Spaniards.

The influence of old Mexican culture extends at the most to the Isthmus of Panama, where we meet with a new sphere of civilisation; in the first instance, in the dwellings of the Chibcha Indians, whose remarkable character was independently acquired and not influenced by that of Mexico. The Chibchas understood the production of gold, silver, copper, and bronze; the two latter metals serving only exceptionally for weapons and implements, which were generally made of stone: gold was the substance which led them to learn the art of treating metals, and they knew how to melt, cast, chase, and solder it. The tools they used for these purposes were made either of stone or of some gold and copper alloy. They manufactured jewellery, ear-rings, nose pendants, belts, breast-plates, vases, and figures of human beings and animals, tor-

toises, lizards, birds, and fishes. Plants as ornaments were unknown. The extremely rudimentary figures are of cast plates of metal, the outline and the interior lines of the sketch being indicated by means of threads of metal soldered on. Work of this kind was sometimes, though very rarely, executed in bronze.

It is a remarkable fact that such important and comparatively highly civilised states as Mexico and Peru had no intercourse with one another. Indeed they would very soon have come into contact, had not European conquerors interfered between them as a disturbing and destroying element. The country inhabited by the Peruvians is very rich in iron, and yet they were unacquainted with the metal. Their knowledge was restricted to precious metals, copper, tin, and lead.

These they were able to produce from their mineral ores, to alloy, cast, work, hammer, and solder them. Mining at the present day gives its occupation to thousands of Indians living in the valleys of Peru, and at that time was extensively carried on. Tho smelting furnaces were of clay, and bellows were unknown. The graves and treasure chambers of the Incas prove that the Peruvian goldsmiths were not inferior in point of cleverness to their social equals in ancient Mexico. They manufactured golden necklets, bracelets, vases, silver mirrors, carriages, and bells, using wax as the modelling medium; tools and weapons were made of copper or bronze. Peru ranked higher than Mexico in culture, inasmuch as in the former country they chiefly used bronze rather than pure copper, which latter was employed for discs and half-moons, idols, figures of animals, serpents, sticks, stars (morning-stars), and axes. Peruvian bronze also exhibits a different form of alloy to that of Mexican bronze, which is a further proof of the independence of the two large bronze areas. Strictly speaking, there was in Peru no fixed proportion for mixing metals from which bronze is produced. They cast bronze lances, arrow-heads, chisel-shaped agricultural implements, spades, ladles, and axe-blades. These were so numerous that

after the introduction of the more valuable iron they could be sold by the hundredweight. From Peru the bronze culture spread southwards to Chili, where we not infrequently find bronzes of Peruvian type.

Farther south, then, to the west of Peru and to the north of Mexico, there lived numbers of Indians who had not yet made the least step towards that stage of human culture in which the more important metals are used. In North America they found and employed meteoric iron and pure copper, but were unacquainted both with the extraction of the metal from the ore and its further treatment by fire.

Amongst the Esquimaux the appearance of pure meteoric iron had absolutely no influence upon them in regard to culture.

Pure copper is found in many river-territories, especially in the native copper district of Lake Superior, in great abundance. These districts were, long before the arrival of the Europeans, the destination of innumerable Indians, who wandered from afar, and used the metal for making knives and daggers, awls, ice-hooks, axes, lance and arrow heads. Most extensive were the operations carried on in copper-mining in the district of Lake Superior. Shafts were discovered five metres deep, wooden scaffolding as pile work, a rough ladder, a colossal lump of copper, tremendous stone hammers, smaller mallets, also a copper hammer, wooden vessels for emptying ditches, &c.

Traces of such mining activity extended for over thirty English miles, but the industry must have ceased long ago, judging by the old trees now on the mounds of tailings. The miners of this district were the ancestors of the present Indians, who, however, abandoned the mines soon after the appearance of the white man. Their descendants have retained scarcely any knowledge or obscure remembrance of them, but still in the seventeenth century finds of ancient copper were regarded with great veneration and as a sort of fetish.

From Lake Superior copper was carried far and wide

through the medium of barter and exchange, in the south as far as the Gulf States, in the east to the Atlantic, and in the west to the Mississippi. Finds of copper become more frequent the nearer we approach the lake regions, and it is indicative of the appreciation of the metal that in the neighbourhood of that region we principally meet weapons and tools of copper, such as axes, arrow-heads, knives, and awls, and further off, chiefly ornaments, thin sticks, rings, and beads, &c. Altogether ancient American articles of copper are rather rare, especially in comparison to the huge quantities of stone articles which are found. Immediately after the arrival of the Europeans the Spanish sphere of culture in North America extended as far as South California. Since the year 1542, when the Californian coasts were visited by Spanish ships by order of the Viceroy of Mexico, the graves of the Indians show numerous articles of Spanish industry, such as weapons, silver spoons, cups, &c. Iron was in high esteem. Even small pieces were sharpened and inserted in wooden handles. In an Indian grave of Yucatan they found an ancient European horn-handled penknife side by side with pearl and shell ornaments, and a few clay urns full of shavings of obsidian. Consequently the Indians accommodated themselves neither to the native production of iron, nor to learning the art of forging it. They contented themselves with replacing their flint arrow-heads by iron ones, but this was European hoop-iron sharpened by simple cold treatment on stones.

Iron was introduced into North California and the more northern regions of the American North-West from Western Asia, and not from the Spanish sphere of culture, nor from the East. Quite in the North there were points of contact between the Old and the New World without any difficulty, but they did not develop to any extent until the appearance of the Russian fur-merchants. Some tribes, however, were acquainted with iron prior to the discovery of those coasts, and it is not improbable that it was brought there by weather-driven Japanese vessels; in proof of which we would point

to the Patagonians of South America, who search the wrecks of stranded ships especially for iron, in order to hammer it cold, and make it into knives and axes. As a matter of fact we actually find tribes in Unalashka, at the end of the last century, long after iron had been brought there by the Russians, still using bone-needles and spears with bone points.

The language of the Indians did not possess a special word for iron, as they were not acquainted with it, nor did they eventually accept the European term, but they formed new expressions for it. Thus the Mexicans called it "Black Copper," the Ketchuans and the Araucans simply "metal"; the latter called copper "red metal." The Indians of Costa Rica escaped the difficulty by using the word "knife" as a synonym for iron, for which reason they called an iron saucepan a "knife clay vessel." In the north-west of the New World iron is simply called "black."

(d) *The South Sea Islands.*—Nations without any knowledge whatever of iron are met with, even in historic times, all over the world. Travellers at the present day discover tribes in South America and Central Africa among which stone and wood take the place of iron or copper, but also, on the other hand, groups of people who have become acquainted with metals without the assistance of Europeans, and thus attained a higher or lower degree of culture. In the South Sea Islands the case is different. Those little islands, spread about the ocean, produced no metals, owing to their peculiar geological formation. The inhabitants therefore received their iron through the Spaniards who landed on their shores, and were the only source whence they could obtain metal in exchange for the products of their islands. They also greedily seized upon the iron in stranded ships, and even drew the anchors out of the depths of the sea. Later on the English brought large quantities of iron to these islands. Cook, who on one of his first journeys had introduced it into New Zealand, subsequently found that the Maoris despised coral beads, ribbons, and coloured paper, and demanded nails and

axes. Although these intelligent people at the time of Cook's first voyage were completely indifferent to the iron offered them, a man to whom the navigator had presented nine or ten axe-blades and perhaps forty large nails was now regarded as the richest in all New Zealand, and in exchange for a very little iron they brought the travellers a quantity of slaughtered pigs, dogs, or fowls.

The same was the case on other islands, especially on the smaller ones, whither the knowledge of iron soon found its way, owing to the important shipping expeditions of the inhabitants. On the larger islands the metal encountered greater difficulties, and whilst the Papuans on the west coast of New Guinea became acquainted with it through the Malays, it is to this day absolutely missing among the tribes of the east of this island. The possession of a single little piece of iron, out of which they could fashion a rude, but terrible weapon, increased the repute of an entire tribe. It was not until the seventies of our century that matters changed in consequence of the abundant shipments, and thus, reviewing the whole universe, New Guinea was the last to become acquainted with iron.

As was the case in America, from Patagonia to Greenland, so it was in the South Sea Islands; primitive tribes worked up iron into the forms with which they were familiar from their own stone and shell implements.

As axe-blades they used flat chisel-shaped metal plates, which were inserted in wooden shafts bent in the form of knees. Planed iron, on account of its suitable form, without further treatment was inserted in these shafts, and the work was now done most expeditiously as compared with formerly. One would have thought that the provision of a sufficient supply of iron would have had a beneficial effect upon the entire life of these insular folks, but unfortunately the contrary happened.

In the first instance, the new metal created such feelings of envy that they had no hesitation in securing it by theft or by the sale of their wives, daughters, or sisters. Moreover, it

did not tend to increase love of labour, but only afforded opportunities for idleness, which is innate in all primitive races. Formerly they had to work hard in order to produce a stone axe to fell a tree or build a boat. The most simple requirements could only be satisfied by the aid of the most defective tools. Now this wholesome compulsion disappeared.

“The iron of the European,” says a writer describing these islands, “followed too closely upon the stone of the savage, and the necessary consequence was that the latter fell ill and pined away, morally and physically, as an effect of that which should have been a blessing.”

Having thus surveyed the whole universe down to the present day, let us return to the two large groups of men who in prehistoric times inhabited Western Asia and Europe, and laid the foundations of the higher development of mankind. The activity of these groups, first the Semitic and then the Aryan people, has in marvellous manner created that civilising culture which has proved so important and spread in countless off-shoots over the principal portion of the inhabited globe.

II. METALS IN THE EAST AND IN GREECE.—In Egypt iron does not appear to have attained any degree of importance as a metal of culture until about 1500 B.C. Previously, especially in the “Old Kingdom,” in the time of the builders of the Pyramids, its place was taken by bronze, and, at an earlier date, by pure copper, which latter, in after times, may have been used for non-cutting implements. The Egyptians obtained copper in the western part of the Sinaitic peninsula, whilst tin had to be obtained from more distant countries. For this reason, we find amongst ancient Egyptian articles many objects of bronze containing very little tin. The ordinary quantity of tin in ancient Egyptian bronzes is $12\frac{1}{2}$ per cent.; in some cases we find 5 per cent. of tin and 95 per cent. of copper. The Greek writer, Agatharchides, who lived about 100 B.C., says that bronze chisels were

found in ancient Egyptian gold mines because they were previously unacquainted with iron. This is proved by the frescoes on Egyptian buildings, in which all weapons and implements were painted red or yellow. The subsequent terms for iron originally only signified "Metal." Nor could Greece, Asia Minor, and the islands of the Eastern Mediterranean have still possessed an "Ironless" bronze culture in the fifteenth to the twelfth century before the Christian era (as the so-called "Mycenæan" finds teach) if Egypt, so near and so influential, had at that time already been well acquainted with iron.

Flinders-Petrie has examined the ruins of two very old towns in the Egyptian district of El-Fayum, one called "Kahun," which flourished under the "XII. Dynasty" in the "Old Kingdom," and the other "Gurob" in the beginning of the "New Kingdom."

The ruins of the former yielded numerous well-made stone implements, whilst in the latter he found a smaller number of stone articles which were not so well manufactured; neither town showed even a trace of iron.

This agrees with historical tradition, which does not mention iron until the reign of Ramses II., the great Conqueror "Sesostris" of the thirteenth century. As so many papyri and objects of wood have been preserved in the soil of Egypt, it cannot be inferred that the iron in the ground has perished by rust. In the ruins of Naukratis (which flourished later) many well-preserved iron articles have been found.

In Chaldæa and Assyria the oldest historical culture known is also based upon the material foundation of an extensive use of bronze.

Iron was not known until a later date, and then only as a rarity. It was used for making rings and other ornaments almost as one of the precious metals. The graves of this period (the second half of the third to the end of the second Millennium before the Christian era) are situated

near Mugheir and Warka. Mugheir, the asphalt city, is the ancient Ur, not far from the mouth of the Euphrates. Warka is the ancient "Erech," a little higher up the Euphrates, but far below Babylon.

In the "accompanying gifts" there are articles of stone, copper, bronze, lead, and gold, but none of silver. Iron does not appear as a decorative metal until the end of the above-mentioned age.

The great finds of bronze at Tell Sifr, to the north of Mugheir, between the Euphrates and the Tigris, date from the same period. This find, which Layard acquired for the British Museum in the year 1856, exhibits the weapons and implements of the Chaldæan Bronze periods; daggers, knives, pointed axes, hatchets, and hoes. They are simple implements, suitable for their respective purposes, without any decoration; two-edged swords or hollow celts with knee-shaped bent shafts are missing. Some are similar to Egyptian types and indicate intercourse with the land of the Nile, as is proved by history.

Persia is also rich in finds of the Bronze period, *e.g.* at Astrabad, in the south-east of the Caspian Sea. These discoveries are situated in the territory into which the Iranian horsemen, the Massagetes, once penetrated, and who, according to Herodotus, in the year 500 B.C., only knew of copper, bronze, and gold, but not of iron. More opportunities for study are afforded by the numerous burial-grounds in the Caucasus, south of Tiflis (Redkin-Lager, Muci-Yeri, Cheitan-Dagh), and to the north-west of the town of Samthawro, and finally on the northern slope of the Koban Mountains.

They belong partly to the last period of the Bronze Age, partly to the purely Iron Age. The cemeteries of Koban are probably the most ancient of these grave-fields. Here we frequently meet with bronze weapons, but seldom with articles of iron. Swords are not found. The shape of some of the bronze daggers seems to indicate Assyrian origin. The appearance of the Cowry-snail (Cowry-shell, *Cypræa*

moneta) in these graves shows intercourse with the countries on the Persian Gulf or Indian Ocean. On the other hand, the form of the bronze axes and the preference for ornaments in the shape of animals, points to the Siberian Bronze Age of the graves of the Tchuds. Still more remarkable is the agreement of so many types with similar ones of Central and Southern Europe.

The Caucasian graves contain necklets and spiral bracelets, scythes, and hollow celts as we recognise them in the central or upper Danubian districts, fibulæ or pins with semicircular, folded, ribbed or engraved handle, as they are also found in Greece and Italy. The ornamentation on daggers, axes, belt-plates, &c., frequently consists of continuous spirals.

The most ancient graves in the Caucasus, according to Virchow, belong to the eleventh and tenth centuries before the Christian era. But there must have been a previous long and completely ironless Bronze period during which the characteristic types passed through that development the results of which are now before us.

What interests us chiefly on the Mediterranean coast of Hither Asia is the Holy Land, with its ancient and venerable written records. The books of the Old Testament mention most of the metals employed at the present day for industrial purposes, such as gold, silver, iron, tin, lead, and copper. The Hebrew word generally translated by "copper" signifies copper in most cases, but sometimes also bronze. According to the Bible, there lived in the seventh generation after Adam, Tubal Cain, a "master in all copper (mineral) and iron work." But this tradition does not rest on any trustworthy knowledge of antiquity. The undoubted mention of iron weapons and tools does not occur until we come to the history of the time subsequent to the exodus of the Israelites from Egypt. In the whole of the five books of Moses, iron is only mentioned thirteen times, whilst "copper" is referred to forty-four times. Thus the knowledge and use of copper and bronze appear here also to have preceded that of iron.

Between Hither Asia and Greece lies the Island of

Cyprus, important in the earliest history of metals on account of its favoured situation and rich copper mines. A pure Stone Age was here also followed early by a long period of copper, the traces of which are to be found in oblong graves. The copper articles do not contain any intentional addition of tin. Their form is simple, and without ornamentation.

There are flat axes without rim-edges (never perforated), and daggers with long handles and bent points. Weapons of defence are missing. Gold and silver are rare. The fibula or pin was unknown. They had flat clay idols, always clothed, and clay vessels which first appear without ornamentation, but, in the course of development, they were provided with straight lines and etched patterns filled up with some white substance. Some Babylonian seal-cylinders with figures and cuneiform inscriptions are of foreign origin, and, according to this evidence, their age would be about 3800 B.C.

This Copper Age was also followed by a long Bronze period, during which we find the tin contained in bronzes first in small and then in larger quantities. Then we meet with lance-heads with loops, first open loops formed by simply hammering the edges together, then closed, *i.e.* already formed in the casting, single and double axes, with perforation for the shaft and swords, but no metal weapons of defence, no fibula or pins. The female idols were clothed, but we find some already without clothing.

The earthenware vessels of earlier times were painted with geometrical designs, and later in the so-called "Mycenæan" style. Foreign objects, such as glass pearls, scarabæi, and ivory, point to Egyptian influence under Thotmes III. about 1500 B.C. This Bronze Age is again followed in its turn by an Iron Age under the influence of Greece and Phœnicia. In this period, weapons of attack—with the exception of arrow-heads—are made of iron. Bronze is used for defensive weapons, fibulæ or pins, lamps, candlesticks, mirrors, and other similar articles. Buildings and statues are made of stone. We may assume for the

whole western portion of Asia Minor the same sequence as in Cyprus, as is proved by the example of Troy.

The ruins of Hissarlik, in which Schliemann discovered the site of ancient Troy, contain a series of layers of buildings and building materials which are divided into three great periods.



FIG. 22.—Double-handled Clay Goblet (Hissarlik—Troy).

I. *Pre-Mycenaean or Prehistoric Layer.*

1. The lowest primeval settlement, of which only a small portion has been examined. Walls of small broken stone and clay. Primitive finds. No iron and no bronze, but copper and stone, flat and perforated stone axes, knives and flint saws, vessels of clay of simple form with etched line ornamentations filled up with white.

Period: approximately, 3000—2500 B.C.

2. Stately castles with strong battlements, large dwelling-houses of clay bricks. Thrice destroyed and rebuilt, their remains constitute about one-third of the entire mass of ruins. Numerous articles of stone, bronze, silver, and gold. Monochrome vessels of clay, not yet ornamented with paintings—amongst them the characteristic type of the great double-handled goblet (Fig. 22) and the "Face-urn" (Fig. 23). This "prehistoric Trojan stronghold" was formerly called the "burnt town," and wrongly regarded as the seat of Priam's sovereignty, the subject of Homer's epic.

Approximate Period :
2500—2000 B.C.

3-5. Three village-like prehistoric settlements, which were in turn built over the ruins of the "burnt town." Dwellings of small stones and loam bricks. Bronze and stone weapons, but no painted clay vessels, but similar ancient Trojan pottery, also "face vases," as in 2.

Period about 2000—1500 B.C.

II. Mycenæan Layer.

6. Homeric Pergamos. Mighty castle-walls with a large turret, and stately houses built of well-hewn stone. Bronze and stone weapons, but no iron. Developed monochrome Trojan pottery side by side with imported Mycenæan painted vases.

Period about 1500—1000 B.C.

III. Post-Mycenæan Layers.

7 and 8. Village-like settlements of ancient Grecian and later Hellenistic periods. Two separate layers of simple

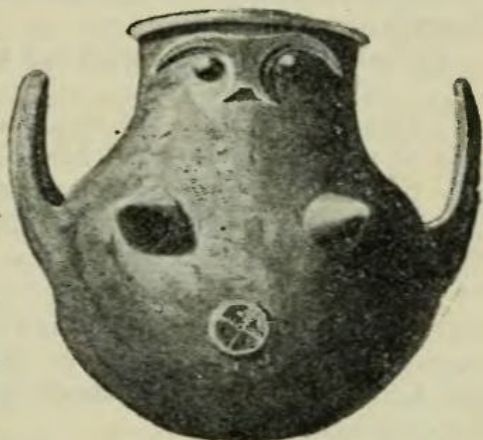


FIG. 23.—Clay Face-Urn (Hissarlik—Troy).

store-houses above the ruins of Mycenæan Troy. Implements and weapons of iron. Native monochrome pottery, and nearly all the known descriptions of Grecian ceramics.

Period about 1000 B.C. to about the Christian era.

9. The Acropolis of the Roman town of Ilium. Ruins of a celebrated temple of Athena and other splendid buildings of marble. Roman clay vessels and numerous other objects. Inscriptions on marble.

Period from the Christian era to about 500 A.D.

Taking an average of the Hissarlik layers, we obtain an idea of the development of Man in a permanent settlement on the Eastern Mediterranean coasts from the beginning of the third millennium before the Christian era to the middle of the first millennium afterwards. We see how the greater portion of this long period, about 2000 years, belongs to the Copper and Bronze Age, whilst the dawn of the first Iron Age does not appear until the beginning of the last millennium before the Christian era, simultaneously with the inauguration of historical culture.

Graves of a very ancient Bronze period have also been discovered on the islands which stand out like pier-heads between Hither Asia and Greece—for instance, on the Cyclades Amorgos and Melos. On the island of Thera (Santorin) there are ruins of the same period.

The most valuable discoveries, however, were made by Schliemann on the Greek continent in the ancient ruins of Mycenæ and Tiryns, not far from Nauplia.

The celebrated graves on the stronghold of Mycenæ, six in number (of which five were opened in 1876, and one in 1877), contained the remains of seventeen adults and two children. As “accompanying gifts” they found weapons next to the men, ornaments next to the women, and vessels of gold, silver, copper, alabaster, and clay besides.

The amount of gold in the five graves was one hundred pounds weight; weapons and implements were of bronze, only arrow-heads and knives of obsidian; there was not a trace

of iron. The bronze weapons were the following: Daggers (sometimes very beautifully inlaid with gold), swords (single or double edged, the latter very long and narrow, with wooden handles covered with gold, partly also with bone or alabaster knobs); spear-heads (seldom with cast-loops), and flat axes (no axes with perforations for shafts).

The ornaments, picture work, and other decorations exhibit a peculiar style, but one clearly influenced by oriental fashions. Numerous pearls of Baltic amber point to intercourse with the North. Many articles which belong to a somewhat later Bronze Age can be traced to the layer of earth over the graves.

In the ruins of a royal palace on a mountain-peak they found the walls decorated with frescoes, and, amongst other things, a scarabæus with the name of the Egyptian Queen Ti, who lived towards the end of the fifteenth century B.C.

Schliemann discovered a palace of the same period on a mountain stronghold surrounded by a wall of gigantic proportions. In these ruins iron was entirely missing. On the other hand innumerable knives and arrow-heads of obsidian were found, and a typical bronze double axe. They also discovered in the lowest building layers of the Athenian Acropolis a stock of old bronzes which, in point of form, agreed entirely with the shape of Mycænæan weapons, especially those from the layer of earth over the graves. The ancient sepulchral chambers on the Grecian continent should also be mentioned here. Some are large brick-built chambers with cupolas over them, a circular principal room, and a long corridor. In Mycænæ there are seven (of later age than the pit graves); at the "Heræon," not far from Mycænæ, one; in Sparta, two; in Menidi, north of Athens, one; near Orchomenos, in Bœotia, one; near Dimini, in the south-east of Thessaly, one—altogether thirteen.

Similar royal sepulchres are to be found in the Crimea and in Etruria.

More numerous are the smaller, square sepulchral chambers (graves of the people) near and in Mycænæ, Nauplia, Sparta,

Athens, Antikyra (Phocis), Volo (Thessaly), and on the Greek islands of Melos and Ialysos, &c. They are not to be confused with the type of the older stone trough-graves of Amorgos, &c. That they belong to the end of the Bronze Age is proved by some new indications; for instance, by the fibula or pin in the simplest form in the "people's graves" in Mycenæ, and by the appearance of iron in the form of finger-rings.

Remarkable are the simple forms of implements and weapons during the whole period of the Bronze Age in Hither Asia and Greece as compared with the great development of the same primitive type in Italy and the rest of Europe.

Comparisons with Egyptian monuments and finds enable us to fix somewhat definitely the age of the Grecian Bronze period. Especially convincing coincidences point to the time of the 18th Dynasty of the Pharaohs, about 1400 B.C. About the year 1000 B.C. iron must already have been known in Greece, although, as the Homeric epics appear to show, it was not very much used. Thus the Grecian Bronze Age would fall about 2000 to 1100 B.C.

According to credible ancient traditions the immigration of the Doric race took place about 1100 B.C. The Dorians were the last Grecian tribe which set out from a northern home to conquer Hellas. We must, therefore, place the first appearance of the older Grecian tribes, the Achæans, the Minyans, and others, a few centuries earlier. We thus obtain a series of inferences which are very valuable from an ethnological point of view in connection with the history of culture. We may ascribe the Mycenæan period, *i.e.* the last and highest stage of the Bronze Age in Greece, to the Achæans, sung by Homer, and the following so-called "Dipylon" period, or the first Iron Age of Greece, to the Greek tribes after the Doric immigration. Prior to the appearance of the Achæans, about 2000 B.C., and in the early centuries of the penultimate millennium, Greece and her islands were inhabited by non-Grecian tribes, whose culture (the earlier stage of the Bronze period), however, was favourably affected by the neighbourhood of the advanced

civilisation of Hither Asia (Syria). The Achæans assimilated with these primitive "Pelasgi," assuming their culture, and developing it under the continued beneficent influence of the East into the peculiar characteristics of Mycenæan culture.

Mycenæan culture is consequently, according to its true origin, non-Grecian, but the Greeks participated in its development, and there are clear indications of the transition of Grecian intellect and Grecian work from the Mycenæan into the Archaic-Grecian period.

9. The Bronze Age.

How did it come about that the appearance of the Bronze Age put an end to the later Stone period, and impressed a new stamp on European culture? We see that in the south-east, in ancient Egypt and in Hither Asia, prior to the rule of iron, bronze played an important part. It is consequently from there that our continent derived its knowledge of the ancient brilliant metal of civilisation. But the distance from those countries to the heart of our world is great, and we do not even know through which seas and provinces it has taken its course. To the east of the Alps lies Hungary, whilst Italy is in the south, a country which absorbed foreign civilising elements at an early date. The most ancient articles of bronze were probably brought to the Central Danubian regions overland through Thrace, and to Italy by sea; thence on the Danube and on the Rhone in a northerly direction.

The course of the metal was a rapid one. It was greedily accepted everywhere. The ingenuity of those who received it is displayed in a remarkable manner in the articles made. In regard to form European bronzes exhibit little in common with Oriental articles made of the same metal. Only the most ancient objects disclose the fact that the ground type was a borrowed one and the proportions of copper and tin were identical. Those are unmistakable indications of the origin of European bronzes, but later on we see European

nations spontaneously casting, hammering, and chasing bronze and inventing new forms or varying old ones.

The connection with Eastern traders, once made, appears during all prehistoric periods never to have been broken off, and the European bronze industry is indebted to this connection for continuous fresh encouragement and enrichment.

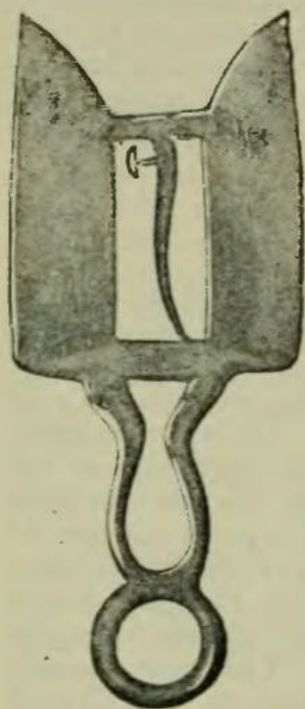


FIG. 24.—Bronze Razor.

In Hungary, Switzerland, North Germany, Scandinavia, and Great Britain a long period was inaugurated which, in Central Europe, they called "The Beautiful Bronze Age." The types of this period are more numerous, more elegant, and more suitable than those of the earlier Bronze Age.

We shall now give a short résumé of the forms which are the characteristic features of the two stages of the Bronze Age in Central Europe.

(a) *Earlier Bronze Age.*—Flat axes with smooth edges or narrow rims running almost to the edge of the blade. Axes in which the rims only reach as far as the centre of the blade, and are there joined by a downward graduation. Daggers with treble-edged blades

and cylindrical handles. The latter were often of wood, bone, or horn, and have, therefore, not been preserved. Swords with short blades, also frequently treble-edged, and broad handle-ends or full, short, ornamented handles. Razors with double edge (Fig. 24). Scythes with a slight curve. Ornamental needles terminating in two spiral discs. Double needles. Needles with horizontal, wheel-shaped heads. Short, thick bracelets.

(b) *Later Bronze Age.*—Axes with shaft lappets (Palstaves), *i.e.* with wing-like additions embracing the split

end of the knee-shaped shaft. Hollow axes, *i.e.* axe-blades with loops for the unsplit ends of the shaft. These, as well as the lappet axes, often have eyes for the purpose of tying the blade to the shaft and effecting a firmer joint.

Chisels with level or concave edge (hollow chisels), saws, awls, and scythes with a marked curve. The scythes of the Bronze Age are always cast from a one-sided form, and are perfectly flat at the back.

Knives of elegant shape and various, often very beautifully etched ornamentation in groups of lines.

For wooden or horn handles they are provided with a hook, seldom with a loop. Sometimes we find blade and handle cast in one single form.

Daggers in the form of willow leaves with rivet holes for the handle, or with broad handle extensions, to which the guard was riveted.

Swords with full, beautifully etched bronze handles, or with flat, rimmed handle-extension. The blades are in the form of bulrushes, with sharp points, longer than they used to be, and very finely etched.

Together with these types we find single-edged razors and numerous ornaments, especially pendants, buttons, needles with cast heads drawn in profile; large, hollow bracelets etched on the outside in the form of horse-shoes with sponges at the ends.

The weapons and implements of the Bronze period are only superior in point of form to the types of the later Stone Age (with which it is related) by virtue of their more finished workmanship and larger variety. The difference between them is by far not so great as between the forms of the earlier and later Stone Age. We know less of the ornaments of the latter, as they were partly made of perishable materials. The Bronze period, by its ornaments of a more permanent metal, thus affords the appearance of superiority over the previous stages of culture.

Amongst the finds of the later Bronze Age in the Swiss pile-dwellings there are many which show clearly that during

this period in the neighbouring Italian peninsula both the early Bronze Age of the Terramare and the Bronze Age had generally ceased, and been replaced by an early Iron Age with a new metal of culture and partly by altogether new forms. Such articles are the following:—

Goblets of hammered bronze, swords, the knobs of which terminated in two spirals turned towards one another, dress-pins¹ in which the long pin was twisted to give it a spring, and had a loop at the other end of the shoulder-piece, which was generally ornamented.

Let us now turn from the Pile-dwellings of Switzerland and the Boden See, further north to the Central Rhine territories, and we shall find very much the same types of the Bronze Age. Some deviations explain themselves by their connection with other territories. Thus we frequently meet with axe-blades having pointed instead of straight ends, as found in the upper and central districts of the Danube, and swords of a shape often seen in Hungary and Austria. Other types disclose their origin by their similarity with French finds, and point to the valley of the Rhone as their probable home. The same may be said of the axe with graduated ends, a type of axe found in the Northern Bronze periods. On the other hand the offshoots of the latter extend into the regions of the Rhine and even into Switzerland, as is proved by the discovery of a bronze vessel and a dress-pin of northern shape in the Neuenburger Lake.

The characteristic features of the South German Bronze Age are certain horseshoe-shaped bracelets. They are widely open, oval circlets, with more or less projecting sponges or knobs. In the earlier period the circlets were of massive metal, the knobs small; in the later period the circlet becomes broader, hollow inside (with rims), and the knobs project very much. We also meet with bracelets consisting of flat, broad, and generally long-ribbed bands, narrowing towards the open ends, and broadening out again.

¹ *Translator's Note.*—Like the modern "safety-pin" of the nursery.

In addition to these flat bracelets, South-West Germany possesses similar bands, which narrow out and terminate in two small spiral wires on each side. Besides these we still find in the South German sepulchral mounds of the Bronze Age large bronze pins, amongst them the characteristic wheel-pin, the head of which forms a vertical filigree disc in the shape of a wheel, and bronze daggers.

Numerous discoveries of this description were made in the sepulchral mounds of Upper Bavaria between the Ammer See and the Staffel See. During the Bronze period here it was customary to bury bodies uncremated; later on burning prevailed. The "accompanying gifts" were generally an urn and a goblet, then swords, waist-bands, large pins with heads of spiral wire discs, head-bands with hooks and eyes, various pendants (like spectacles with two spiral wire discs, heart-shaped filigree work, wheel-shaped, &c.), finally pincers, and rolls of spiral wire, which were worn round the neck on strings. The clay pottery was in point of form and decoration different to that of the subsequent earlier Iron Age. The vessels display rows of rounded impressions under the edge and on the shoulder part, belts of vertical furrows on the upper concave portion, little bends, and handles. In the later Bronze Age the hollowed-out ornaments are filled up with some white substance.

The various countries of Europe in which bronze was the first metal extensively used by man were never altogether isolated or out of contact with one another. In the earlier Bronze Age the same simple forms prevailed almost everywhere, a proof that the dissemination and imitation of the models just introduced must have taken place very rapidly and almost simultaneously everywhere.

In the later Bronze Age different countries followed different paths, and it is clearly shown what part the vertical and horizontal division of our continent played in connection with it.

We distinguish in Europe countries which had a brilliant and highly developed or lasting Bronze Age, and others which had a short-lived one, prematurely terminated. The former

participated in both the above-mentioned stages of the Bronze Age, and the latter only lived to see one, namely, the first.

The countries with a short Bronze period include Greece and Italy in the south, then in Central Europe those territories which were easily accessible from the east, *i.e.* by sea through the northern portions of the Mediterranean—that is, the region between the Adriatic and the Upper Danube (what is now called South Austria, or the zone of the Eastern Alps)—and finally, the basins of the Rhone in the south of France.

Lasting Bronze periods were vouchsafed in Central Europe to the countries north of the Balkans and of the Apennine Peninsula, *i.e.* Hungary and Switzerland, then to the North German deep-lying plains, and finally, to the whole of Northern Europe, especially Denmark, Sweden, and Great Britain.

The different degrees of development of Bronze culture is accounted for by the fact that the knowledge of iron, its treatment, and the style of the Iron Age found their way through Europe from the South. Wherever this movement in civilisation appeared first, there the higher development of Bronze culture was impeded; wherever it penetrated subsequently, there we find Bronze culture enjoying to the fullest extent its second great stage of development.

For this reason we regard the Hungarian, Swiss, and Northern Bronze Ages as great and brilliant phenomena in prehistoric European times, whilst the Bronze periods of Greece, Italy, the Eastern Alps, and France were formerly almost passed over, and even now, although undeniably proved, make a less deep impression than the long durations of Bronze culture.

If we endeavour to estimate the various durations of the Bronze Age in Europe, we shall have to fix the first phase (which is at the same time the only one for the countries with a short Bronze period) at about 1500 to 1000 B.C.; the second lasted in Northern Europe certainly till about 400 B.C., whilst in Switzerland and Hungary it may have ceased about 600 B.C.

Dates of this description can only be approximately correct,

for however much the sequence of the three prehistoric periods of Stone, Bronze, and Iron may be regarded as undoubtedly proved for Europe and other large spheres of culture, so certain it is that the transition from one stage to another must have required a very long time. It is therefore impossible to fix chronologically the end of the Stone Age or the beginning of the Bronze Age, and the end of the latter or the beginning of the Iron Age. They dissolve like the colours of the spectrum, which, notwithstanding imperceptible transitions, must always remain indisputable, like the prehistoric system of the Three Periods.

10. The Hallstatt Period.

Whilst in some large territories of the earth bronze was instrumental in bringing about comparatively high degrees of culture, and the highly developed use of bronze articles prevented the expression of any desire for a better metal, we find that in others more rapid strides had been made, and a change effected in the ways and means of culture. Thus the warlike Assyrians, as their most ancient tribute-lists show, appreciated iron, and knew how to exploit it better than most civilised Eastern nations, and that to such a degree that bronze and copper had to suffer by it. This is accounted for not merely by the nature and warlike spirit of the people, but also by the opportune times, during which its great conquests took place, and by the propinquity of a vast and rich iron district, which in all ages was regarded as the cradle of metallurgy, and furnished the best metal. This is the region between the Caucasus, the Pontus, the Caspian Sea, the western slope of Iran, the plains of Mesopotamia, the Taurus, and the Highlands of Cappadocia. Here settled, amongst other nations acquainted with iron, the Pontian Chalybes, whose name was annexed by the Greeks to signify steel, and from whom the Greeks themselves acknowledge having learnt the art of mining, and producing and manufacturing iron.

Although iron was known in Egypt about 1500 B.C., it

certainly did not appear in Europe in any appreciable quantity neither at that time nor in the following centuries, as is proved by the finds in Troy, Tiryns, and Mycenæ. It is not until the ninth and eighth centuries B.C. that we suddenly find it in large quantities in the possession of Asiatic nations, as the Assyrian tribute-lists prove, and simultaneously, but not so frequently, in the layers of ancient European finds. At the same time the type of the first Iron Age of Europe, the Hallstatt type, shows clear distinctive marks of Oriental origin, so that in general we cannot be in any doubt as to whence this renaissance of many forms of our old Western sphere of culture is derived. To this must be added the opening up of extensive grave-fields in the Caucasus (Koban, &c.), belonging to the same period, and exhibiting the greatest possible "family likeness" to the cemeteries of the first Iron Age in Central Europe.

Altogether the Hallstatt culture is a phase of development which reaches further than the name leads us to imagine. But as it expresses more, and is more definite than the term "First Iron Age," we give it the preference, although not everything discovered in the Hallstatt area of finds is also found in the entire sphere of culture called by that name. With this limitation of the sense it may be taken that the sphere in question extends from the Caucasus to the Atlantic Ocean, and from the Mediterranean to the East Sea (North Sea or German Ocean). Consequently it covers almost the whole of Europe, and embraces chronologically the epochs of the first and half-historical appearance of the advanced European nations. At this particular period it is incontrovertibly proved that the Greeks, Italians, Etruscans, Celts, and Illyrians were settled in their historic homes. No one, indeed, doubts that the most ancient sacrificial gifts of Olympia are to be ascribed to the Hellenes, the grave-fields of Bologna, Corneto, &c., to the Italians and Etruscans, tumuli in the basin of the Rhone to the Celts, and the numerous grave-mounds of Bosnia to the Illyrians. Farther North, even in Hallstatt itself, it becomes doubtful to which

tribe the graves which are still preserved belong, and it is only in Northern Europe, where iron did not penetrate, but only certain forms and articles imported from the Hallstatt area, that we can again assume a Germanic population with any degree of certainty. In the same manner that we distinguish in the Bronze Culture countries with a short-lived duration of this phase of culture and others with a longer duration, so the area of the Hallstatt Culture is divided into regions with shorter and longer duration of this phase.

The countries with phases of shorter duration include Greece and Italy, where the first Iron Age only constitutes the transition to the historical epochs; those with a longer duration are the regions north of the Balkan Peninsula, the entire district of the Eastern Alps, Bavaria, Wurtemberg, Baden, Alsatia, Switzerland, the Franche-Comté, and Burgundy, *i.e.* the countries to which the name of the Hallstatt sphere of culture may be applied in a limited sense.

In these countries the first Iron Age lasted until 400 B.C., and was followed in the next few centuries by a period with new types and a more extended use of iron, in which the North of Europe now participated. It is this, the La Tène Age, which concludes the series of prehistoric periods of Central Europe, and forms the transition to the historic epochs, the first of which we recognise by finds and from written sources as the time of the Roman rule.

But also in those countries which possessed long periods of Hallstatt Culture the present was not one of rest. As we subdivide the Bronze Age into two stages with characteristic features, an undeveloped and a developed one, so we may distinguish two stages of the long Hallstatt period, and show the causes of this development. Many grave-fields in the districts of the Alps and the Danube offer the appearance of a mass of simultaneous burials without any distinguishing marks, especially the well-known field of flat graves on the Salzberg, near Hallstatt, in the Upper Austrian Salzkammergut, whence the following finds are derived (see Figs. 25-32, and 34-41, as well as the typical axe, Figs. 5 and 6).

The number of graves opened (all flat graves) amounted to several thousand, of which only about a thousand are better known. In about one-half of the graves there were found the remains of unburnt bodies, in the other half the remains

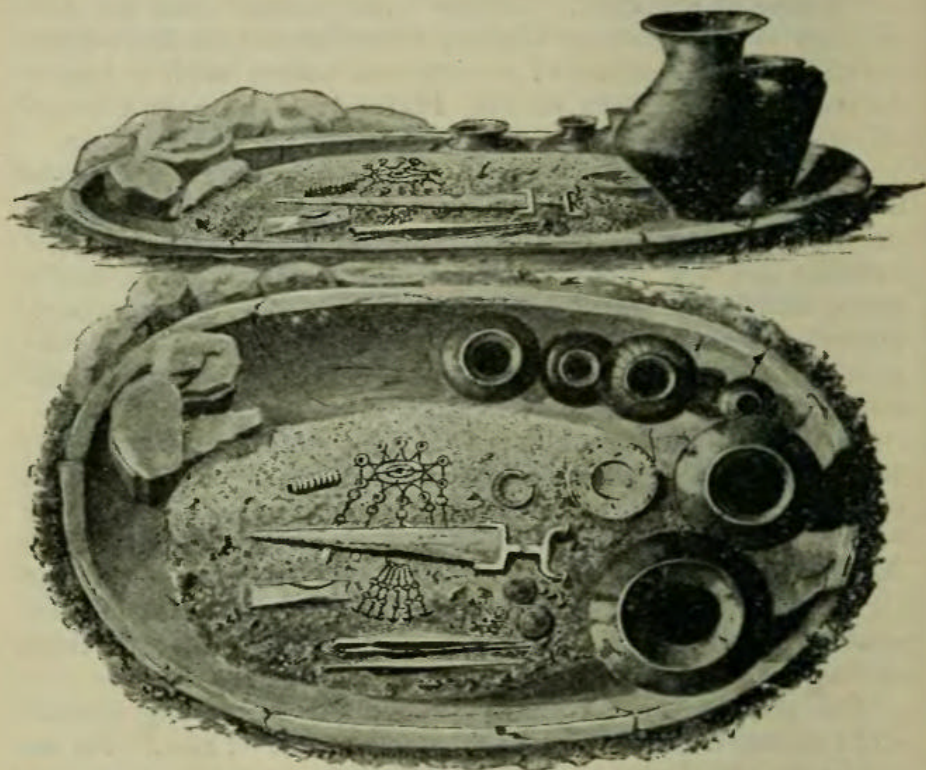


FIG. 25.—Grave (of a burnt body).

were all of burnt bodies. The difference in the mode of burial does not very much alter the nature of the “accompanying gifts.” 525 graves containing skeletons yielded 18 weapons, 1543 ornaments, 37 parts of implements, and 33 vessels of bronze; 165 weapons, and 42 parts of implements of iron; 6 gold, 171 amber, and 41 glass ornaments; 342 clay vessels, 61 spinning-wheels, whetstones, and a few trifles. On the other hand there were 455 graves with the

remains of burnt bodies, which yielded 91 weapons, 1735 ornaments, 55 portions of implements, 179 vessels of bronze ; 348 weapons, and 43 tools of iron; 59 gold, 106 amber, and 35 glass ornaments, 902 clay vessels, and 102 various trifles.

From this we gather that the graves containing the remains of burnt bodies were generally furnished with weapons, bronze and clay vessels in greater variety and quantity, whilst the skeleton graves contained more amber ornaments. Both show, however, that, at that time, iron was more frequently used in the manufacture of weapons and implements than bronze, but that the latter was preferred for various descriptions of vessels. Fig. 25 represents a grave and the ashes of a burnt body with the "accompanying—rather rich—gifts."

The ashes are spread out on the bottom of a badly-baked, oval clay dish. Near the edge are a few clay and bronze vessels. On the ashes are weapons and ornaments, namely, an iron dagger with a bronze handle, several iron lance-heads, and one bronze palstab, then a pair of dress-hooks, one made of wire spirals in the form of a pair of spectacles, the other in curious filigree, cast and

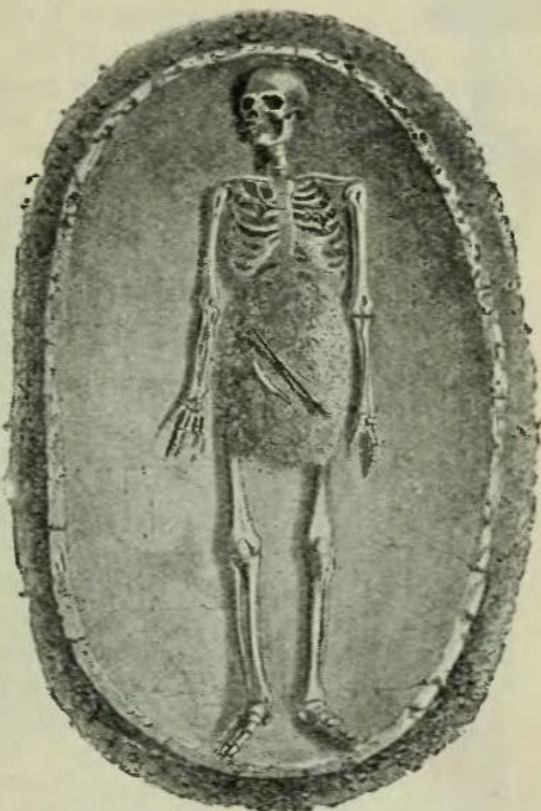


FIG. 26.—Skeleton Grave.

with pendants, finally a bracelet, and a few other articles. The grave belongs to the later Hallstatt period.



FIG. 27.—
Bronze
Sword.

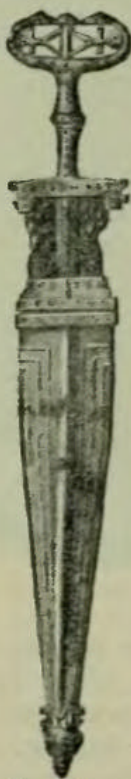


FIG. 28.—
Iron
Dagger.

In Fig. 26 we have a similar clay dish with a skeleton and two dress-hooks. The ashes are spread over the middle portion of the body, and a knife and a spear-head belong to it. The skeletons found at Hallstatt point to a tribe of strong men, of middle stature, long heads, possibly of Keltic, probably of even Germanic origin, in any case of Aryan race. In the bronze vessels which, like those of clay, were only exceptionally used as ash-holders, there were frequently found bones of animals, *i.e.* remnants of food. Each grave contained from three to five vessels of clay. The graves were often surrounded and covered with stones.

Amongst the "accompanying gifts" the weapons are the chief objects which excite our interest.

Other graves of this period are not so richly equipped; some lack weapons altogether. But here we frequently find magnificent specimens of weapons of defence lying at the side of the dead. The long swords, the characteristic type of the earlier Hallstatt period, mostly show the form of Fig. 27. They are either of bronze or of iron. The former often have an ivory knob ornamented with amber. In the later period iron daggers with bronze handles and horse-shoe knobs are more

numerous. The handsomest dagger found in Hallstatt is represented in Fig. 28, which also shows the horse-shoe form. The lance-heads are of bronze or iron and also very numerous, whilst arrow-heads are rarer. We have already seen, in Figs. 5 and 6, the form of palstabs and celts; next to these we now and then meet with iron flat axes with small lappets which serve to fasten the blade to the shaft, and a few small bronze ornamental axes with

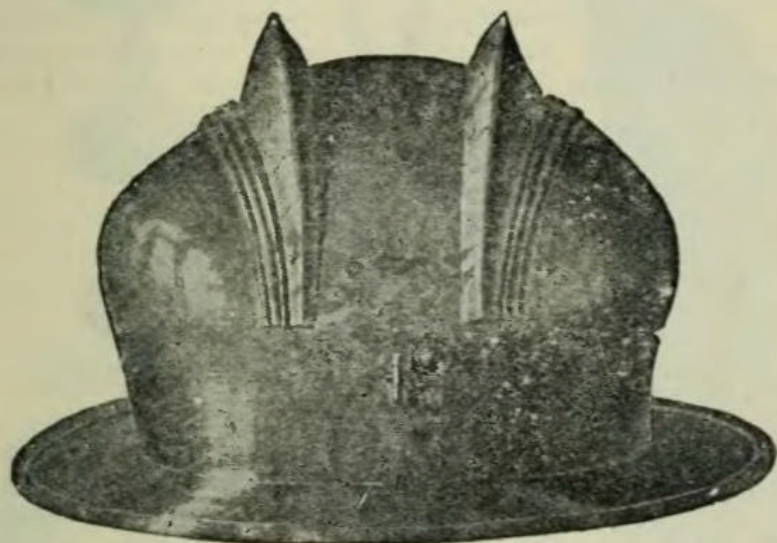


FIG. 29.—Bronze Helmet.

long loops, and the figure of an animal on the back of the axe. Helmets were not very numerous, and had broad horizontal brims, and sometimes (Fig. 29) two low combs or buckles to hold the feathers. A man's armour consisted, moreover, of various armour-plates, but no complete body-armour, and a broad leather girdle, with richly hammered bronze-work.

Among implements, knives take the first place. They are slender and elegantly curved, of bronze or iron, small, with the point bent downwards, or large and heavy, of iron,

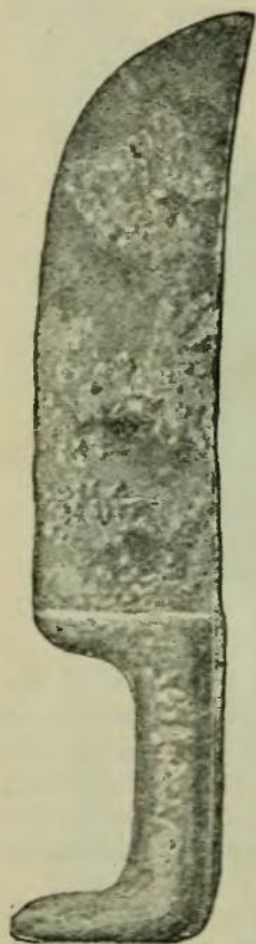


FIG. 30.—Iron Knife.



FIG. 31.—Whetstone.

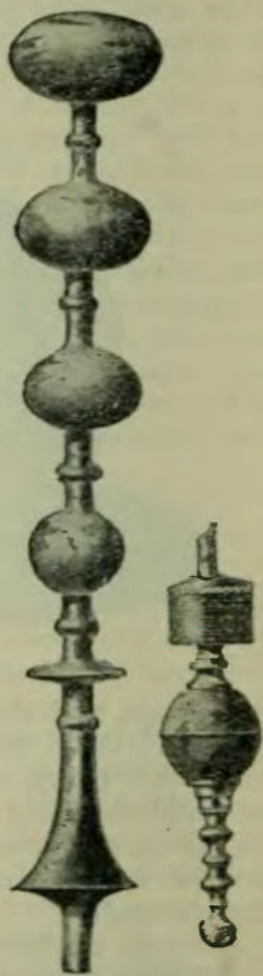


FIG. 32.— Dress-pin with Buttons and Point-protector.

and the point bent upwards (Fig. 30). Sharpening stones were generally worn (Fig. 31).

Then we find, here and there, ordinary tools, such as files, anvils, and similar articles, or objects of the toilet.

We have already remarked that ornaments appear in greater number than weapons and implements. This is a characteristic feature of nearly all prehistoric graves. In addition to the richly-ornamented girdles, already mentioned, which were also worn by women, we find that needles, pins, rings, and pendants were the most frequent. Much of it is native work, and, to judge by the pattern, also native invention. Women wore a comb made of simple pins, with

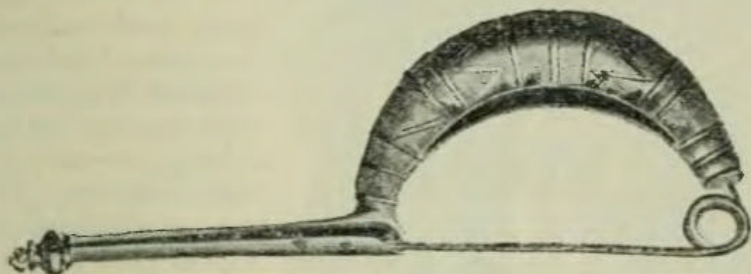


FIG. 33.— Boat-shaped Pin.

buttons in their back hair. As dress-pins they had very prettily ornamented daggers, of great length, the point being protected by some bronze or bone device. Fig. 32 shows the head and point of a pin of this description.

For the purpose of fastening their dresses they used, here as well as in the entire region of the Hallstatt culture, spiral spring pins which consisted of a shoulder-piece or foot and a pin with a single or double spring-loop as a head-piece. In the earliest ages they were made in one length of wire, and in the course of time they assumed very different forms. In Hallstatt the most frequent pin is one with a shoulder-piece in the shape of the figure "eight," consisting of spiral wire discs, the centre of each forming respectively the needle and the needle-catch. In Fig. 25, representing the Ash-

grave, this Hallstatt pin lies next to the handle of the dagger. The other pins are more like those described above. The straight (bow-shaped) pin of the Bronze period developed, in the first instance, in the south of our continent, into the half-moon bow-pin with a short foot, which is a characteristic feature of the earlier Hallstatt period. At first it is a simple,

bent and hammered piece of iron or bronze wire; it occurs later in cast bronze; in the South, in gold with rich shoulder ornamentation. Fig. 33 shows one already hollowed out in the form of a boat, the shoulder being engraved with zig-zag lines, with a long pin-rest, closed with a button. Pins of this description occur also in Greek graves of the seventh century in Sicily, and are not unfrequently found in the regions of the Alps as articles imported from Italy.

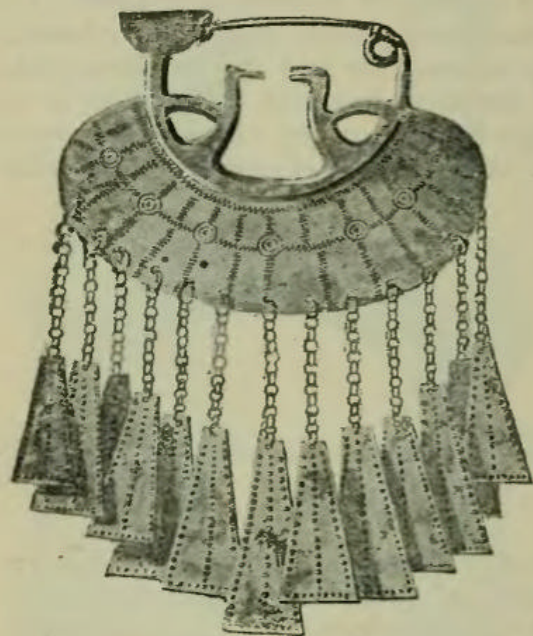


FIG. 34.—Engraved Crescent Pin with Rattle-plates.

Fig. 34, however, is a more faithful representation of the archetype, enriched, in barbarous fashion, by two figures of animals inside the bend of the pin, with the shoulder-piece extended and bent outwards in the form of a scythe, etched with short, trembling lines, and on the edge of it a row of little chains carrying wedge-shaped pieces of metal. These and similar enrichments of the prototype appear to belong to Norway, where we meet with some independent work in pin-varieties, but chiefly with imitations or models of South European origin.

The organic development of the pin led from the Bronze and Hallstatt period through the La Tène phase, and even over the Roman Age, into the period of the wanderings of the nations, to terminate late in the Middle Ages.

Amongst actual jewellery, the prevailing pattern for rings, especially bracelets, was an elegant knot, but otherwise heavy (Fig. 35) with pendants. The latter, often of the most grotesque shape, are always fitted on where there happens to be room for them, and where their continual jingle may produce a not unmelodious sound.

Dresses are also sewn with bronze buttons (which elsewhere were stuck in rows on clay pottery), and rolls of spiral wire and pearls are strung on strings and hung round the neck. Glass enamel

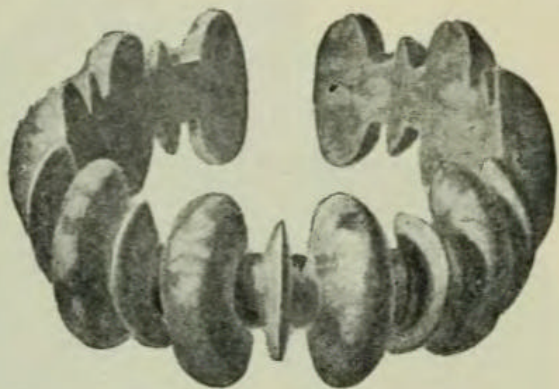


FIG. 35.—Armlet with Knots.

pearls, and especially pearls and thick rings of amber play a great part here. Glass and amber are also fixed on to the shoulder-pieces of pins. Altogether, the love of display shown by primitive man, who gladly exchanges his valuable earth-products for the glass-corals and glitter of the "white man," is a conspicuous feature in the character of the Hallstatt period, which, however, fittingly retreats into the background in the La Tène period, in which the self-respect of the savage awakens.

Intercourse with the advanced South, however, brought to these people not only forms of pins and all manner of glittering rubbish, but also better and more important articles; for instance, rivet-work of thin bronze plates which they soon learnt to use in the manufacture of costly vessels. Figs. 36-40 represent some of them in metal.

The vessels shown in Figs. 36-38 are probably imported Italian ware, whilst Figs. 39 and 40 may be regarded as native work. In the earlier Hallstatt period they probably had imported vessels of this description only, ornamented with hammered circles and figures of animals; the production of native work did not take place till the

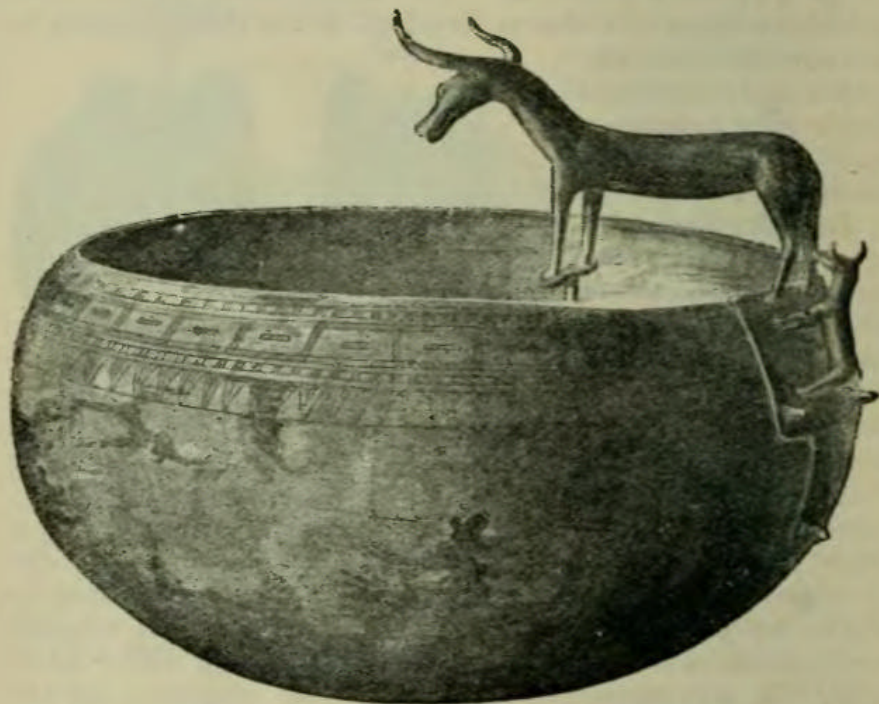


FIG. 36.—Bronze Basin.

later period. Of the ribbed, cylindrical vessels those with narrower circlets (Fig. 38) are an older Italian form produced near Bologna, whilst those with close ribs (Fig. 40) belong to the Illyrian tribes living more to the North, and, in point of time, to the end of the fifth century B.C. The deep basins (Figs. 36 and 39) afford examples of the simple, straight-lined geometrical ornaments which were in

vogue and executed with the graver. The "Cista" in Fig. 38, on the other hand, shows hammered pattern-ornamentation. They were very skilful in the art of hammering metals, but as yet ignorant of the art of soldering, which accounts for the manner of joining the various

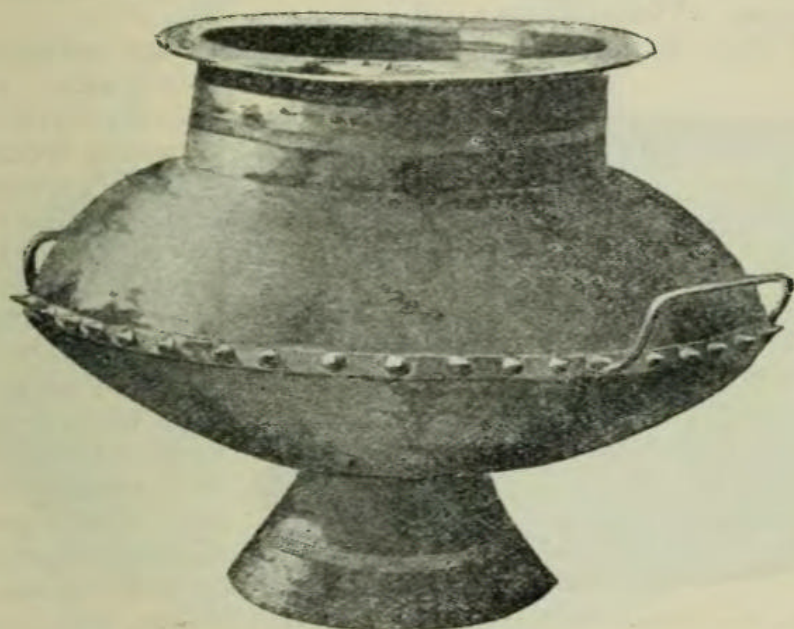


FIG. 37.—Bronze Vase, in four parts.

parts of vessels by means of bending and riveting the metal (Fig. 37).

The art of casting flourished, but Fig. 41 shows how little they understood how to model figures, the bull, in this instance, having a very thick tail, possibly as a mark of its breed, but perhaps only the result of the clumsiness of the designer. Other, more elaborate, hammered and engraved figures of animals on bronze vessels or girdles, frequent in Alpine countries, are derived, almost without exception, from Upper Italy, where a peculiar, heavy style, but becoming

firmer by practice, prevailed in the execution of such work. An example is given in Fig. 42, which represents a bronze pail from Kuffarn in Lower Austria, from a grave of the time of the transition from the Hallstatt to the La Tène period. The subject is an encounter between two men for a helmet as the prize, a race for riders, one for chariots, and a banquet, all festal scenes.

Pottery in the Hallstatt period competes not unfavour-



FIG. 38.—Wide-ribbed Cista of hammered bronze.

ably with the manufacture of vessels in bronze, the chief products being articles for special use (in graves), urns with bulging bodies and long necks, with graphite polish; large vases in the form of bombs with short necks and black geometrical figuring on a red ground, dishes and cups with beautiful in-

ternal decorations, white being sometimes inlaid to show the rich painting to better advantage. Even this sober industry frequently assumes a fantastic character and produces handles with heads of animals, or little birds made to form small dishes on larger ones, as in Fig. 43, where a two-headed animal is seen inside the dish. This is from a mound-grave in Oedenburg. Of course this cannot have served any practical purpose, and, as a matter of fact, the vessels in daily use are always of a simpler and more convenient form.

During the whole of this period the potter's wheel

was unknown, and in the later Hallstatt period we only rarely meet with differently formed clay pottery, ornamented and turned, and then as articles imported from Southern countries in which at about this time the Hall-

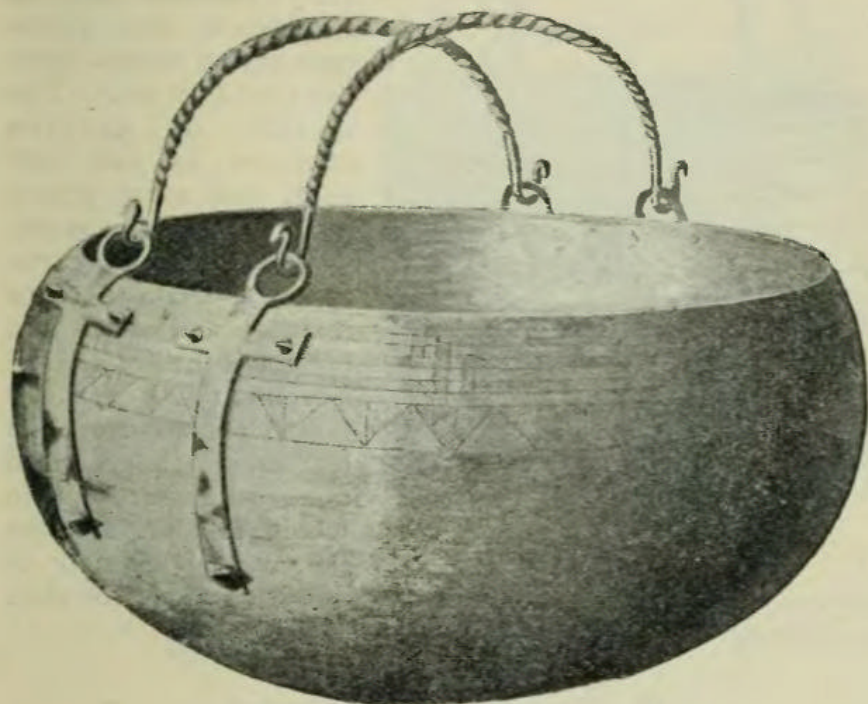


FIG. 39.—Bronze Basin with turned handles.

statt period and with it the whole Prehistoric Age came to an end.

The later stage of the Hallstatt period, brilliant examples of which in Western Germany are the so-called "Princes' Sepulchres" of Hundersingen and Ludwigsburg in Wurtemberg, may be recognised, as far as our proofs go, by the increased importation from the South and generally by an increased intercourse and traffic.

Originally common to the South and to our own con-

minent, the Hallstatt culture lasted longer with us, but

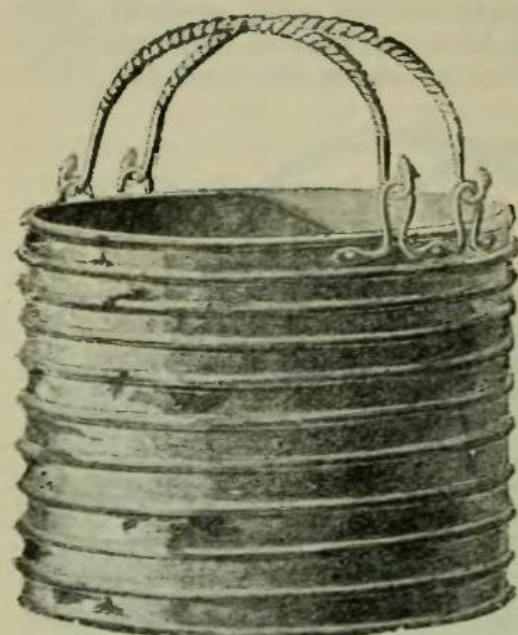


FIG. 40.—Narrow-ribbed Cista.

it was affected by Southern influence. The ruling position of Italy towards Central Europe in the Hallstatt period began about the year 500 B.C. The wealth of certain countries in salt and gold, the most prized treasures of the earth, the abundance of cattle and field-fruits in other regions, and last, but not least, the great commercial roads through the Alps, are the chief factors which produced these influences and which brought together the vast collection of objects yielded up to the light of day by the graves of their mouldering owners.

11. The La Tène Period.

When vast groups or races of men are removed from the sphere of prehistoric culture and enter upon historic paths, it has the result of gradually narrowing down the area of the later phases of primitive archæology, traces of which we encounter in our own country, and the extent of which it is our aim and object to ascertain. In a certain sense, therefore, the whole world has had a Stone Age. The Bronze Age is also found in vast regions of the Old and New World. But as regards the Hallstatt period we must confine ourselves to Europe, and as far as the La Tène period

is concerned we must even leave out Greece and Italy, with the exception of the plains of the Po. As an equivalent, this culture has conquered Northern Europe, whither the Hallstatt culture could not penetrate, or at least only in weak off-shoots.

We have noticed in former chapters how the western nations were vouchsafed a longer rest. They became ac-

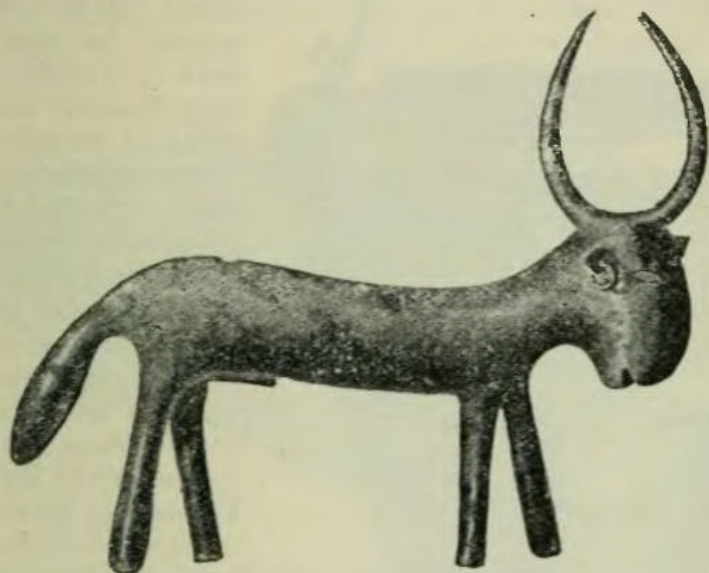


FIG. 41.— Cast Figure of an Ox in Bronze.

quainted with new forms of life by the influences of the East and the South, and have passed through all those movements which have affected the culture of the prehistoric inhabitants of the continent ever since the later Stone Age. But they took no share in the work of development.

By the nature of their place in the world they could neither be the first to receive Oriental influences nor disseminate their results further westwards.

But this long rest gave late but marked strength to the Keltic tribe to stand forth with that peculiar phase of culture which left its impress on the last centuries previous

to the conquest of Gaul and the lands of the Alps by the Romans. The La Tène culture, which suddenly ruled all Europe with the exception of the ancient classical area, is



FIG. 42.—Bronze Pail.

the culture of the Kelts in the form it developed at the time when this highly gifted Aryan race, mighty in number, bold in spirit, advanced in the knowledge of metals and in possession of numerous technical and other aids, conquered vast territories of the earth. Upper Italy, the Rhine, the countries of the Danube, and the whole zone of the Alps with a portion of the Balkan Peninsula became the spoil of the Keltic hordes who everywhere instituted their own kings and nobles.

Indeed even Asia Minor was flooded by the "Galatians"

hordes of the Trokmers, Tektosags, and Tolistobojans, who established a savage kingdom in the very midst of Greeks and Hellenised Asiatics.

As the Hallstatt culture, on close examination, dissolved itself into various elements among which we recognise traces of the Bronze Age, direct gifts from the East, independent additions, and finally influences of the Etruscan conquest of

Northern Italy, so the La Tène culture exhibits different roots. Greek influences (ancient Ionian?), Oriental (Carthaginian?), and Italian (Etruscanizing) seem to have participated in their development.

Moreover, there are undeniable and intelligible traditions of the Hallstatt period in it.

The principal and most important factor is the later origin of this phase of culture, because it explains the quasi-“modern” character by which it takes its just place in the

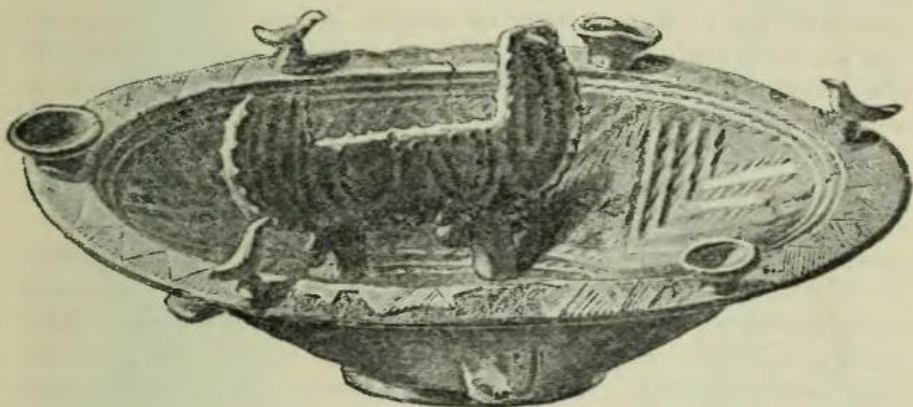


FIG. 43.—Clay Dish with flat and raised ornaments.

proper course of the development of mankind in Europe, but primitive archæology points with certainty to the fact that at the time of the Hellenisation of the East, and the first spread of Roman dominion over the northern nations of Europe, a phase of culture had been inaugurated which should be regarded as a worthy preliminary stage of the Roman provincial culture. Indeed, the latter culture in the Rhine and Danubian provinces arose for the most part from the very lap of the La Tène culture, and appears in more than one form as a simple continuation of it.

The culture of La Tène, like that of Hallstatt, derives its name from the celebrated discoveries made at that place. La Tène (*i.e.* “the great depths”) is the name of a spot

near the village of Marin, to the north of the Neuenburger See (lake) in Switzerland, where, on the ruins of an island stronghold in the form of a block-house, they found a mass of iron weapons, implements, vessels, and jewellery, differing both from Hallstatt and Roman articles of the same description. Here there are no more bronze swords, axes, or lance-heads. The swords, of which there are a hundred, one metre in length, are all of iron, broad from the top to the point, double-edged, with simple angle-bar handles, without any artistic or decorated knobs. The blades of these swords consisted each of two iron or bronze strips. The form of the lance-heads is new, as is shown either by the width of the strips of metal or by the length of the shaft, which is without strips.

The latter belong to javelins similar to the Roman pilum. Arrow-heads are rarer, and daggers altogether missing. Daggers and arrows are, in a manner, unheroic weapons, despised by the manly Kelts, who carried long crooked knives, large iron-bound shields, iron or bronze sword-chains, and open necklets, which, among the "aristocracy" or well-known fighters, were of gold, and are recognised by the stamp-shaped ends. Their helmets—which are less frequent than in the Hallstatt period—are also differently formed, being rather pointed at the top, decorated with a knob, and provided with a small brim and cheek-lappets. Sometimes in Keltic graves and other localities of finds, for instance in La Tène, we discover relics of rich harness and war-chariots in which the Gauls went into battle.

But the Keltic weapons, the heavy blows of which rained upon the Romans in many a sanguinary battle, are not the only objects which indicate this degree of culture and claim our respect; the implements and tools of the Kelts also call for our genuine appreciation. Their knives, shears, sickles, scythes, hoes, rakes, axes, and ploughs are partly new and partly after old patterns, but the underlying principle is that of utility. Articles of iron are without ornament, but well and substantially made. The stamp upon them shows that



FIG. 44.—Iron Spear point.



FIG. 45.—Iron Shears.

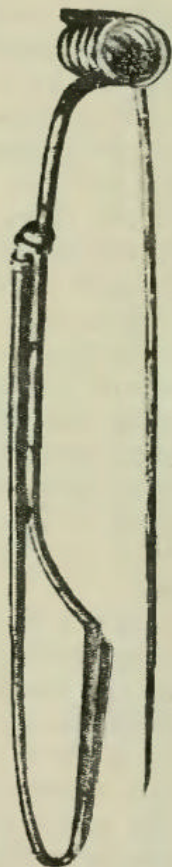


FIG. 46.—Iron Pin.

they were produced in a factory. Amongst other novelties they possessed were potters' wheels, potters' ovens, rotatory corn-mills, coined gold and silver imitations of Massaliotic and Macedonian impressions, the obverse and reverse of which were at first faithfully reproduced, but later on replaced by a system of ornamental lines, and finally dice (formerly unknown) and playing-stones, like dominoes. There was, however, a retrograde movement in the manufacture of vessels of bronze, which were made after old patterns not true to style, or imported ready-made from Italy (the so-called "beaker-cans").

The ornaments of this period were of less independent form, and not chiefly for personal adornment, as in the Hallstatt Age, but rather for the decoration of articles of daily use, which they consequently followed in point of form. Quite new ornaments are plants, which were rather clumsy, but of classical type. The style of the La Tène period includes figures of animals with arabesques and flourishes, masks of human faces, triquetra with unrolled ends, double volutes, and the so-called "fish-bladder pattern." In this manner they decorated sword-blades, vessels, chains, rings, helmets, pins, and similar articles. Enamel or blood-glass, used in filling out deeply-cut lines of decoration, is also a novelty, as well as inlaying bronze with coral or tablets of paste.

England and France, the chief seats of the Keltic art of enamelling (for instance, Mont Benvray, near Autun), yield specimens of enamelled bronze shields, pins, necklets, helmets, spurs, sword-sheaths, bits, and belt-buckles, &c.

It is here only necessary to touch upon the advantage which accrued to the Keltic workman from the fact that this nation was a town-building one, and did not live, like the German, in isolated settlements.

Of the remaining illustrations, Figs. 44-46 represent a few articles from La Tène, a typical lance-point, a pair of shears like our sheep-shears (the latter being frequently found in graves), and a pin. The characteristic feature of

the La Tène pin, which is made of iron or bronze, in Hungary of silver, is the double-sided spiral-winding of the feathering "head," and, more especially, the extension of the pin-gulley, which is bent back towards the shoulder-piece, and was at first unconnected, but afterwards joined to the shoulders. This development is already foreshadowed in the latest forms of the Hallstatt pins, and constitutes the prototype of many Roman provincial pins.

The so-called "Animal's Head Pin" is a peculiar form of pin of the early La Tène period, but only occurs in a very limited area.

Fig. 47 shows us one of the most important productions of which the ever-subordinate, creative art of pre-Roman culture was capable, the highest flight to which it could soar; it is a small bronze figure of a savage warrior in closely-fitting tunic and old-fashioned helmet, with arm and leg bracelets. The position of the arms is not very clear, as the articles probably held in the hands are missing. The warrior was evidently holding a sword blade perpendicularly in his hand and allowing his eye to glance along its edge.

Fig. 48 represents an object of later date, the "Spatha," a long iron sword of the Germans.

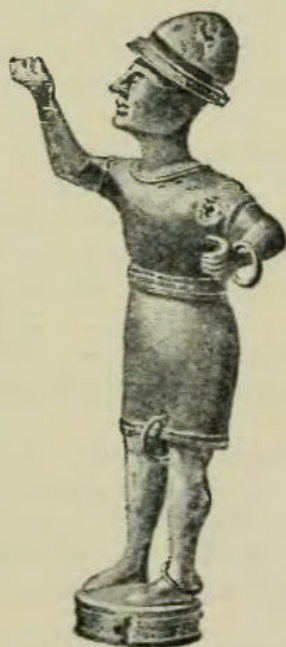


FIG. 47.—Bronze Figure of a warrior.



FIG. 48.—German Iron Sword (Spatha).

It agrees,

in point of form, so clearly with the sword of the last La Tène period that it can readily be understood how the Germans formed their weapons of defence (for their knights) after the model of Keltic wrought work.

With the spread of ancient classical culture to the Rhine, the Danube, and even far beyond, the realism of the less valuable but higher art of the barbarians began to droop and perish, paving the way for the entry of the ideal though shallow and faded forms of art of a southern sphere of culture.

But, with some little modification, the technical and industrial forms and methods of treatment of the last Pre-classical Period were preserved, in testimony of their innate vitality.

BIBLIOGRAPHY

- ANDREE, R. Die Metalle bei den Naturvölkern. Mit Berücksichtigung prahistorischer Verhältnisse. Leipzig 1884.
- BERLIN. Photographisches Album der prahistorischen und anthropol. Ausstellung in Berlin, 1880.
- BERTILLON, &c. Dictionnaire des sciences anthropologiques. Paris 1885-93.
- CARTAILHAC, E. La France préhistorique d'après les sépultures et les monuments. Paris 1889.
- CHANTRE, E. Age du bronze: Recherches sur l'origine de la métallurgie en France. Paris 1875-76.
- CHANTRE, E. Premier âge du fer. Nécropoles et tumulus. Paris and Lyon 1880.
- DAWKINS, B. Cave-Hunting: Researches on the Evidence of Caves respecting the Early Inhabitants of Europe. London 1874.
- DÖRPFELD, W. Troja 1893. Bericht über die im J. 1893 in Troja veranstalteten Ausgrabungen. Leipzig 1894.
- GROSZ, V. Les Protohelvètes. Berlin 1883.
- La Tène, un oppidum Helvète. Paris 1886.
- HAMPEL, J. Altertümer der Bronzezeit in Ungarn. Budapest 1887.
- HEHN, V. Kulturpflanzen und Haustiere in ihrem Uebergang aus Asien nach Griechenland und Italien, sowie in das übrige Europa. 5th edition. Berlin 1887.
- HOERNES, M. Die Urgeschichte der Menschen nach dem heutigen Stande der Wissenschaft. Wien 1892.

- IHERING, R. v. Vorgeschichte der Indo-Europäer. Aus dem Nachlasz herausgegeben. Leipzig 1894.
- JOLY, N. L'homme avant les métaux. Paris 1879.
- KELLER, F. Die keltischen Pfahlbauten in den Schweizer Seen (7 Berichte in den Mitt. d. Antiq. Gesellsch. zu Zürich.)
- LARTET, E., and CHRISTY, H. Reliquiæ Aquitanicæ. London 1865-75.
- LINDENSCHMIT, L. Die Altertümer unserer heidn. Vorzeit. Mainz 1858-93.
- LINDENSCHMIT, L. (Sohn). Das römisch-germanische Centralmuseum in bildlichen Darstellungen aus seinen Sammlungen. Mainz 1889.
- LIPPERT, J. Die Kulturgeschichte in einzelnen Hauptstücken. Leipzig and Prag 1885.
- LYELL, CH. The Geological Evidences of the Antiquity of Man, with Remarks on Theories of the Origin of Species by Variation. London 1863.
- MONTELIUS, O. Spännen fran bronsaldern. Stockholm 1880.
- MONTELIUS, O. Om tidbestämning inom bronsaldern. Stockholm 1885.
- MONTELIUS, O. The Civilisation of Sweden in Heathen Times. Translated by F. H. Woods. London 1888.
- MONTELIUS, O. Die Bronzezeit im Orient und in Griechenland. (Archiv für Anthropologie XXI. 1892-93. S. 1-40.)
- MOREL, M. La Champagne souterraine. Châlons s. M. 1878 ff.
- MORTILLET, G., et A. DE. Musée préhistorique. Paris 1881.
- MORTILLET, G. DE. Le préhistorique. Antiquité de l'homme. Paris 1883.
- MORTILLET, G. DE. Origines de la chasse, de la pêche et de l'agriculture. I. Paris 1890.
- MORTILLET, G. DE. Age du bronze. Tourbières et habitations lacustres (Rev. mens. de l'école d'anthrop. de Paris IV. 1893. S. 105 ff.).

- MORTILLET, G. DE. Habitations de l'âge du bronze. Ter-ramares (ibid. V. 1894. S. 33 ff.).
- MUCH, M. Die Kupferzeit in Europa und ihr Verhältnis zur Kultur der Indogermanen. 2nd edition. Jena 1893.
- MUCH, M. Sammlung von Abbildungen vorgeschichtlicher und frühgeschichtlicher Funde aus den Ländern der österr.-ungar. Monarchie (kunsthistor. Atlas der k. k. Centr.-Kommission I.). Wien 1889.
- MÜLLER, S. Ordning af Danmarks Oldsager I. Stenalderen 1888. II. Bronzealderen 1893.
- MUNRO, R. The Lake-Dwellings of Europe. London 1890.
- NAUE, J. Die Hügelgräber zwischen Ammer- und Staffelsee. Stuttgart 1887.
- PESCHEL, O. Völkerkunde. 2nd edition. Leipzig 1875.
- RANKE, J. Der Mensch. 2nd edition. Leipzig u. Wien 1894.
- REINACH, S. Antiquités nationales I. Epoque des alluvions et des cavernes. Paris 1889.
- SACKEN, E. v. Das Grabfeld von Hallstatt in Oberösterreich und dessen Altertümer. Wien 1868.
- SCHLIEMANN, H. Mykenä. Leipzig 1878.
- Tiryns. Der prähistorische Palast der Könige von Tiryns. Leipzig 1888.
- SCHRADER, O. Sprachvergleichung und Urgeschichte. Linguistisch-historische Beiträge zur Erforschung des indogerman. Altertums. 2nd edition. Jena 1890.
- SCHUCHARDT, C. Schliemanns Ausgrabungen in Troja usw. im Lichte der heutigen Wissenschaft. Leipzig 1890.
- TISCHLER, O. Ueber die Formen der Gewandnadeln (Fibeln) und ihre historische Bedeutung. München 1881.
- UNDSET, J. Jernalderens Begyndelse in Nord-Europa. Kristiania 1881.

- VETTER, B. Die moderne Weltanschauung und der Mensch.
Jena 1894.
- VOSZ, A., u. STIMMING, G. Vorgeschichtliche Altertümer
der Mark Brandenburg. Berlin 1887.
- VOUGA, E. Les Helvètes à la Tène. Neuchâtel 1885.
- ZANNONI, A. Gli scavi della Certosa di Bologna. Bologna
1876-84.

ENGLISH WORKS

NOT INCLUDED IN THE AUTHOR'S BIBLIOGRAPHY

- LUBBOCK, Sir J. Origin of Civilisation. London 1889.
— Prehistoric Times. London 1890.
MUNRO, R. Lake-Dwellings of Europe. London.
— Prehistoric Problems. London 1897.
DAWKINS, B. Cave-Hunting. London 1874.
LYELL, CH. Geological Evidences of the Antiquity of
Man. London 1863.
TYLOR, E. B. Primitive Culture. London 1891.
CAPRON, F. H. Antiquity of Man. London 1892.
LAING, S. Antiquity of Man. Brighton 1890.
BRINTON, D. G. Nomenclature and Teaching of Anthro-
pology. London 1892.
BUCKLAND, A. W. Anthropological Studies. London
1891.
CALDERWOOD, H. Evolution and Man's Place in Nature.
London 1893.
DAWSON, Sir J. W. Story of the Earth and Man. London
1887.
— Relics of Primeval Life. London 1877.
MARTIN, W. G. W. Lake-Dwellings of Ireland. Dublin
1886.

INDEX

- ANIMAL creature, physical, intellectual, and moral condition of, 3
- Apes, 3, 4
- Architecture, the origin of Babylonian, 51
- Aryans, the, 44-55
 ,, their possessions, 45-46
 ,, language, 46
 ,, extravagance of, 48
- Azteks, practical use of metals among the, 81
- BABYLONIANS, the, 52
- Bracelets, the fashion of, during the Hallstatt period, 113
- Bricks, made, 50
- Bronze Age, the, 97-103
- Brute creation, the representatives of in Central Germany, 21
- Burial customs, 41
- Burmah, production of iron, 71
- CAMBODIA, discoveries there, 70
- Carthaginians, the, 52
- Casting, the art of, 115
- Chibcha Indians, their production of metals, 81
- China, production of metals, 72-74
- Clothing, 12
- Copper, smelting of, by North American Indians, 68
- Copper used by Syrians and Assyrians as tribute to the Pharaohs, 68
- Copper Age in the East and in Greece, 91
- Creation, theories concerning the, 3
- Culture, the characteristics of, 7-20
- Culture, the pre-historic epoch of, 20
- DILUVIAL period, 21
- Diluvial period, the men of the, evidence as to their existence, 29; no uniformity in type, 30
- Dorians, their immigration, 96
- Dwellings, pile, 11-12, 25, 36, 54-64
- EGYPT, ancient, production of metals, 65-66
- FIRE, 11
- GEOGRAPHICAL position, configuration, and strata of portions of the globe, 6
- Glacial period, the, 21
- Graves, 42-43
 ,, the Caucasian, 90

- Graves of the Hallstatt period,
105-110
 „ of the Tchuds, 78, 79
 „ of the Kirghiz, 78
- HALLSTATT period, the, 103-118
- Hayti, the natives of western,
their work in metals, 79
- Husbandman compared for intelligence with shepherd, 48
- Huts, their development, 11-12
- IGORROTES, production of iron,
71-72
- Indians, copper-smelting by the
North American, 68
- Indian smith, 70
- Iron, its effect upon the South
Sea Islanders, 85-87
- Iron, the knowledge of its uses in
the East and Greece, 88-89
- JACUTS, the, 76
- KAMCHATKANS, the, 75
- Korjaeks, the, 76
- LANGUAGE, 8
- La Tène period, the, 118-126
 „ „ influences upon,
121
 „ „ weapons of, 122
 „ „ novelties and
ornaments, 124,
125
- MALAY islands, production of
iron, 72
- Mammals, their disappearance
from Europe, 31
- Mammoth Age, 28
- Man, his high standard of develop-
ment, 2
- Man, physical and intellectual
endowments, 4-5
- Man, monogenistic theory regard-
ing, and primeval home of, 5
- Man, early longing for society,
and its results, 10
- Man, his vanities, 13-14
- Man, his weapons, 14-17
- Metals, 64-97
 „ in Africa, 65
 „ in Asia, 69
 „ in America, 79
 „ in the South Sea Islands,
79
 „ in the East and in Greece,
87
- Mexicans, the metals of the, 80
- Monogenistic theory regarding the
development of mankind, 5
- Mycenæ, remains of, and dis-
coveries there, 94-95
- Mycenæan style, the, 91
- NEGRO-SMITH, 66-68
- PALÆOLITHIC period, the life of
man in the, 22-23
- Perthes, Boucher de, 27
- Peruvian production of metals,
82
- Phœnicians, the, 52
- Pottery, in the Hallstatt period,
116
- RACES, the characteristics of, 6
 „ the classification of, 7
- Reindeer Age, 28
- Religion of the earliest epochs, 8
- SEMITES, 47
 „ agricultural pursuits, 47
 „ economy, 48

- Shepherd compared for intelligence with husbandman, 48
- Siberia, the Russian conquest of the native tribes, 75
- Skulls, discovery of, 30, 43, 44
- Stone Age, the, 31
- Superior, Lake, copper from, 83-84
- Superstition, 9
- TATTOOING, 13
- Tchuds (Cudaki), 77
 " their graves, 78
- Tchukts, the, 76
- Terramare, 60, 61
 " inhabitants of, 62
- Towns, original situations of, 49
- Trade, origin of, 19
- Trees, and their influence upon the dwellings of primitive man, 11
- WEAPONS, 14-17
- Weapons, form of, during the La Tène period, 122-125

THE END

