UNIVERSAL
LIBRARY

OU_162536

UNIVERSAL
LIBRARY

OSMANIA UNIVERSITY LIBRARY

Call No 571 F V 990 Accession No 27454

Author Vallency . C . F .

Title Our prehistoric fore runners 192

This book should be returned on or before the date last marked below.

OUR PREHISTORIC FORERUNNERS

"BLIND FIDDLER," ST. CLAWES.

OUR PREHISTORIC FORERUNNERS

BY C. E. VULLIAMY, F.R.G.S.

WITH THIRTY-THREE ILLUSTRATIONS

LONDON
JOHN LANE THE BODLEY HEAD LIMITED

First Published in 1925

Made and Printed in Great Britain by Richard Clay & Sons, Ltd., Bungay, Suffolk.

PREFACE

THE aim of this book is to give as complete an account of Prehistoric Man as is possible within the limits of a handy volume. In undertaking the task, the writer has been encouraged by the evidence of a popular demand for such a work. Popular interest in Prehistory has grown enormously in recent years; and it may not be too much to hope that a short yet comprehensive book, largely concerned with the human interest of the subject, will be of some use. The first three chapters are purely introductory, and are intended for the special benefit of readers who are taking up the study for the first time.

Most of the illustrations are original; for permission to reproduce those that are not, the writer is greatly indebted to the kindness of his friends and to the courtesy of the Trustees of the British Museum.

CONTENTS

CHAP.		PAGE
	PREFACE	V
I.	A GENERAL OUTLINE	1
II.	CHRONOLOGY AND CLASSIFICATION	9
III.	STONE IMPLEMENTS	16
IV.	IN THE BEGINNING	32
V.	PRIMORDIAL MAN	45
VI.	THE MAMMOTH AGE	54
VII.	THE REINDEER HUNTERS	66
VIII.	PRIMITIVE PSYCHOLOGY	88
IX.	PRIMITIVE LIFE	102
X.	RECONSTRUCTION	115
XI.	THE NEW STONE AGE	127
XII.	ANTIQUITIES	139
XIII.	BURIAL AND CEREMONIAL	152
XIV.	INDUSTRY AND ART	168
XV.	THE BRONZE AGE	183
XVI.	FIELD ARCHÆOLOGY	193
	LIST OF ARCHÆOLOGICAL TERMS	203
	BIBLIOGRAPHY	206
	INDEX	211

LIST OF ILLUSTRATIONS

	Facing page
A CORNISH LONGSTONE	*Frontispiece*
GEOLOGICAL DIAGRAM	13
A PALÆOLITHIC FLINT IMPLEMENT	22
PROBABLE METHOD OF GRASPING FLINT IMPLEMENTS	28
PLIOCENE IMPLEMENTS	38
PITS IN THE NEIGHBOURHOOD OF IPSWICH	42
DIAGRAM OF THE ICE AGE	47
LOWER PALÆOLITHIC FLINT IMPLEMENTS	51
A NEANDERTHAL SKULL	56
MOUSTERIAN FLINT IMPLEMENTS	58
OBJECTS OF UPPER PALÆOLITHIC DATE	68
AN EXAMPLE OF PALÆOLITHIC ART	79
AN EARLY EGYPTIAN BURIAL	92
FRAGMENT OF THE PILTDOWN SKULL	116
COMPARISON OF PREHISTORIC AND MODERN SKULLS	119
THE PILTDOWN JAW	124
NEOLITHIC POTTERY	133
NEOLITHIC FLINTS	136
THE DOLMEN OF CHÛN	142
THE CIRCLE OF BOSCAWEN-ÛN	148
A PRIMITIVE BURIAL IN EGYPT	156
THE LONG BARROW AT FFOSTILL	160

Facing page

CELTS OR AXE-HEADS 171

NEOLITHIC ARROW-HEADS 173

FLINT KNIVES FROM DENMARK 175

THE RUINS OF TROY 184

TYPICAL GRAVEL-PITS 194

AN ANCIENT "VILLAGE" 198

OUR PREHISTORIC FORERUNNERS

OUR PREHISTORIC FORERUNNERS

CHAPTER I

A GENERAL OUTLINE

The Subject.—The study of Prehistoric Man (that is, man before the discovery and use of metals) is not one simple undivided study. To one expert the subject presents itself as a series of chipped flints; to another as a collection of fossilized bones; while a third is mainly interested in the position of these things in various deposits of mud and gravel.

The documents of Prehistory tell no lies; they may be misread, but (unlike historical documents) they cannot contain the smallest element of calculated deception.

Let us take an example. The fossil remains of some ancient man are found in a cave. What did he look like when he was alive? Only the anatomist can tell us. How did he make, and for what purposes did he use, the beautiful flint implements which are found near him? Those are questions for the archæologist. And, besides the human bones, the cave contains those of various animals: to find out about these animals, we consult the palæontologist.

So far, the replies may be fairly definite; but we wish to know a great deal more. How many years is it since this cave-man was alive? The geologist gives us an opinion as to the probable age of the material in which the bones are lying. The anatomist recognizes a certain prehistoric type. The archæologist identifies flint tools as belonging to such-and-such a "culture." But they are not likely to agree as to the number of years that have passed since our fossil man was a living creature, and we have to content ourselves with a very wide guess.

And there are other questions. Are we dealing with a burial, or was the body abandoned in the cave? Clearly it is a burial: the bones are laid carefully in a prepared excavation, protected by stones; a flint knife is placed within reach of the hand; and there seems to have been provision of food. We are then led to ask for information concerning the life, the occupations, the governing impulses of this mysterious creature. At this, our experts will shrug their shoulders; but the ethnologist, who has examined carefully the lives of existing primitive races, will produce evidence which, for quite definite reasons, may be assumed to apply to the cave-man.

Prehistory covers the immeasurably greater part of man's existence. The period of written language, of detailed record, is relatively so short that we must regard ourselves, even now, as standing on the fringe of the prehistoric. The rapid development of the human brain and the rapid mastery of material have not changed man radically from what he was twenty thousand years ago. We must not think of Prehistoric

Man as some isolated curiosity, set within an enclosure where we can view him with patronizing interest and take his measure with our improved instruments.

Points of View.—In the popular mind the image of Prehistoric Man is largely made up of confused memories of museums and of music-halls, helped out by humorous drawings. It is the image of a hairy, combative creature, half brute and half buffoon, whose chief occupations were hunting monstrous animals and striking his neighbours on the head with a stone axe. People of more refined imagination prefer to regard themselves as the descendants of legendary beings: a nobility of giants, or a chivalrous race of herdsmen, or a glittering line of kings. Mistaken as these people are, they are not more mistaken than the person who, content with a little knowledge, believes that the Stone Ages were periods of unmitigated human beastliness.

But if these loosely-formed conceptions are wide of the mark, it must not be supposed that the scientific conception is always untinged by prejudice, or that the findings of experts can be accepted invariably without reserve.

The archæologist, who is chiefly occupied with the objects made by primitive man, has often the dimmest or most fantastic thoughts about primitive man himself. When he finds a flint implement, his principal care is to make sure of its correct classification. His desire to force all objects within a conventional scheme of classification often leads to arguments of a very futile and obstructive kind.

But we must remember that archæologists were the first to proclaim the existence of human manufactures

in deposits that were admitted to be 100,000 years old, and to maintain that man was the contemporary, in Europe, of animals that have long been extinct. The scientist of to-day accepts this as a matter of course; it is less than a century ago that such statements were looked on as proof of sheer lunacy or of impious raving, and it required a rare degree of courage and conviction to uphold them.

The geologist plays a leading part in the revelation of man's antiquity. When human bones are found below the present land-surface or beneath the upper floors of a cave, he is, perhaps, the most indispensable member of the little group of scientists who should be called to the scene of the discovery. It is important that the anatomist and the archæologist should be there also; but their principal tasks will be accomplished later, in the laboratory and the study; whereas the most essential work of the geologist must be done on the spot. He is concerned with the nature and age of the deposits in which the human remains are lying, and he has to determine, if he can, whether the bones and the material in which they are embedded really belong to the same period. He regards ancient man as a thrilling episode in the higher geological horizons.

No discoveries are more exciting than those of the remains of Prehistoric Man. Mineral agencies preserve bones; and to the fact that this is so, and that human remains have come to rest countless ages ago in deposits that have saved them from decay, we owe our knowledge of the structure of early man and of his animal contemporaries. The great anatomists are not always in agreement among themselves, but they have estab-

lished certain outstanding principles which are sufficient for our purpose. They have discovered racial differences in the Europeans of the Stone Age. They have given us marvellous analyses of the strange blending of ape-like and man-like features which characterize our remote ancestors.

In every exclusively specialized point of view there are manifest dangers: the danger of being over-credulous, too ready to accept or distort evidence; and the danger of being paralysed in a predetermined attitude of rigid scepticism.

The Antiquity of Man.—Man has been in existence for a period which, measured by the duration of an individual human life, is of immense length: so immense, that we are forced to place our *pre-human* ape-like ancestors in a geological phase that is well over two million years back. That is to say, we must postulate the existence of those ancestors in extremely remote times if we accept the present estimate of man's antiquity.

Evidence.—The evidence of a flint implement is of a perfectly definite kind: that is, perfectly definite in so far as it is a thing of human workmanship, made with skill and with a fixed intention. If it is found beneath the surface in an undisturbed layer, its position in archæological time is equally definite, and leaves no room for dispute. But when this same implement is described as having been used for some special purpose, tied to a stick in a particular way, held by the user in a certain fashion, then we are employing methods which are deductive, and open to question.

To take a more important example: Suppose that a skull of very great antiquity is discovered, not only

broken and incomplete, but apparently far removed from the place of its original deposit. The anatomical characters which are preserved can be seen and accurately described by any student; but the chances are that no two experts will agree as to the exact reconstruction of the head and face, the brain capacity, or the period in time to which the owner of the skull belonged. The most that an expert can do in such a case is to put forward a closely reasoned argument in favour of a certain probability. He cannot be quite sure; and he will be the first to admit his doubts.

Nothing is more fascinating than to make up a picture of ancient man from the material obtained from existing, or recently existing, races of primitive people. There is indeed a strong temptation to identify ancient man with such peoples. The evidence thus gained is of much value; it is evidence that must be studied by the prehistorian, because, without it, he is not in possession of some of the most important clues that can be placed in his hands. The danger is that, carried away by discoveries of resemblance, he may jump to the conclusion that we have only to visit Northern Australia in order to see with our own eyes precisely what was going on in Europe twenty or thirty thousand years ago.

Before jumping to such conclusions, it is just as well to consider whether there are not good reasons for maintaining an attitude which enables us to examine coolly the real nature of the evidence, and to judge the extent of its applicability.

First, a little thought will show us that the " savages " of modern times are not living under conditions which

are identical with those under which primitive man lived in Europe. Behind them lies a far longer line of human ancestry.

Then, again, our knowledge of uncivilized moderns, unless we travel among them, is all second-hand at best, and in some cases very much prejudiced. The scientific study of man is a new study, and it is only recently that it has been carried on with method. Admirable as the work of our present anthropologists undoubtedly is, we have to admit the limits of their survey, to deplore their occasional lack of insight, and to regret that in many fields they have arrived too late.

The value of the evidence derived from the study of living " savages " is, that it does show us those general features of the common inheritance which we call " primitive." If we go beyond this, if we think that the modern primitive Australian is exactly like the ancient primitive European, or that the Eskimo used to live in France, then we are simply giving a free rein to conjecture.

The actual relics of Prehistoric Man—the implements he made and handled, his ornaments, his burial-places, his bones—bring us into the closest touch with our subject.

Unfortunately, the people who are most likely to make discoveries of the highest value are those who, generally speaking, are the least likely to recognize this value or to bring their discoveries to the notice of science. Earth-surfaces are disturbed and revealed by quarrymen, pit-workers, farmers; by those who dig, excavate, or plough for industrial or agricultural

purposes. In some places these workers are beginning to realize the significance of implements and fossilized bones; but that is not the general rule; and it follows that an immense amount of interesting material is crushed, scattered, or thrown away.

With the growth of knowledge, it is to be hoped that some day no district will be without its group of enthusiasts; men who will keep in touch with the workers and who will secure, with their intelligent and willing co-operation, those precious relics that would otherwise be lost. It is very largely to the enthusiasm of the amateur that we owe what knowledge of Prehistoric Man we possess at the present time.

Terminology.—The popular gibe, about using big words where smaller ones will do, certainly touches a weak spot. Prehistoric archæology is overloaded with a multitude of terms derived from every language in scientific or literary use. The inveterate desire of the scientist to fasten a label to every mortal thing is nowhere more in evidence than it is here. At the same time, it is obvious that descriptive terms must be invented, and that we cannot attempt to gain any knowledge of a science unless we are familiar with those terms. The trouble with the special words that are used in archæology is that they are too numerous, they are frequently misleading, coined without proper warrant or excuse, euphonious rather than significant, and spelt without any regard for system or convenience. A much simpler vocabulary is needed for working purposes.

CHAPTER II

CHRONOLOGY AND CLASSIFICATION

IN this chapter, necessarily somewhat pedagogic, it will be assumed that the reader knows little, or nothing, of the conventional framework on which the facts of Prehistory have been pieced together. The tendency at the present time is to over-elaborate the structure: cultural periods are divided and sub-divided, new "type-stations" are established, and it is small wonder if the beginner is confused.

The Stone Ages, starting from the most recent and moving towards the most ancient, are thus divided:

The NEOLITHIC or NEW STONE AGE.

The UPPER PALÆOLITHIC
The MID-PALÆOLITHIC
The LOWER PALÆOLITHIC
} or OLD STONE AGE.

The PRE-PALÆOLITHIC or EOLITHIC AGE.

"Stone Age" is a purely archæological term, and it follows naturally that the subdivisions of the Stone Ages are all named in accordance with the archæological types which characterize them. For example: the Mid-Palæolithic period is also known as the Mousterian, because the typical products of this period were found in great numbers in the cave of Le Moustier in the south of France. The very distinct race of men who inhabited Europe at this time is often referred

to as the Mousterian race—or popularly as the "Mousterians." Hence, archæological terminology is valid for the definition of (1) a division of prehistoric time, (2) distinct prehistoric races, and (3) all the humanly-made products that occur within the limits of the defined period. It is this terminology which is used for all the clearly established phases.

The reader will, of course, understand that the main divisions given above are not of equal length, and that there is no sharp demarcation between them. The duration of the whole of the Neolithic period, compared with that of the Palæolithic, is relatively short—perhaps not more than a mere ten thousand years. An immense lapse of time is covered by the Palæolithic ages: two hundred thousand years is a moderate estimate. The Pre-Palæolithic cannot be measured at all.

We have seen that the Mousterian phase derives its name from a French "type-station"—a place which produced numbers of flint implements made in a particular way, and recognized as indicating a distinct culture-epoch. The other subdivisions of the Palæolithic ages are named, similarly, from French sites. In descending order, these subdivisions are as follows:

The AZILIAN—Transitional or MESOLITHIC.

The MAGDALENIAN
The SOLUTRIAN } UPPER PALÆOLITHIC.
The AURIGNACIAN

The MOUSTERIAN—MID-PALÆOLITHIC.

The ACHEULIAN
The CHELLEAN } LOWER PALÆOLITHIC.

The names of these " cultures " are derived respectively from the sites at Mas-d'Azil (Ariège), La Madeleine (Dordogne), Solutré (Saone-et-Loire), Aurignac (Haute-Garonne), Le Moustier (Dordogne), Saint-Acheul (Somme), and Chelles (Seine-et-Marne).

We need not yet concern ourselves with the divisions of the Neolithic period, which, in some respects, are not yet clearly differentiated. Neither need we, at this stage, take into account the hypothetical divisions of the Pre-Palæolithic cultures. It will be enough for the reader to grasp the sequence of the clearly established phases given above.

Sometimes the Mousterian epoch is regarded as the lowest of the Upper Palæolithic series and sometimes as the uppermost of the Lower Palæolithic series; but from its great duration, its particular significance in human Prehistory, and the wealth of material which it contains there seem good reasons for bringing it into special prominence.

The following geological divisions, and their relation to the main phases of the Stone Age, should be memorized (their relative position in geology is shown by the chart) :

QUATERNARY { (RECENT or HOLOCENE). NEOLITHIC.
(PLEISTOCENE). PALÆOLITHIC, merging into PRE-PALÆOLITHIC.

TERTIARY { PLIOCENE, MIOCENE } PRE-PALÆOLITHIC.
OLIGOCENE (?).
EOCENE (?).

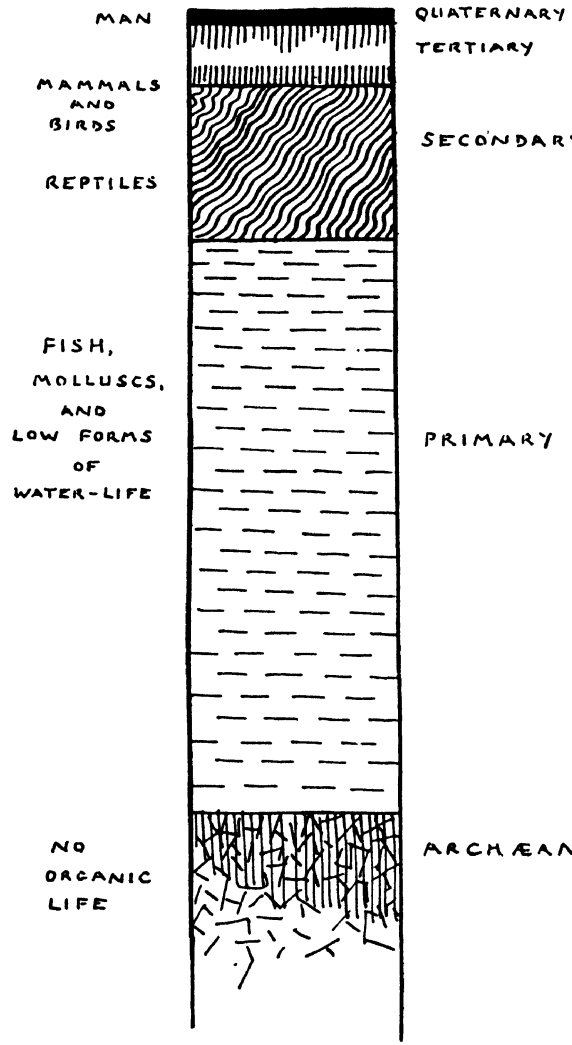


Diagram showing, approximately, the relation between the evolution of organic life and the geological epochs. Note the comparatively "recent" position of man.

Whether traces of true humanity are likely to be found below the Pliocene, and even to what extent they may be found in the Pliocene, are matters of very considerable doubt at present. There are no reasons for believing it impossible that a man-like creature was in existence at the end of the Miocene period—say, a million and a half years ago.

The Upper and Middle Palæolithic ages are sometimes described as the Reindeer Age and the Mammoth Age respectively, because those animals were closely associated with mankind during the corresponding cultural phases. Zoologically, the Lower Palæolithic period is characterized by the presence of the hippopotamus.

The Lower Palæolithic period is also known as the "Drift" or "River-Drift" period, owing to the fact that the majority of the flint implements belonging to that period are found in gravels of river-drift type. This term will be explained in Chapter V.

Man became an habitual cave-dweller in Mousterian times, and it is correct to speak of the Mousterian as the "Early Cave Period," and of the Upper Palæolithic as the "Later Cave Period."

The nature of these divisions of prehistoric time must be clearly understood. They represent stages of culture through which the prehistoric Europeans have passed in the course of what may be as much as half a million years. Precisely how long each stage lasted, and precisely when it occurred, we cannot say. Let it be remembered that prehistoric society did not leap from one well-defined phase to another well-defined phase. Between the predominance of one culture and the pre-

dominance of the next we find, if we examine objects of human manufacture, a long succession of modified forms and of gradual changes. Infinitely slower and more gradual than the changes which took place in the form of his implements were the changes that occurred in the bodily structure and in the mind of man. Between ourselves and the men of the later Stone Ages the difference is one of degree—not of kind. And we must remember, too, that these archæological divisions of time, which are purely conventional, do not justify us in assuming that Prehistoric Man passed through identical phases in identical succession in every part of the prehistoric world, or even in Europe.

We give a full table of the Prehistoric Periods, for reference :

TABLE OF THE PREHISTORIC PERIODS.

Conjectured approximate distance in years from the Present Time.	Culture-name of Period.	Main Division.	Geological Position.
5,000	Carnac or Megalithic.	NEOLITHIC.	HOLOCENE or RECENT.
10,000	Robenhausian.		
15,000	Campignian.		
20,000	(Tardenoisian.) Azilian or Tourassian.	MESOLITHIC or TRANSITION.	UPPER PLEISTOCENE. (QUATERNARY.)
35,000	Magdalenian. Solutrian. Aurignacian.	UPPER PALÆOLITHIC.	
60,000	Mousterian.	MIDDLE PALÆOLITHIC.	
100,000	Acheulian.	LOWER PALÆOLITHIC.	LOWER PLEISTOCENE. (QUATERNARY.)
200,000	Chellean.		
300,000	Pre-Chellean. (Strepian.) (Mesvinian.) (Mafflian.) (Reutelian.)	PRE-PALÆOLITHIC or EOLITHIC.	
500,000	(East Anglian, Kentian, etc.)		PLIOCENE (TERTIARY.)
1,000,000	(Cantalian.)		MIOCENE (TERTIARY.)

Divisions in brackets are not in general use, or of doubtful significance. The time-table does not attempt to indicate any special stage of the periods, but only to give a rough idea of their relation, in time, to the present age.

CHAPTER III

STONE IMPLEMENTS

The First Implements.—The creatures whose descendants we are, through the possession of an intelligence superior to that of any other animals, chipped pieces of flint into convenient shapes.

Obviously, a creature that could improve the usefulness of bits of flint by chipping them would make use of all sorts of other materials—wood, shell, bone and ivory. But these are perishable materials, while flint is relatively enduring; and it follows that the flints are the principal, if not the only, survivors. It is therefore of the greatest importance that we should find out all that can be known about the early flint "implements."

A little reflection will show that no one would go to the trouble of fabricating a tool if he could find what he wanted ready-made, provided by nature. Man, when he had reached the stage of making implements, had reached the stage of requiring a definitely shaped tool for a definite purpose. So long as he only wanted to pound and hammer and crush, any lump of stone that came handy would do well enough. When it was a matter of slicing, scraping, cutting, or piercing (all of them relatively advanced processes) he could not be sure of always finding just the sort of flake or edge that he needed—and he had to manufacture implements.

His first step would be the simple improvement of a likely piece of flint: a little battering, chipping and trimming of a very crude kind. He would thus produce a variety of shaped flints exhibiting some common feature of usefulness, but not repeating the same general form. Later, the advantages of symmetry and standardization became evident; and, as intelligence grew, craftsmanship came into being, to culminate finally in the production of flint tools that show the highest degree of skill of a particular kind that has ever been reached by man.

It will be our aim in this chapter to review, briefly, certain main considerations which apply to stone implements, from the uncertain beginnings to the end of the Stone Ages. It is absolutely essential that the reader should be familiar with the archæological groundwork before he proceeds.

Flint.—The examination of flint as a geological substance presents a number of unsolved problems with which we need not concern ourselves here. Flint consists of a mixture of two kinds of silica—the crystalline and the colloidal—and its origin is in the cretaceous (chalk) deposits which form the upper strata of the geological " Secondary " or " Mezozoic " age.

In its native, unchanged form it appears in irregularly shaped crusted nodules, varying in size from tiny pebbles to large, heavy lumps weighing 40 or 50 pounds. When the nodule is cracked open, the unchanged flint is found to be black, honey-coloured, or greyish.

But since they were laid down in upper Mezozoic times, and covered over by the higher series, the flint-bearing cretaceous layers have been exposed, and the

flints have been subjected to rough treatment: climatic changes, the action of vast rivers and of glaciers, movements of the earth's crust; so that individual pieces of flint have been crushed, rolled, battered, weathered, split, pounded, and eventually deposited and buried in one of the more recent geological strata; while others are scattered widely over the present land-surface.

Thus, flint is found in a variety of forms, sizes and colours. The colour of flint may be almost anything, from the unchanged black, amber, or grey, to yellow, red, orange, green and blue, up to the purest white. A single piece of flint may, and very often does, show more than one distinct colour-surface.

The changed colour of flint is due to a chemical process which is known as "patination." Concerning the patination of flint, many points have yet to be cleared up. Patina is produced by various agencies: exposure to weather, contact with soil or gravels, or with other geological material. The colour-change which it brings about is caused by the decomposition and alteration of the outer skin of the flint. Its depth varies. It may be only a thin, discoloured rind, or it may penetrate deeply. In the case of a small flake, the changed colour is sometimes uniform throughout.

Unfortunately, there is no exact knowledge as to the time required for the production of patina, either by exposure or by contact. Patina therefore does not provide an absolute criterion of age in the case of an implement whose chipped surface shows discoloration. Flint implements of great antiquity—Mousterian, for example—may show surprisingly little, if any, colour-change; while a modern gun-flint may be very notice-

ably patinated. Perhaps the most rapid change is that which takes place in implements which have been in contact with a chalky soil: these have a uniformly white surface. Generalizations are impossible; but it can be stated with confidence that the majority of those flints which show ochreous, yellow, rusty, and orange patination have been subjected to what we assume are the relatively slowly operating agencies of association with mineral deposits; they have been embedded in gravelly drifts, most probably, and are of very ancient date; while those that show blue, bluish-white, grey, or dappled patination have been exposed to the relatively rapid sub-ærial agencies of weather and climate.[1] But no hard-and-fast rules can be laid down; and though patination is of the utmost importance as a means of showing whether the chipped surfaces of a flint are of one period, or of giving confirmatory (not decisive) evidence to the archæologist, we must look at the shape of an implement rather than at its colour when we are considering its probable age.

As a material for the manufacture of tools and weapons, flint has advantages over all the other materials that were used by man before the discovery of metal. Split into long flakes, it has a cutting edge which is unrivalled for sharpness. Its hard, lustrous and smooth surface is pleasant to see and to handle. Before he had finished with it, flint gave man an opportunity for displaying abilities of a very high order.

One characteristic of flint must be mentioned before

[1] Some people only admit the use of the term "patination" in the case of flints whose colour has been changed sub-ærially.

we proceed. When a lump is struck smartly with a more or less pointed instrument, the flake which is detached shows on its under-side, at the point of impact, a raised bulb, somewhat shell-like in form, from which concentric ripples and depressions (sometimes accompanied by radial lines which have the appearance of deep scratches, or by radial grooves, or both) spread out fan-wise. Correspondingly, the block or core from which the flake has been struck will show a concave concentrically rippled surface. This is termed the " conchoidal fracture," and the bulb on the detached flake is known as the " bulb of percussion." It was once supposed that the bulb of percussion is an infallible mark of human agency; but that is not the case. Conchoidal fractures and bulbs are freely produced by accidental causes.

Terminology.—There is no tendency which more frequently leads to foolishness and error than the tendency to insist on rigid classification. The terms in French, English and German which have now been coined for application to the various types of flint implements—terms describing use or period or locality —are so lengthy and so numerous that their mere tabulation would occupy many pages.

A flint implement is described in two ways: according to its assumed period and according to its assumed use. We speak of a Chellean hand-axe, a scraper of Aurignac date, and so on. (Archæological terms are not applied systematically: the names of the " cultures " are often used, as in the second example above, without being changed to adjectival form. " A Solutré blade " or " a Solutrian blade " is equally correct.)

Classed broadly, types are simply described as Eoliths, Palæoliths, and Neoliths. And even within the immense scope of these divisions mistakes are possible.

As regards description according to assumed use, this, as a conventional means of classification, is far more reliable and more practical than description according to assumed period. There can be no doubt at all as to whether an implement falls under one of the " scraper " categories, for example; but there may be considerable doubt as to whether it is a scraper of Palæolithic or Neolithic date.

The reader will understand that such terms as " hand-axe," " scraper," " borer," " point," " blade," " graver," " fabricator," with all the qualifying additions which are used (side-scraper, double-scraper, lateral graver, etc.), are purely conventional: in most cases we can only guess at the purpose for which the implement was made, and we use these terms simply as a means of identifying implements of a particular form worked in a particular manner.

Naturally, a vast number of humanly-worked flints do not come within any of the established categories. In all probability that number is greater than most archæologists imagine, still less admit. Incomplete or broken implements are common; but they must not be confused with those, as yet unclassified, which are manifestly perfect.

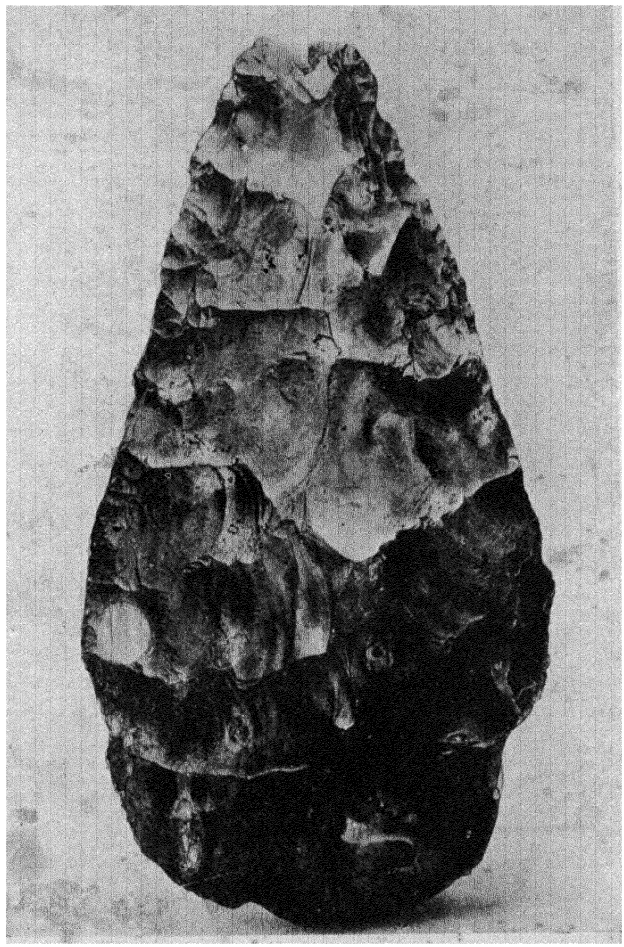
Sooner than confuse the reader with a list of terms in the text, it will be better to explain them as they occur in the course of our study. A list of the English and French terms in current use will be found at the end of the book.

Controversies.—Anyone can see that disputes are inevitable when we are trying to decide whether the chips on a bit of flint are the result of human or accidental agencies. But, at the present time, it is almost impossible to realize the state of mind of those who repudiated the suggestion that the beautiful and shapely implements of Early Palæolithic days were made by ancient man. To us, the thing is as clear as daylight.

We need not repeat here the often-told story of Boucher de Perthes, the greatest of archæologists. He saw clearly, from the evidence of the Somme deposits, that man was contemporary with the fauna of the warm Chellean period, and that he was even then, in those incredibly remote times, making excellent flint tools. This discovery—so tardily and so grudgingly admitted—led the way to an entirely new conception of Prehistoric Man. French archæologists, working over the richest Palæolithic areas which have come to light, laid the sure foundations on which their successors could build with confidence and with method. Prehistoric archæology received its momentum from those who first studied the traces of ancient man in France.

But although the early prejudices have been swept aside, although the plain facts about Prehistoric Man are now established beyond the reach of controversy, there is a resolute scientific opposition which declines to accept the chipped and battered flints which are put forward as the work of Pre-Palæolithic Man. The argument is, whether certain flints owe their shape to intentional or to accidental chipping.

We are not primarily concerned in this argument



By permission of the Trustees of the British Museum

A VERY FINE SPECIMEN OF A LOWER PALAEOLITHIC FLINT IMPLEMENT, REPRODUCED ABOUT ONE-THIRD NATURAL SIZE. IT IS ATTRIBUTED TO THE ACHEUL PERIOD

with the creature who made them—if they are really tools—or with the probability or improbability of his existence half a million years ago; but simply with the question as to whether they are the result of hazard or of design.

The term "eolith" is applied in a general sense to any extremely ancient piece of flint which looks as if some one may have trimmed it a little. Eoliths were first collected in this country by Benjamin Harrison, a grocer, of Ightham, in Kent. He picked them up by the thousand on the flat, fertile land of the North Downs; and there they may be picked up by anyone who walks the fields in the neighbourhood of Ash (the classic ground), or on other parts of the Downs which are covered by ancient gravel. The particular futility of the dispute about eoliths is, that it can never be settled. It is certain that a creature who might as well be called man must have been in existence before the plateau gravels of Kent were rolled down from the eminences on which he lived. To establish this, it is not necessary to produce eoliths: an authentic eolith would merely confirm; it is not required in order to prove. A great river must have a source somewhere: there is no occasion to show a handful of pebbles from that source in order to prove its existence. Since it must be admitted that a considerable number of eoliths *may* have been shaped by human agency, nothing much is gained by trying to find out which have been thus shaped and which have not. From the nature of things, it is impossible to draw the line. Eolithic man did not need, neither could he make, elaborately specialized implements. He would have

picked up any conveniently shaped piece of stone and made use of it; but as the relatively highly-finished Chellean tools must have been preceded by less perfect forms, shading off into crudely trimmed fragments, there must be traces of early craftsmanship among the flints of the lower Quaternary, and probably among those of the upper Tertiary periods. These crude implements must be, in the majority of cases, indistinguishable from the result of accident. In the Museum at Ipswich, among the intensely interesting specimens of Pliocene flints collected by Mr. Reid Moir, there are examples from the lower deposits ("Pre-Crag") which have convinced many obstinate unbelievers.

When a given form recurs frequently, when that form shows consistent and methodical working, it is usually safe to assume that we are dealing with a manufactured implement. But the human origin of the vastly more numerous indeterminate forms cannot be proved; neither can it be finally denied. This uncertainty is by no means confined to flints of the Tertiary period; it extends over the whole of the Prehistoric Ages, from the alleged Oligocene implements right up into the Bronze Age. It may be that systematic collection and comparison will establish the existence of types which have not yet been recognized; but there is an obvious limit to our knowledge in this direction. The last desperate argument of the over-credulous—"it fits the hand"—is not worth much. The successive uses of the same piece of flint at different periods add a further complication.

Nature and Artifice.—Bits of flint, as we have seen,

are subjected to rough usage by nature. This rough usage produces, not only curiously shaped masses, but delicately chipped and flaked pieces of most deceptive form. Many of the less elaborate implements are thus simulated by natural means. Not only is this the case, but it follows that primitive man, finding just what he wanted, ready for immediate use, would take what nature offered him rather than go to the trouble of fabricating a tool. His use of the natural implement would modify its shape, and in order to preserve or improve its usefulness he would trim and retouch its edge. Myriads of pieces of flint must have been used by ancient man which were only slightly modified by his hand. Such pieces must necessarily escape exact identification.

In short, the student may well ask, How is it possible to discriminate between the artefact (that which is intentionally shaped by the design of man) and the result of a mere accident or series of accidents?

Of the more highly evolved forms there can never be any doubt. Anyone, without special knowledge or experience, can detect such obvious things as arrow-heads, knives, polished axes, or daggers. A slightly trained observation is needed for the identification of the early Palæolithic tools; and when it comes to the Pre-Palæolithic series, or the less obvious artefacts of any prehistoric phase, a long and close familiarity is essential. It is not possible to describe on paper those characteristics of technique which *may* settle the question even in the case of a broken fragment: the only way to acquire a knowledge of those characteristics is through actual study of the objects which dis-

play them—and, for this, it is necessary to handle as well as to see. In itself, even this special knowledge of flint technique is not always enough, because, as we have seen, blind mechanical force can produce surfaces which are indistinguishable from the work of man.

Typology.—When we are dealing with unmistakable implements of definite form, we find that these may be divided into two classes: (1) those which can be unhesitatingly ascribed to a given period, and (2) those whose attribution is either difficult or impossible.

The forms which can be definitely assigned to a period are—(1) those which are known to be characteristic of that period, and which do not occur in any other—a very small category; (2) those found in a geological deposit which is undisturbed and which is known to have been laid down at a time corresponding to that of one of the archæological cultures; (3) those associated with undisturbed burials which are in themselves clearly recognizable; (4) those found in a sealed layer or "horizon" in contact with, or near, the unmistakable material of a given cultural epoch. Strictly speaking, it is impossible to be absolutely sure of the date of implements, however obvious as such, which do not come under one of these headings. Implements of practically identical form occur in more than one cultural phase: they may, indeed, occur in many. As a general principle, it can be taken for granted that type is more easily determined than age.

Flints picked up on the surface must be judged, for the most part, on whatever they possess in the nature of intrinsic evidence. The agencies of soil-movements, drainage and denudation, floods, and the artificial

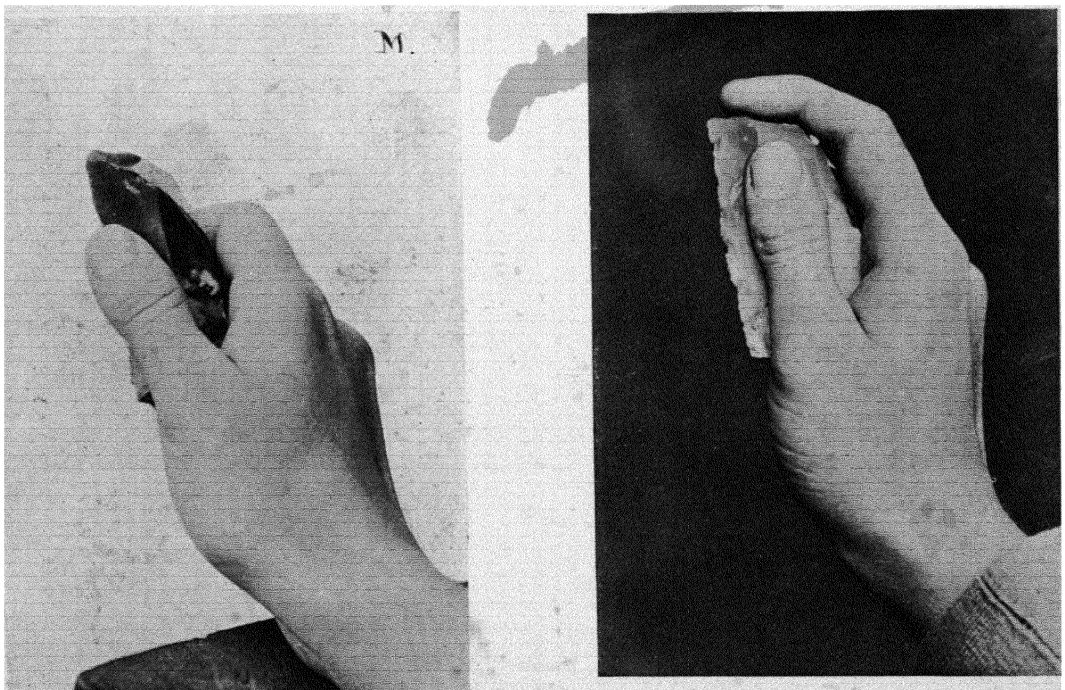
changes brought about by civilized man, who carts gravel and earth from one place and spreads them over another—all these have jumbled up archæological material in the most bewildering way. In some cases Palæolithic and Neolithic implements are discovered lying in the same ploughed field, mixed up together. Even in areas where flint does not occur naturally, and where its presence on the surface usually indicates a site which can be dated with fair accuracy, we can never rule out the possibility of intrusion.

Before leaving the subject of typology, we must refer to what are known as "local" types. In certain districts or on certain sites, flint tools were made in a way that did not occur to a noticeable extent elsewhere. Types which are apparently confined to one locality, or variants of a type which are strictly local, crop up in most areas that have been thoroughly explored. Amateurs who walk about over ploughed fields very soon find out that particular fields contain particular types of flint implements which are not found in other parts of the neighbourhood: in fact, it may be that they are not found anywhere else. The collection and comparison of these local types is of great interest.

Distribution.—As regards the distribution of worked flints, we cannot lay down any hard-and-fast limitations. Palæolithic implements are of more restricted distribution than those of the New Stone Age; the latter are found practically everywhere—everywhere, that is, where the present state of climate and surface is favourable for human existence. In chalky regions, or in those bordering on the chalk, where crude flint is,

and has always been, plentiful, a greater number and variety of implements are found on the surface than is the case in other areas. Palæolithic types are sometimes found on the surface in these regions. But flints were carried about, and implements of ancient form are picked up in places where it was once assumed that they could not possibly be discovered. The older Palæoliths occur in great numbers in the ancient river-deposits, in high-terrace gravels (see Chapter V) in valley gravels and brick-earth, and are generally revealed in gravel-pits, chalk-pits, quarries, and other industrial excavations. From the Mousterian period onward, flints were deposited by man in the caves which he visited or inhabited, and in those caves immense numbers of implements have been found sealed beneath the succeeding deposits which have been laid down above the Palæolithic level. In many instances, successive cultures, separated by layers of stalagmite or débris, have been found one above the other in the same cave—thus proving its use by man for tens of thousands of years.

Flint implements and flakes are not found in large numbers in one place except on sites that are termed "workshops" or "factories" and in cave-deposits. Workshop sites occur from the Lower Palæolithic horizon onwards. At Caddington, near Luton, in Bedfordshire, the late Mr. Worthington Smith discovered the floor of a Lower Palæolithic workshop on which lay finished implements, innumerable flakes, and piles of material ready for working, buried beneath contorted drift and layers of brick-earth. Neolithic "factories" are discovered on the surface: their



By courtesy of Mr. J. G. Marsden

PHOTOGRAPHS SHOWING THE PROBABLE METHOD OF GRASPING IMPLEMENTS OF MOUSTERIAN FORM

presence is usually indicated by a profusion of thin, small, translucent chips.

The distribution northwards of Palæoliths is not yet clearly defined. It is probable that they will not be found in England north of a line drawn from the Mersey to the Humber. Indeed, a line drawn from the estuary of the Severn to the Wash would probably mark off the northern limit of *Lower* Palæolithic types. They are said not to occur in Ireland, and they have not been found in Scandinavia and in northern Russia.

Manufacture and Use.—Although flint was incomparably the best and most frequently used material employed by Prehistoric Man for the manufacture of tools and weapons, other materials were occasionally used: basalt, quartzite, greenstone, chert, slate, lava, diorite, crystal, jasper, etc. Existing primitive races still make implements practically identical in form with those of the European Stone Ages from all sorts of natural and composite materials—bits of glass or porcelain, obsidian, jadeite, etc.

It is interesting to speculate (we cannot do much more) on the methods of manufacture and on the uses of prehistoric implements.

Obviously there were three main principles in manufacture: either the flint was struck or battered by direct blows from a hammer-stone, or it was flaked by oblique blows from an instrument used like a chisel, or it was chipped by pressure applied to its edges.

Very probably the co-operation of two persons was required for the making of the large Palæoliths—one to hold the piece of flint on the "anvil," and the other to deliver the blows.

The purpose of prehistoric implements can only be guessed, if we exclude such obvious and comparatively recent things as arrow-heads, axes, hammers, and the like. One may surmise reasonably that early man would use his edged or pointed or beaked tools for various purposes: sharpening and trimming sticks, pounding and cutting away the flesh of the animals which he desired as food, attacking the said animals (or with less probability his fellow-men), and, when he had reached a relatively advanced phase of culture (or decadence), scraping the inner side of the skins which he wore as a protection against cold.

Finally, we must take into account, from the Mid-Palæolithic age, if not before, the association of flint and of flint implements with ritual. The burial of the dead is the most ancient of all known ceremonies. That it was a ceremony which had acquired an elaborate spiritual significance by the beginning of the Reindeer Age is made manifest by the fact that ornaments and weapons were at that time buried with the deceased, whose body was usually placed in a conventional position, often protected by stones, and sometimes prepared for burial by strange and revolting treatment.

Flint is closely associated with human burial, from the Mousterian period right up to an advanced phase of the Bronze Age.

Folk-lore has preserved memories of the magic or sacred character of flint, and flint knives have been retained for ceremonial usage long after the introduction of metals.

Thus, if there is one material which has had a

profound significance for man from the very dawn of his humanity to the beginning of the age in which he now lives—something which he has regarded as useful, beautiful and mysterious—that material is flint.

CHAPTER IV

IN THE BEGINNING

MAN—that highly evolved and superior vertebrate —did not step into the scheme of things, ready-made, from some region of mystery. He has been evolved, through an infinitely long series of changing forms (he is still changing), his evolutionary history being distinguished from that of other animals by the rapid and specialized development of one organ—the brain. But although this cerebral development became increasingly rapid among the more advanced races during the last six or eight thousand years, man (in general anatomical outline by no means unlike the man of to-day) was an inhabitant of Europe before the close of the Ice Ages. His beginnings, therefore, have to be sought in times which, reckoned in terms of years, are terribly remote.

In tracing the line of human descent back into the past we are undertaking a long journey indeed; and in this journey backward we have to regard even the earliest civilizations as only the first, shortest and easiest stages. We have to remember that the culture of the early Egyptian dynasties, so immensely old if we regard their position in the story of civilized progress, appears relatively modern in comparison with the extent of the prehistoric ages. In fact, the period of the Eleventh and Twelfth Dynasties represents less than

one-tenth part of the distance we have to travel before we are in contact with a race of men who differ in a marked degree from the modern type, and less than *one-hundredth* part of the distance that lies between ourselves and the early stages of humanity in Europe.

The Precursors of Man.—We do not know much concerning the immediate precursors of man, but we believe that they must have exhibited forms not unlike those of the existing anthropoid (man-like) apes. At what stage the human stem branched off from the main stem of the Primates, and precisely in what way man is related to the anthropoids, we cannot say. Neither is it known whether the human type was evolved in, and radiated from, one particular " centre of diffusion," or whether, on the contrary, human types were evolved contemporaneously in different centres.

The answers to these problems can only be found, if they ever are found, in the further study and comparison of ancient fossilized bones, and in the light of future discoveries. It must be remembered that man is not the descendant of any existing ape, but that, somewhere in the immeasurably remote past, monkeys and men have a common ancestor: we have, as yet, no exact knowledge of the form and nature of that ancestor. From the ancestral stem of the Primates, apes, lemurs, monkeys and men have branched off at different stages and have been subjected to different evolutionary conditions. The stage in the direct line of human evolution which immediately preceded man himself may be described as an anthropoid stage. But we know practically nothing of the pre-human anthropoids.

At what stage of evolution can we say " This creature is man "? Apparently this question can be answered if we take a group of anatomical characteristics; but that begs another question—which characteristics? Concerning the answer to this, only the expert anatomist has the right to proffer an opinion, and the reasons he would adduce in support of his opinion would be far too technical for the average reader. It is not as easy as it might seem to define man from the structural point of view.

A more popular solution is that which describes man as a tool-making animal, and assumes that the human standard is reached when we find that simple " implements " are being intentionally fashioned for simple purposes. This definition of man as a tool-making animal has something to recommend it. The *manufacture* of an implement, however crude, argues a degree of mental efficiency greatly in advance of that of any of the existing anthropoids (gorilla, orang, chimpanzee).

Evolution of the Human Type.—As would be supposed, in examining the earliest skeletal remains of man we find a strange, but expected, blending of ape-like and human characteristics. No fossilized human bones that have so far been discovered can without hesitation be ascribed to the Pliocene period; but the most ancient remains that have come to light, even if they cannot be confidently placed within that period, are at least so near it that they afford positive evidence as to the structure of the races that followed immediately after the Pliocene type, if not of the type itself. Our information is derived from three discoveries, each of

the utmost importance: the first was made in Java in 1892 by Dr. Dubois; the second in the sand-pits of Mauer near Heidelberg in 1907; and the third in a small gravel-pit at Piltdown in Sussex in 1912. We shall deal with these discoveries in Chapter X.

The finding of human remains of extremely ancient date in areas so far apart as Java and Western Europe confirms us in the idea that different types of man were evolved more or less simultaneously in different parts of the world. It would seem that the northward movement of the human species (assuming—as there is reason to believe—that man originated in the warm regions of the earth) had a very marked effect on its evolution and progress. "It is very probable," says Sir Arthur Keith, "that the Negro was fully evolved in early Pleistocene times." That is to say, that some three or four hundred thousand years ago there existed a Negro who was not greatly unlike the Negro of the present day. (By Upper Palæolithic times, a human type with negroid affinities had reached the French-Italian Riviera.) But the European of early Pleistocene date was no more like the European of to-day than the latter is like the Negro. The primitive African did not pass beyond the relatively inferior stages of human evolution: the primitive European did. The northern environment had the effect of modifying or restricting certain tendencies and of stimulating and developing others. The hardships that resulted from that environment forced upon primitive man the qualities of bravery and resourcefulness. In pitting himself against the evils of climate and the strength and ferocity of wild animals,

he learnt how to co-ordinate his efforts with those of his fellows, and how to act individually with foresight and cunning. Under these conditions the higher mental processes come into being. Thought becomes sustained, and directed beyond the concerns of the immediate present.

Pliocene man found himself (in Europe), until the closing phases of the period, in a genial climate, the fauna including the Etruscan Rhinoceros, *Elephas Meridionalis* (a great elephant reaching a height of twelve to fifteen feet at the shoulder), the Great Hippopotamus, and a kind of gigantic beaver known as *Trogontherium Cuvieri;* all of them animals whose presence indicates warm climatic conditions.

Towards the close of the Pliocene age the rigours of the approaching glacial phases were already making themselves felt.

It is evident that the Pre-Palæolithic European must have had a degree of skill and of energy concordant with his position as the forerunner of the highly efficient Chellean craftsman (see next chapter). However, the reader must not run off with the notion that his Eolithic ancestor, living more than half a million years ago, was a marvel of intellectual and physical vigour: we may assume that he had taken the first great steps in human development; that he had learnt to modify material for his own purposes; to compete successfully with animals whose brute strength was many times superior to his own, and to shelter himself from the weather; that he was able to create the artificial conditions which were essential to his progress and supremacy—but in all respects he was

very far below what we now accept as the human standard.

The Archæological Evidence.—The Belgian archæologist, Rutot, claimed the discovery of worked flints in middle and lower Tertiary deposits, as well as in the Pliocene. He has identified " Reutelian " forms in the Miocene beds of France (Puy-Courny and Puy-de-Boudieu in the Cantal) and in Belgian Oligocene (Hautes-Fagnes). A number of small cracked and blackened flints which have been subjected to the action of fire, found at Thenay (Loir-et-Cher) by the Abbé Bourgeois, have been attributed to a human industry in the upper Oligocene: others, from Boncelles near Liège, to lower Oligocene. Flints of a type rather similar to those of Thenay were found in Miocene deposits at Otta in the valley of the Tagus (Portugal), and were reported on in 1871.

If these attributions were correct, we should have to acknowledge the existence of man two million years ago. A great English anatomist has said, " There is not a single fact known to me which makes the existence of a human form in the Miocene period an impossibility." However, the evidence itself—the products of the alleged " Cantalian " and " Fagnian " industries—cannot be said to be very convincing. It is not necessary to share the scepticism of Sir James Geikie, who points out that " eoliths occur only in places where flint pebbles are commonly present "; or to congratulate Mr. Hazzeldine Warren on discovering that eolithic types can be made by cart-wheels—neither of them arguments that carry much weight. But it must be admitted that human agency cannot be

proved in the case of the Hautes-Fagnes or the Thenay flints. The pressure or movement of overlying strata, or any other accidental cause, would account for them. Doubtless the Thenay fragments have been burnt; but that does not prove the hand of man. Moreover, it is incredible that any creature so highly evolved as to have controlled and made use of fire was in existence in Oligocene times—somewhere about one and a half million years ago.

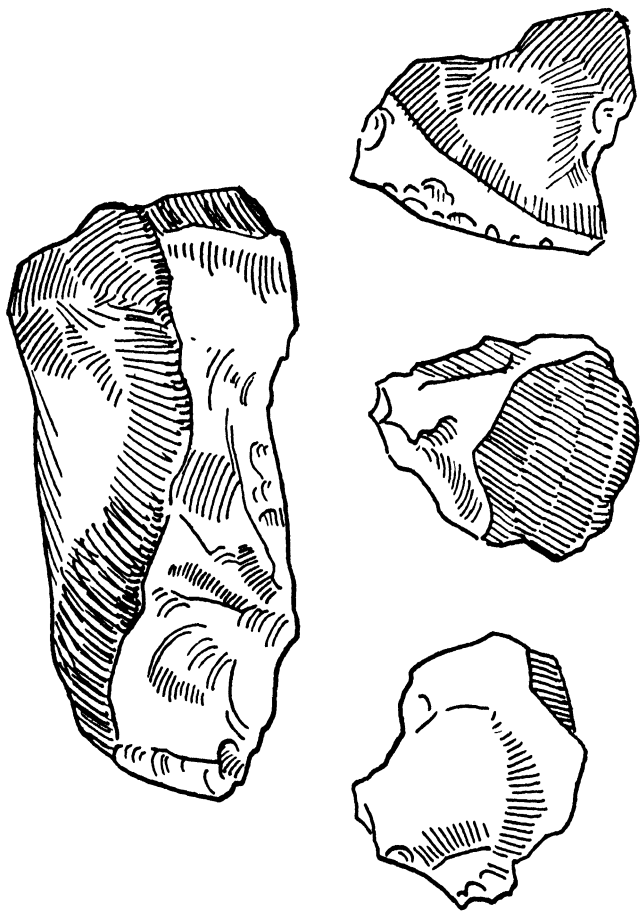
The case is more hopeful when we move on to the flints of Pliocene age.

Many experts are now prepared to admit that among the chipped flints which are unquestionably of Pliocene date there are some which seem to owe their form to deliberate workmanship. Mr. Reid Moir's discoveries in East Anglia have brought conviction to many waverers, including the Abbé Breuil—one of the most eminent of living archæologists.

Much of the incredulity, so marked some years ago, was the result of the over-eagerness of those who, following in the tracks of Benjamin Harrison, produced the roughest, most irregular and unsatisfying bits of stone, and proclaimed them as the indubitable work of man. Hence the word "eolith" became a kind of scientific joke, usually printed between derisive commas.

The eoliths of the Kentish Downs, so assiduously collected by Mr. Harrison, are for the most part merely nodules of flint which appear to have been trimmed into shapes useful for scraping or pounding. In the history of archæology these flints hold an important position, since they are among the first of their kind which were put forward as proving that man existed before the

Quaternary period, and since they gave rise to remarkable and stimulating controversies. It cannot be said



Pliocene flints: the alleged earliest traces of human handiwork. The large one is a rostro-carinate, the others are from the Foxhall pit at Ipswich.

that the Kentish eoliths are very convincing; indeed, many of the specimens which have found resting-places on the shelves of museums and in collectors' cabinets

are not readily distinguishable from accidentally battered pieces.

It is very interesting, whilst considering the question of eoliths, to recall what has been written of the methods employed by the Tasmanians in making their stone implements. Most of these implements were of chert (a flint-like stone); and of these, some were merely split off from large blocks, and others were *natural fragments with a cutting edge improved by flaking.* Mr. Thomas Scott saw the men " sitting for an hour or so at one time, chipping one flint with another."

Seeking for actual proof of man's handiwork in Tertiary times, we have to turn our attention to East Anglia, and there, in the crag deposits of Norfolk and Suffolk, and even below the crag, we find what is often accepted as the proof that we require. We find flints of varying shapes and sizes—from small chipped pebbles to large chopping-tools—which, if they are not shaped by man, are extremely difficult to account for. We find one recurring form to which the name of " rostro-carinate " (beak-and-keel) has been applied, and this form is almost unquestionably shaped by a rational being.

The chief credit for the discovery and identification of the Pliocene implements of East Anglia must be given to Mr. Reid Moir, a resident of Ipswich. Mr. Moir was induced, some years ago, to take up the study of flint implements as a pastime. Anxious to form a collection of his own, he turned his attention to the immensely old Pliocene deposits in his neighbourhood, and in those deposits (where, according to the general opinion, he had no business to look for traces of man)

he found rostro-carinates, and an infinitely numerous series of less standardized types. For the present, the rostro-carinate must be regarded as apparently the first implement which was made according to pattern.

To what extent tools of the " eagle-beak " type are local, or to what extent they represent a dispersed culture, is not known. There is no complete archæological series connecting them with the Lower Palæolithic implements. The first glacial corresponds with the close of the Pliocene age. There are reasons for thinking that the cultural phase (if indeed it is one) represented by the rostro-carinatès had no immediate sequel in Europe; that the human tide retreated before the advance of the first Ice Age. The tremendously long period that elapsed between the time of the " rostros " and the time of the true Palæoliths is singularly void of archæological data of a reliable kind. The Belgian eoliths (those of Mesvin, Maffles and Reutel), which are supposed to come from horizons belonging to the upper Pliocene and the lower Pleistocene, demand an optimism which is sometimes a little forced. At best they are scarcely more than slightly adapted flakes, and it is very doubtful whether all the examples which are thus classified are of human origin.

Interest still centres (1924) round the little pit at Foxhall near Ipswich, where Mr. Moir has carried out scientifically conducted excavations. The greatest care has been taken to prevent more recent material falling through into the lower Pliocene deposits, and there is no doubt that the chipped flints which are found in

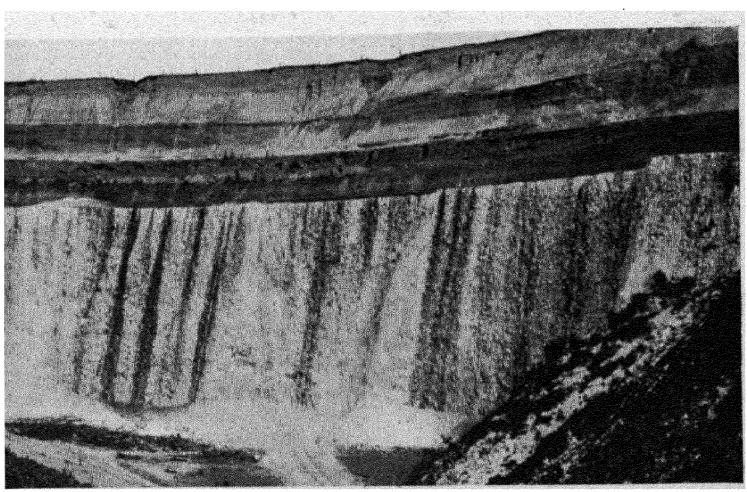
these excavations (whether they are accepted without reserve as the proof of an industry which was in existence prior to the formation of the "shelly crag," or as the proof of any industry) present us with a problem of the most tremendous significance. Should it be admitted that they were made by man in early Pliocene times, then we have some evidence of the stage which had been reached by humanity perhaps a million years ago.

The rostro-carinate belongs to a more recent series than the lower Foxhall implements. Having regard to its apparently well-considered design and to the fact that it occurs repeatedly and consistently in the same horizon, it is difficult to admit the arguments of those who still decline to accept it as *presumably* made by an intelligent creature. It has been argued that the patina, the discoloration on the chipped surfaces, is often different on the facets of one and the same specimen: therefore the flakes were not struck off at the same period. But, apart from the fact that although we know very little about patination we do know that it is not a uniform process, it is strange that anyone in his senses should ask us to believe in the amazing coincidences which must be assumed if we are to reject the human theory and to maintain the theory that the rostros are produced by an infinitely reiterated series of accidents.

We have good reasons for accepting the rostro-carinate as probable proof of the existence of a tool-making creature in Pliocene times.

Deductions.—We have seen that it was necessary to infer the existence of Pliocene Man, because the

THE CELEBRATED PIT AT FOXHALL, IPSWICH, WHERE MR. REID MOIR HAS FOUND THE MUCH-DISCUSSED PLIOCENE FLINTS



A CHALK-PIT NEAR IPSWICH, SHOWING THE TERTIARY STRATA (IN WHICH ROSTRO-CARINATES ARE FOUND) LYING ABOVE THE GREAT BED OF THE CHALK

specialized and distinct cultures of the Lower Palæolithic period could not have been produced suddenly and without a long series of tentative and preparatory stages. Chellean man, as we know from his handiwork, had reached a point which indicated a relatively advanced culture.

We have no direct evidence of the physical appearance of Tertiary Man, but we have what appears to be direct evidence of his handiwork: and hence we may be permitted to form certain ideas as to his mentality and the degree of culture which he had reached.

Let us summarize the permissible conclusions which may be drawn from a study of the evidence.

The existence of man in Pliocene times, *somewhere*, must be assumed for *à priori* reasons. The question of his existence in Europe is likely to be generally admitted, some day, on the evidence of the East Anglian flints, which are unquestionably of Pliocene date. And since for the manufacture of even the rudest tools a degree of highly evolved co-ordination is absolutely essential—a degree which is not approached by any of the existing anthropoid apes—we are forced to admit the possibility of the existence of a man-like creature in *Miocene* times. Of Miocene Man, however, we have nothing that can be admitted as actual proof.

These, then, are the main deductions (and it must be said that they are not yet accepted unanimously): (1) Man lived in Europe before the end of the Tertiary period, and during this period he began that conquest of material which is the essential and distinguishing characteristic of his species. (2) Although without

proof, at present, of the existence of Miocene Man, there are reasons for supposing that he did exist. (3) It appears improbable that any creature living in Oligocene times could have passed the pre-human stage.

CHAPTER V

PRIMORDIAL MAN

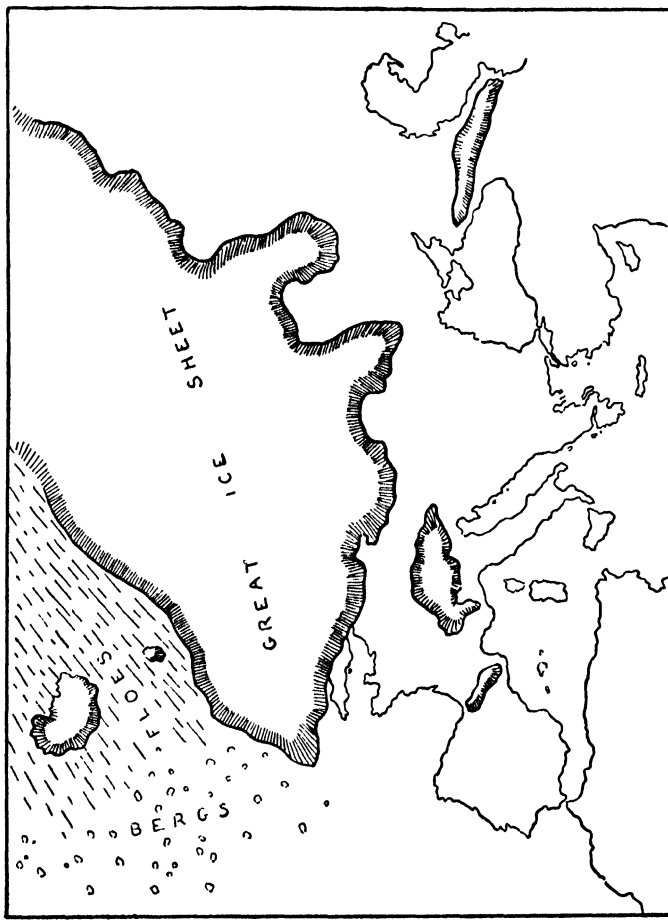
Problems.—When we pass upwards, geologically speaking, into the Quaternary period, it must not be supposed that we can settle down to the study of well-marked Palæolithic industries, and that our doubts and difficulties are at an end. On the contrary, the lower Pleistocene is a region in which archæology is still groping and stumbling, with little light and little evidence to guide it.

One of the chief problems is that concerned with the position of early humanity in regard to the Ice Ages. This is a question of such importance that we cannot pass on without giving it our attention.

At the time of the severest glaciation, the ice-sheet which spread over the greater part of Northern Europe reached a thickness of something like 6000 feet in Scandinavia. During the intervening periods the ice receded, to what extent is not known, and the climate of Europe became relatively genial. It must be understood that the glaciations and the intervening periods were not episodes that succeeded each other rapidly, but that they covered tens of thousands of years.

There is considerable doubt as to the number and extent of the glacial periods, and as to the conditions

which prevailed in between. It is generally assumed that there were four glacials, but the correlation of



A diagram showing the extent of the ice during the severest glaciation. Details are omitted, but the great glaciers of the Alps, the Pyrenees, and the Caucasus are shown in their respective positions.

these with the various phases of Palæolithic culture has not been agreed upon. We know that the Chelleans lived in a warm climate, the Mousterians in a cold one; but we are unable to say which of the glacials and

interglacials correspond with these archæological divisions.

The first southward movement of the ice is thought to have occurred towards the end of the Pliocene age: the last Ice Age may have been not more than 30,000 years ago.

As the ice advanced, its weight had the effect of depressing the land-surfaces and of sinking the lower ones beneath the level of the sea. By this means the British Isles were cut off from the continent which they had previously joined. With the partial retreat of the ice and the displacement of pressure, the land rose again—an immense ridge of elevation with a secondary "trough" in its wake following the retirement northwards of the ice-sheet. The advance northwards of this trough, following the complete withdrawal of the ice, accounts for the present outline of Europe. During the height of the glacials—periods of submergence—it is obvious that the areas of human occupation were considerably reduced, and it is conceivable that, although the growth of an Ice Age would be immeasurably slow, there may have been catastrophes which were of tragic consequence to human life.

Without concerning ourselves with geological controversies, it may be said that the period of Chelles most probably corresponds with that of the second interglacial. In the lower Quaternary period (during which human progress seems to have been so extremely slow as almost to merit the term of "stagnation" which has been applied to it) we find Eolithic forms of implements; we find the Heidelberg jaw and the Piltdown skull. We have no trace of a clearly

standardized Palæolithic tool until the period of Strépy is reached (named after a site in the valley of the Haine, Belgium).

The Strépy types are the immediate precursors of the Chellean Palæoliths. They are the first tools in which symmetry seems to have been consciously aimed at. Beyond the one general characteristic of all primitive implements—the presence of a point of some kind—there is absolutely nothing which relates the Strepian tools either to the lower Belgian eoliths or to the far earlier rostro-carinates. Their definite relation is with the types that follow.

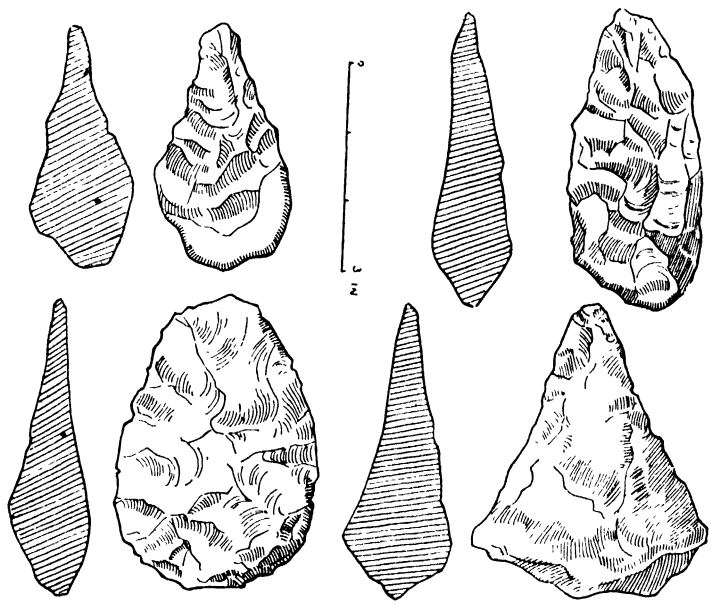
Chelles and Acheul.—In some respects we are now on firm ground. We are dealing with a race that seems to have lived in chosen places, under climatic conditions that are known, and in company with animals whose bones have been preserved and whose forms can be described with accuracy. We believe that we are not unacquainted with the appearance of Chellean man himself (Chapter X), and we know that he produced handsome implements, thousands of which have been collected within the past century. We are in touch with a true man, who in form, thought and humanity is doubtless more closely related to the Europeans of to-day than is the existing North Australian native. And this man lived from two hundred to three hundred thousand years ago.

The Chellean Europeans, though they did so on occasion, did not live habitually in caves. They lived in the open, on or near the banks of great rivers. (No river in modern Europe, except perhaps the Volga, can be compared with the great streams of lower

Quaternary times.) We know this from the evidence of their flint implements—the implements of the so-called " River-Drift " or " Drift " type. These implements are found in quantities in ancient river gravels; and it will be necessary to explain their position.

The rivers which flowed through interglacial Europe, measuring many miles from bank to bank, in places, and broadening out into huge deltas or estuaries, gradually decreased in volume, wearing down the sides of their valleys and leaving their former banks to assume the form of what are now termed " high-level terraces." No uniform erosion or wearing-down of valleys took place: movements caused by subsequent glaciations and by other causes, the geological nature of the material through which the river cut downward, have greatly complicated the study of alluvial (river-borne) deposits. But it may be assumed that, as a safe general principle, the oldest deposits will be found on the higher terraces; often several miles from the beds of the present diminished rivers. Recent deposits have covered the high-level gravels in most cases, and they are only exposed in pits and commercial excavations. In these gravel-pits we find the handiwork of Chellean and Acheulian men, and we do not find specimens of their work in considerable numbers elsewhere. In some instances the drift implements are found in practically undisturbed alluvial deposits, as they were left by the men who made and used them, but often they have been carried to great distances by the action of rivers and floods, and bruised and battered in the process; in the latter case they are known as " rolled " and " abraded " implements. The worked

surfaces of the rolled implements are smoothed down, the lines and ridges between the flakes (*arêtes*) have a whitish, scratched and flattened appearance. "Surface finds" are occasionally made, but not in great numbers. The implement-producing gravels may not be more than two or three feet below the soil.



Flints of Lower Palæolithic type. The one in the left upper corner is a typical *coup-de-poing*, though of small dimensions; beneath it is an ovate implement of the Acheul period.

Thus it is clear that the people of the Chelles period lived near rivers and estuaries, and probably on the edges of lakes and by the coast. The indications of culture shown by their fine implements allow us to suppose that they were capable of building huts or shelters. Of their lives we have no knowledge what-

ever. We can only associate them dimly with a warm, misty climate, with great expanses of water, with the vegetation of a sub-tropic realm—laurels, fig trees, and luxuriant undergrowth. They were accustomed to see the huge straight-tusked elephant, *Elephas Antiquus*, the cumbersome rhinoceros, the hippopotamus, the striped hyena, and perhaps the fierce sabre-toothed "machiarodus."

Were they huntsmen? Did they track down and slay their quarry? Perhaps they hunted in companies: one man, armed only with a bit of pointed flint, would have been no match for the powerful beasts whose flesh or skin he desired. Probably there were terrible combats, in which man was not always the top dog. Or did they use traps and pitfalls?

The Chellean age shades off imperceptibly into the Acheulian. During the close of the latter period climatic changes were apparent; damp, cold weather, rains and floods preceded the advance of a glacial epoch.

Drift Implements.—The typical implement of the Chelles period is the *coup-de-poing* or hand-axe. This tool is of a shape which is common to most primitive cultures: it is worked into a somewhat pear-like form, with a tapered, often tongue-shaped point, and a good thick butt for convenience in grasping. It was produced in great numbers and it seems to have been the only tool which was made to a constant pattern throughout the greater part of the period. The illustration explains the appearance of a *coup-de-poing* better than a written description. Very often a large part of the crust of the flint is left on the butt. Although the

work does not display the fine retouching of the later Acheul types, it shows a remarkable degree of dexterity and confidence. The best specimens are admirably symmetrical. Towards the close of the Chellean age the hand-axe becomes smaller and flatter, with the development of an edge all round, and with much finer flaking: eventually the thick butt disappears, and the type, after assuming elongated and flattened forms, is replaced by the ovate or cordate (heart-shaped) tools of St. Acheul. But hand-axes of smaller size occur in the Acheulian cultures, and even appear in a modified form in that of Le Moustier.

Anyone who has studied the Chellean age will discover that the *coup-de-poing* is the dominant, but not by any means the only instrument of the period: massive choppers (roughly triangular and with tabular bases for the grip), side-scrapers and worked flakes are often found.

The use of the hand-axe is, of course, unknown. It is unlikely that it was fastened to a haft (at any rate in the earlier forms), since it is obviously fashioned expressly for use in the hand. The flatter and later examples—those in which the butt has been sliced down so that the edge is continuous all round—may have been hafted: these are the forms which are known as "amygdaloid" or almond-shaped. Whether they are essentially tools or essentially weapons cannot be said. Probably they served many uses.

The Acheulian tools show a marked reduction in size and a finer method of manufacture. The characteristic Acheulian forms are a smaller and more symmetrical version of the Chellean almond-shaped axe; discoid or

oval implements, thin and with a well-trimmed edge all round; a small heart-shaped or triangular " point "; and various flake implements, including the first appearance of the " Levallois " type—a flake which is smooth on its under side and boldly faceted on its upper face—the precursor of the typical Mousterian implements.

Flint tools of the Chelles-Acheul epoch are the first for which we may claim an almost universal distribution. In Great Britain they are found plentifully in gravel-pits in the valleys of the Thames and the Ouse; in France in the valleys of the Seine and the Somme. Chellean types are found in North Africa, in Egypt, in Syria, Palestine and India—in fact, in practically every part of the world, saving Tasmania, Australia and Oceania.

The first recorded find of a *coup-de-poing* is that of the well-known implement discovered in Gray's Inn in the seventeenth century (now in the British Museum). Several implements of Chelles-Acheul date were found at Hoxne in Suffolk in 1797.

CHAPTER VI

THE MAMMOTH AGE

Homo Neanderthalensis.—The climate of Europe during the last few thousand years of the Lower Palæolithic period must have been worse than anything we can imagine. The wretched Late Acheulians lived in cold fogs, beneath incessant rains and heavy snowfalls. Disastrous thaws added to their miseries; floods must have driven them from their chosen dwelling-places; the general aspect of things was damp and desolate. Very formidable animals (the cave-bear and mammoth among them) were moving south in advance of the oncoming Ice Age. Man was faced by perils and severities which, in his primitive condition, must have filled his life with adventure and tragedy.

But matters were even worse for the Mid-Palæolithic folk—the Mousterians. They had to subsist in the intense damp cold of a glacial period, fighting with savage and powerful creatures for the possession of caves, struggling from day to day to keep body and soul together; and these conditions, varying in intensity, probably lasted for some ten thousand years.

The human type of Mousterian times (at any rate the dominant type) is well represented by discoveries of fossilized bones. That type is known as the Neanderthal, and, though it is probably wrong to suppose

that only Neanderthal men occupied Europe in Mid-Palæolithic times, it seems that these men did exist in greater numbers than any other type, and it is certain that they made the flint implements of the Mousterian industries.

Neanderthal man is described variously as *Homo Mousteriensis*, *Homo Neanderthalensis*, and (quite incorrectly) *Homo Primigenius*. The term Neanderthal is derived from the name of the site near Düsseldorf, where the celebrated brain-cap and other bones were discovered in 1856.

A Neanderthal skull is absolutely unlike any modern skull—even one of inferior mould. The Mousterian men are structurally unique. One of their chief peculiarities is the great bar of bone which forms the brow-ridge, and gives to the skull a strangely sinister and mysterious appearance. This bar—the supra-orbital ridge or " torus "—produces a facial outline of which we have no counterpart in existence at the present day. It is an ape-like characteristic. Above this ridge the brow recedes abruptly. The lower part of the face projects, but not to a greater extent than it does in living Negro types. Properly speaking there is no chin; the lower jaw in profile receding inwards from the incisor teeth.

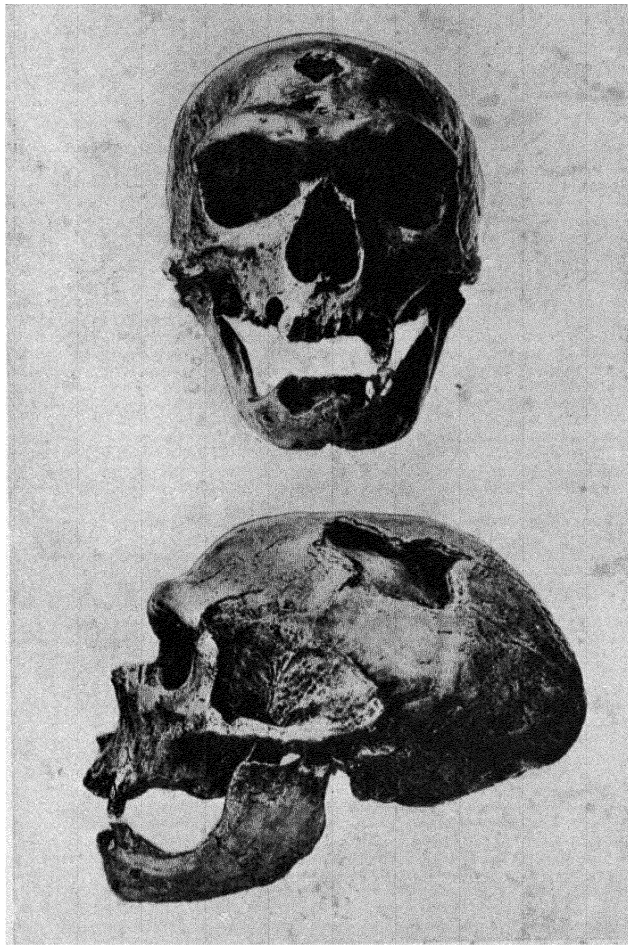
The problems associated with this strange creature are many. Why does he come on the scene in Europe at the beginning of an Ice Age, exhibiting (as far as we know at present) a new culture and a new human type?

He had learnt how to use fire. He had respect for his dead. Even from the little we know of him, we

realize that we are in touch with a very human creature. He was a huntsman, a dweller by the hearth, a ritualist. But look at him! If certain anthropologists are right, the Chellean folk, who lived from fifty to a hundred thousand years before his time, were immensely superior from the physical point of view. What happened to them? Did they retire from Europe at the beginning of the Mousterian glacial age, to return again as the magnificent people who superseded the Neanderthal men? Or did the two races exist in Europe together? It is evident that *Homo Mousteriensis* must have been contemporaneous with a more advanced human type.

But, if his appearance is a mystery, his disappearance is an even greater one. Having survived the terrible circumstances of ten thousand years or so of a sub-arctic climate, and having lived (more happily one would think) through the succeeding ten thousand years of gradually improving conditions—he vanishes. We know a great deal about the races that followed him; and we know that he is not among them. It has been claimed by several eminent anthropologists that the Neanderthal type is still to be seen in Europe: they have failed to make good this assertion, and they have not faced the fact that true Neanderthaloid affinities are entirely absent from the skeletal remains of all succeeding prehistoric peoples. A man is not Neanderthaloid because his teeth stick out, or his forehead bulges, or his neck is thicker than usual.

Driven indoors, as it were, by the extreme cold, the Mousterian people were the first true cave-men. Wherever they found a good cave they occupied it;



By permission of the Trustees of the British Museum

TWO VIEWS OF THE WELL-KNOWN NEANDERTHAL SKULL FROM LA CHAPELLE-AUX-SAINTS, SHOWING ITS PECULIAR ANATOMICAL FEATURES. THE SKULL IS UNLIKE THAT OF ANY EXISTING TYPE OF MAN, AND HAS MANY APE-LIKE CHARACTERISTICS

sometimes fighting the bears, lions and hyenas who were there already, and turning them out; and sometimes being turned out by these animals—a fact proved by evidence showing the successive occupation of a cave by men and beasts.

They were real troglodytes, but they lived in other places as well as in caves. In the first place, there were not enough caves to go round; and in the second place, vast numbers of Mousterian implements are found in areas where caves never existed, and to an extent which argues the presence of regular settlements or inhabited sites. It is fairly evident that the men of this period were able to construct lodges or shelters, using, most likely, such materials as bark, boughs, mud, turf and small blocks of stone. Probably they learnt how to improve or adapt natural shelters, how to tunnel and burrow and dig.

The Mid-Palæolithic Period.—The animals that lived in Europe with the Neanderthal race were varied and numerous. Some of the " warm fauna " of the Chelles period managed to adapt themselves to the changed conditions, and existed together with the thick-skinned and furry creatures from the north. Thus we get the strange phenomenon of a " mixed fauna "—the arctic fox and the hyena, the grey bear and the cave lion sharing, or fighting over, the hard-won spoils of those frozen times.

The following is a list of the chief animals of the period:

The mammoth, the cave lion, the cave hyena, the cave bear, the woolly rhinoceros, the grey bear and the brown bear, the bison and the ox, the leopard, the

chamois, the wild horse, the reindeer, the stag, the great elk, wolves, dogs, foxes and the smaller rodents.

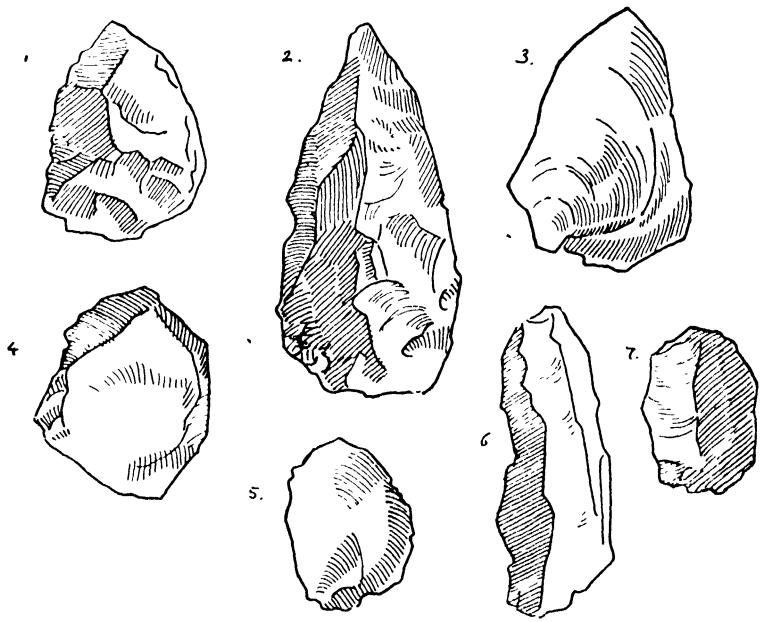
The birds probably included falcons, owls, ducks, ptarmigan, the albatross, and many other existing species.

Of the animals, the most formidable was the great feline, half lion and half tiger, known as *Felis Spelæus* —the cave lion. The cave bear seems to have been hunted by the Mousterians. The mammoth did not attain the huge dimensions of the elephants of the Pliocene and Lower Pleistocene, but he was an impressive creature, with a bulging forehead, hairy, reddish hide, a tufted tail and magnificent long curling tusks. His remains are very numerous. Not until Upper Palæolithic times did the reindeer become plentiful. The woolly rhinoceros ranged far north, and his remains have been found in the Siberian tundra. None of the species of oxen had attained considerable dimensions in Mousterian times, but there were gigantic varieties of deer and stag.

When we try to picture the men of Mid-Palæolithic days in their surroundings, we find that we have hardly sufficient material for the purpose.

The characteristic landscape must have been grey and cheerless. Snow covered even the lower hills. In the milder intervals the rivers were swollen by thawing ice. Marshes and bogs extended widely, and cold humidity, above and below, was the prevalent condition. And in this cold, dim landscape, man, able to kindle fire and to obtain some degree of warmth and comfort, lived at close quarters, and often at close grips, with an extraordinary collection of fierce and sinister

brutes. It is a very strange and, in our vision, a very dark and terrible phase of human evolution in Europe; and yet it is probable that man, not able to contrast his state with anything more desirable, having adapted himself to conditions as he found them, and living with



Flints of Le Moustier date. The bulb of percussion is clearly shown on numbers 3 and 5.

a consciousness of supremacy over all other creatures, existed happily and hopefully, fully convinced of his blessedness and tremendous advantages.

Flint Implements of Le Moustier date.—The characteristic Mousterian implements exhibit a method of manufacture which was coming into fashion during the later Acheulian period—shown in this latter culture

by the Levallois flake. Instead of battering and trimming a nodule of flint until the desired shape was produced, the Neanderthal tool-maker selected a good flattish block of material, worked over one surface, and detached his unfinished implement therefrom by one dexterous blow. After this, the implement, faceted on the one face and smooth on the other, was trimmed and retouched until the point or scraping-edge was obtained. There must have been a good deal of knack about this; and the method would only be a success with one who had a very thorough knowledge of his material and of its fracturing habits. Sometimes the detaching blow did not give the expected result—the flake " plunged " (that is, instead of coming away level with the core, it curved into a lumpy hook at one end) and the original design was spoilt.

There are people who go to the length of saying that a Mousterian implement can be identified by this one test alone—whether it shows the principle of manufacture which we have described. They are mistaken. The tool or flake with plain underface is found in every succeeding archæological phase, and in the case of " finds " on or near the surface it is impossible to distinguish with certainty between Mousterian specimens and those of relatively recent date.

The ultimate form of the implement was probably determined by the shape of the faceted flake after it had been struck off the core or " nucleus."

A great variety of tools was made in Mousterian times. For the most part they are not large; a further reduction in size marks this period, and nothing approaches the dimensions of the large Palæoliths of the earlier

series. The characteristic types are the " point " and the " scraper," but long knife-like blades and notched flakes are of frequent occurrence.

In examining these specimens and comparing them with earlier forms we are struck by their reduced size, and by the loss of symmetry; perfect symmetry, in fact, is hardly ever attained. This absence of regular form is due to the new method of working. Although the average size is small (typical " points " are about three inches long), some of the flake implements, boldly faceted and struck from the core with great skill, are of relatively large dimensions. Big, clumsy choppers, of assumed Mousterian date, are found at Northfleet and elsewhere. The points and scrapers are often very crudely worked: the fine retouching of the Upper Acheulian is seldom equalled, but there is far greater diversity of type than in the Lower Palæolithic series.

The little cave or grotto of Le Moustier, which yielded prodigious numbers of these implements, and gave its name to a series of archæological types, to a race of extinct men, and to an epoch of Prehistory, was explored by Lartet and Christy in 1863; in the golden age of prehistoric discovery in France.

The Mousterian culture is probably very widely distributed: its presence is known in most parts of Europe, in Western Asia and in Africa. In France and England it is richly represented. The Thames valley, notably in the tidal areas, contains many prolific stations—such as those on the southern bank between Dartford and Gravesend. The valley of the Ouse, and the south-eastern counties generally, produce many examples. Flints of alleged Mousterian date have been

found in Cornwall by Mr. J. G. Marsden, but he has not succeeded in convincing our present experts, although the flints certainly resemble very closely some of the specimens from Le Moustier itself. The English examples are found at different levels; sometimes overwhelmed by masses of material of more ancient date, and occasionally on the surface.

Social Conditions.—It is probable that the Mousterians had reached a stage of culture at least equal if not superior to that of the Tasmanians and Veddas of modern times. We have definite evidence on one point of the greatest significance: they did not abandon the bodies of their dead, but placed them in graves. Not only did they do this; they provided the dead man with tools and weapons and, it would seem, with food also. The Veddas do not treat the bodies of the deceased with much ceremony, and the bones of a person who has died of sickness are callously thrown away. (They will point out where their relatives are buried, and cheerfully assist in exhuming them.) The Tasmanians occasionally supplied the dead man with a spear "to fight with when he is asleep." If the evidence is read aright, neither of these races shows that reverent care of the dead which seems to have been an attribute of Mousterian man.

The practice of burial in itself indicates a perception of the mystic. It implies a belief in magic, in spirit-life, in the continued action of the personality after death. It shows that the living man considers himself bound to the dead man by ties which he cannot define but of which he is deeply conscious. When the burial is accompanied by the deposit of weapons or food, it

implies a perfectly distinct conception of life in the under-world. The soul of the departed is thought of with mingled fear and fondness. The exaggeration of all human qualities and potentialities after death, one of the basic teachings of every creed, must have taken place already in the minds of those who made sleeping-places for their dead and were careful to provide for all their needs.

The special circumstances connected with two Mousterian burials may be described briefly:

At Le Moustier the skeleton of a youth was found lying on a number of flint implements. He was placed on his right side, with the left arm stretched out and the right bent back under the head. Within reach of the left hand—perhaps so placed in order that it might be quickly grasped—was a fine weapon of the *coup-de-poing* type. Some of the implements, and the bones found with them, showed signs of having been burnt. The celebrated burial of La Chapelle-aux-Saints in the Corrèze, that of an adult Mousterian, showed that the body had been placed in a prepared grave beneath the cave roof. The skeleton was on its back, both legs bent across to the right, the right arm bent and the left extended. The head and sides were protected by an arrangement of stones. Several well-wrought implements were placed near the body, together with the leg-bones of an ox.

To protect himself from the chilly rains and from the cold, damp air, we may assume that *Homo Mousteriensis* made wraps of prepared hide. If his "scrapers" were not intended for cleaning the inner side of skins, it is difficult to imagine what he made

them for. Most likely, having skinned the animal, he would lay the pelt on a flat surface, hold it down with stones, trim it, and remove the flesh from the inner side. In this way he would obtain a cloak that was warm and weatherproof.

What speech had he? What social order? For the very maintenance of life he depended on mutual assistance and on the regulation of the essential affairs of life. People who live together in a cave or shelter, and whose lives are exposed to innumerable perils as soon as they go outside, must find out how to get along without too much discord. The chances are that they will evolve a very complex scheme of social etiquette.

He was a huntsman, we know. He did not bring the whole carcase of the slain animal to his cave, but cut it up and shared it in the open. In killing his big game he must have organized a hunt of some kind, a drive or a massed attack; or he may have devised snares.

If there is anything in the supposed affinity between Neanderthal man and the present native of Australia, it is possible that he made essays in navigation, that he made a rudimentary sort of canoe and paddled about in places where the water was not frozen over.

A sense of the ludicrous and a fondness for mimicry and practical jokes have been recorded in the observations of those who have studied the Australians, Tasmanians and Veddas. Whether the grim Neanderthal skulls contained humorous ideas, whether pleasantry was compatible with the circumstances of Neanderthal life, cannot be known; but as we do know that there was a Neanderthal creed, and as spiritual beliefs par-

take of fantasy, and humour partakes of fantasy also, it is within reason to believe that the men of Mid-Palæolithic days may have been very funny fellows on occasion.

In concluding our review of this strange example of humanity—so curiously isolated and so remote—we feel that we have been dealing with one of the greatest of prehistorical mysteries. The creature whose life and manufactures we have been considering was essentially human. And yet he was entirely unlike, not only what we should have expected of man in that period, but entirely unlike any living primitive race whose culture has been supposed to be similar to his. Was he only an episode, a stop-gap, or a freakish intrusion? His intrusion, if it was one, lasted for some twenty thousand years at least, and the traces of his culture do not appear to be those of a feeble or thinly-spread population. Indeed he must have been anything but feeble to have withstood the conditions under which he existed. It is to be hoped that research will enable us to answer these questions some day—and it may be that the answers will come from the southern shores of the Mediterranean.

CHAPTER VII

THE REINDEER HUNTERS

We can only account for certain facts by supposing that, towards the close of the Mousterian age, Europe was "invaded" (the word must not be understood in its modern sense) by a race greatly superior in culture and physique to the Neanderthal men. We can hardly suppose that the whole of the Mid-Palæolithic age in Europe was marked by continuous human deterioration, but we may be right in thinking that the Mousterian folk were people who reached the limits of the progress which was possible for their type, and that, when the incursions of the Reindeer Hunters took place, they were growing feeble and decadent.

In Upper Palæolithic times, say from 35,000 to 20,000 B.C., the Europeans reached a degree of physical perfection which has not been surpassed—perhaps not equalled—in any subsequent period. Anatomically, they differ hardly at all from the modern type, except in their superior build and proportions. At the summit of the period they produced an admirable graphic art; they had schematic decoration, they had engraving and sculpture; they made highly finished implements of bone and of horn, and small delicate instruments for the domestic crafts.

Our strange Neanderthal friend has disappeared:

in his place we have a tall, shapely man with well-filled head and skilful hands. But we must not follow the example of certain romantic writers who, infatuated by the ease with which they can invent plausible arguments, would have us believe that the Reindeer men had elaborate systems of magic and were versed in occultism of the sort that amuses the decadents of to-day. The same kind of infatuation is discovered in the use of such terms as " stellar mythos " and " solar mythos " (effective at first glance, but really meaningless); and so, instead of science, we have a confusion of light fancies.

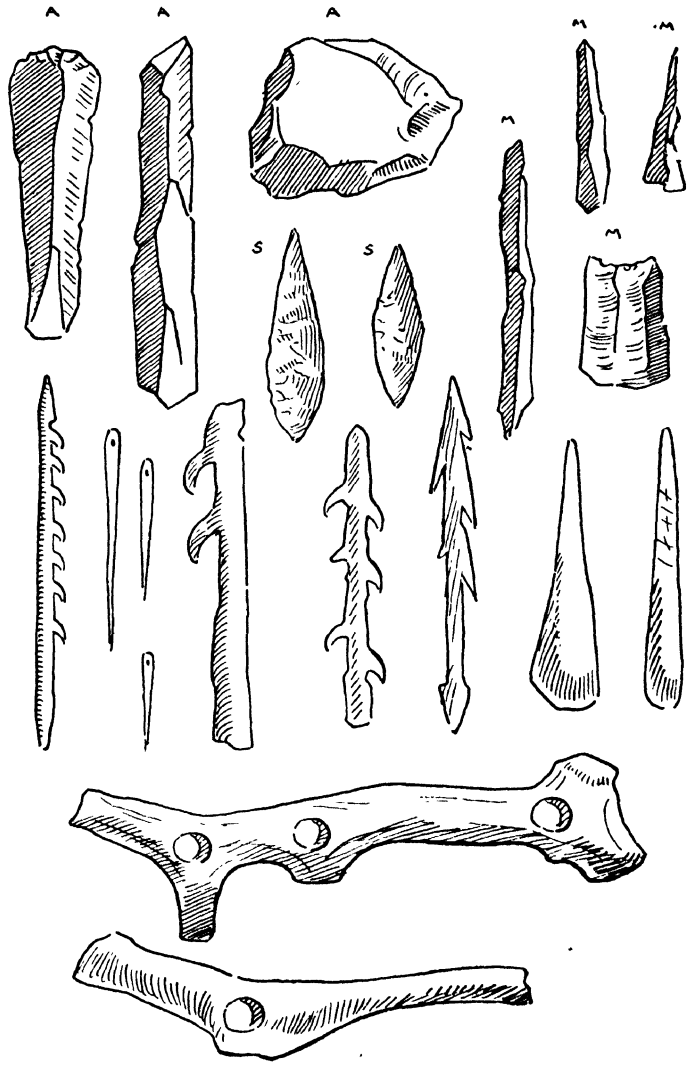
The European of the Reindeer Age is definitely connected with the European of modern times. It is nonsense to talk of him as the " first true man "—it would be equally reasonable to call him the last true man; because he merely represents a stage in human development. His forerunners of the Chellean age were also " true men," seventy thousand years before him. We can only say that he has characters which link him closely to the modern races of Europe.

The race which became dominant in Europe after the disappearance of the Mousterians is known as that of Cro-Magnon. The name is derived from that of a rock-shelter at Les Eyzies in the Dordogne, where five skeletons were discovered accidentally, in the course of railway operations, in 1868. The man of Combe-Capelle with supposed Ethiopic affinities, and the man of Chancelade with supposed Eskimo affinities, though sometimes regarded as evidence of racial differences in Upper Palæolithic times, most probably represent variants of the type of Cro-Magnon.

If we compare a Cro-Magnon skull with a Neanderthal skull, we get the same sharp contrast which we obtain in comparing the latter with the skull of a modern man. It needs no special knowledge to see that there is no possibility of a link between these two prehistoric races. The Cro-Magnon has a well-arched, noble brain-case, robust cheek-bones, the modern set of upper and lower jaws, and a shapely, prominent chin. Let the features of Mousterian man be recalled, and compared with these. In stature, too, the difference is marked: the average height of Neanderthal man seems to have been about 5 feet 3 inches; the Cro-Magnon men often reached, and sometimes exceeded, 6 feet in height.

We do not know in what way this new and superior race is associated with the extinction or withdrawal of the Mousterians. We do not know whether this race was already in Europe in Mousterian times, whether it is linked up with the Chellean people, or whether it represents an invasion pushing up northwards across the Mediterranean.

The Upper Palæolithic Period.—We have seen that the Mid-Palæolithic age coincides with a glacial epoch. It was a period of damp cold, of heavy rainfall and snowfall. During the times that we are about to consider the climate had changed: damp cold was replaced by dry cold. Possibly there were glacial "oscillations" (minor ice ages), and it is probable that the last and least of the glacials took place towards the end of the Magdalenian phase: that phase seems to coincide with a climatic deterioration, and with a corresponding fall in the standard of living.



Objects of Upper Palæolithic date. Of the flints, those marked A are Aurignacian, M, Magdalenian, and S, Solutrian. All the other objects are Magdalenian. The two *bâtons de commandment* are drawn to about half the scale of the rest.

Not until the New Stone Age do we find climatic conditions which resemble those of modern Europe.

Of the animals that had lived with man in Mid-Palæolithic times, some were flourishing, others were retreating to more congenial climates, others (as the woolly rhinoceros and the cave lion) were becoming extinct. The mammoth became extinct by the close of the Upper Palæolithic. The fauna of the Reindeer Age includes the following species:

The cave bear, the grey bear, the brown bear, the badger, the pole-cat and the wild cat, the cave hyena, the boar, the mammoth, the cave lion, the ibex and the antelope, the woolly rhinoceros, the horse and the ass, the reindeer, the ox and the bison, the jerboa, tailless hare, corsac fox, wolf, rabbit, porcupine, stoat, otter, and marten. The birds include the ptarmigan, pin-tail duck, capercailzie, grouse, buntings, geese, swans, owls, falcon, etc. The Reindeer Hunters were fishermen, and the salmon appears in several of their pictures.

It will be remembered that the three divisions of the Upper Palæolithic are known, in ascending order, as the Aurignacian, the Solutrian and the Magdalenian.

Implements and Weapons.—One of the first archæological features to claim our attention in the study of the Reindeer Age is the presence of objects made of horn, bone and ivory. Flint is, perhaps, more largely used for ordinary purposes than any other material, and is employed for the manufacture of an astonishing variety of implements, but, with the exception of the leaf-shaped points and lances of Solutrian date, we do not find that the flint-worker's craft is improving.

On the contrary (but always with this important exception), we find that symmetry is subordinate to pure utility, and that the sure and careful flaking of the Upper Acheulian tools—separated from Aurignacian times by at least thirty thousand years—is not equalled by the flint craftsmen of the Reindeer Age.

The typical flint implements of the Aurignacian phase are the long blade and the keeled or humped scraper.

The blade terminates at one or both ends in a point or a rounded scraper. It is a thin, slender, plainly faceted flake, very long in proportion to its width. Sometimes the edges are retouched and occasionally they are deeply notched. The under-side is generally smooth; the upper shows long parallel facets. Such blades are trickily-made and efficient tools, but they were evidently produced with an eye only to their usefulness.

The keeled scraper (*grattoir caréné* or *Tarté*) often takes a conical form, steeply flaked and with a smooth base. It is of small size; a characteristic specimen measuring about one inch in diameter. Borers and engravers, with many variants, must be classed among the standardized tools: but from this time onward we find immense numbers of unclassified, irregularly-shaped implements, the date of which is often extremely doubtful. Mousterian types are represented frequently in the lower Aurignacian deposits.

Aurignacian bone implements are of various forms, the characteristic one being a point with a split or forked base. On some of these bone tools appear markings which may be tallies, or rudimentary attempts at design.

The Solutrian period gives us a strangely isolated perfection—the beautiful willow-leaf and laurel-leaf flints which are the finest of all Palæolithic implements in this material, both as regards symmetry and careful finish. Their excellence is not repeated until the late Neolithic period, when it is actually surpassed: it is not found in the succeeding phase of La Madeleine. Professor Sollas tells us that modern forgers confess that they are not able to produce anything so good.

Rich in archæological material, with abundant proof of progressive arts and industries, the phase of La Madeleine coincides with great advances in human development. Bone is extensively used: the flint implements, though often of remarkable delicacy and minute size, are inferior in workmanship. At the extreme end of the period, and during that of transition (the Azilian), we find a "microlithic" or "pygmy flint" industry, specimens of which are of tiny size: little blades or teeth, less than an inch long. Of the bone implements, the characteristic forms are the long point and the harpoon. Many of these are ornamented with incised patterns, and occasionally with carving. The harpoons have sometimes a single and sometimes a double row of barbs.

Spear-throwers (if they are really such) were part of the Magdalenian hunter's equipment, and these are often beautifully carved with figures of animals. The principle of the spear-thrower, as used by the Eskimo, is simple: the device consists of a short rod with a notched butt: against this butt the end of the spear is placed, the shaft lying along the top of the thrower,

and the latter, of course, remaining in the hand after the weapon is hurled.

The so-called *bâtons de commandment* are problematic objects, the precise use of which cannot be determined, though it is possible that they were used for straightening the shafts of arrows. Made of reindeer horn, and engraved with pictures of animals, they are presumably connected with the chase. Their form is best understood by a glance at the illustration. If the assumption that they were used as arrow-straighteners is correct, the shaft was placed through one of the holes, and either pushed backwards and forwards or else held while the straightener was moved up and down. The most far-fetched ideas have been put forward in connection with these objects.

The bone needles of the Magdalenian Age are among its most wonderful productions. They show an extreme skill in manufacture which, it has been pointed out, is much superior to that of the bone-workers of Roman times, although the latter were in possession of metal tools. The delicacy of these needles and the precision with which the tiny eye is pierced are proof of a very advanced phase of primitive culture.

There are miscellaneous bone tools belonging to this period which have no particular interest except for the collector.

Art.—Before we examine the pictures, engravings, and sculptures of the Stone Age, we must remember that art (of a kind) is an ordinary accompaniment of primitive life at a relatively low stage, and that it can be produced by persons of decidedly inferior intelligence. We have therefore no cause for astonishment

in the fact that the men who were sufficiently advanced in culture to make the Magdalenian bone needles were able to produce works which can be regarded as really fine art.

But the merits of Palæolithic art as a whole have been greatly exaggerated. Much of it is certainly admirable; but much is quite unworthy of attention from the artistic standpoint. It is fascinating to be able to say, "Thirty thousand years ago, men in Europe were making things of great—of exceptional—artistic merit" still more fascinating to add (what is perhaps truer) "much better than a lot of modern stuff." Antiquity is a prime maker of marvels.

The fact remains, that Palæolithic art is only what might be expected of a savage and primitive folk who had reached a cultural stage slightly superior to that of the present Eskimo. It would have been astonishing if the Magdalenians had not made pictures. Whether it is or is not marvellous that man should have reached an advanced stage of primitive culture thirty thousand years ago, it is not marvellous that, having reached that stage, he should produce works of primitive art.

Among the works that he did produce, however, there are some that are better, of their kind, than any other examples of the primitive art of any race or period. If he did not carry schematic decoration to the same pitch to which it has been carried by the natives of the Pacific Islands, he carried representational art very much further. He (or she) occasionally drew and painted animals with a sureness, a vivacity, that have not often been surpassed in later or in modern

times. It is true that the animals are nearly always drawn in simple profile, that " composition " does not exist, and that the *naïveté* of the savage is apparent in the most highly finished of these pictures—their value as independent works of art is not lessened by these considerations.

We shall probably agree with Freud when he says, " Art, which certainly did not begin as art for art's sake, originally served tendencies which to-day have for the most part ceased to exist. Among these we may suspect various magic intentions." We may suspect magic intentions. We cannot be sure. A great deal of the art of all periods doubtless owes its origin to much the same reason—the pleasant occupation of leisure. By making pictures one may not only fill up spare time in an agreeable way; one may win the approval and admiration of others at the cost of very slight effort. The Palæolithic huntsman had no other necessary occupation save the chase—he was not a cultivator of the soil, neither did he domesticate animals—and as he could not always be pursuing game he had a good deal of spare time on his hands. Admitting that the higher spiritual convictions grow most freely where there is most spare time, and that magic would certainly come into being under those conditions, it is equally probable that the simple desire for amusement would grow also, and it is quite as likely that the Palæolithic cave-paintings are the expression of the one as of the other. It should be noted, however, that the practices of certain living primitive folk in connection with paintings in caves and on rocks do lend countenance to the theory that the ancient cave-

paintings of Europe have, in some cases, a ritualistic meaning.

Palæolithic art begins in the Aurignacian age, and its first expression, it would seem, is found in little statuettes of ivory, and in deeply-incised engravings on bone or stone. Most of the statuettes are representations of very fat, stumpy women, exhibiting in a marked degree that distinguishing feature, peculiar to the Hottentot of modern times, which is known as steatopygy. All the protuberant parts of the body are modelled in grossly exaggerated forms: whether the result of ineptitude or design we cannot say. These "figurines" are found in the Solutrian culture also.

In the Magdalenian period, Palæolithic art reaches its climax. Not only is ornamentation by the use of conventional design in almost general vogue, but engraving touches a high level of excellence, and the paintings on cave walls are executed skilfully in several colours. By the end of the Magdalenian there is a sharp artistic decline; literal forms disappear, and by the time of the transitional phase between the Old and the New Stone Ages we have nothing but mere dots, daubs and streaks.

We will examine briefly the general features of Palæolithic art: the reader who wishes to make a detailed study will find no lack of books to assist him (see Bibliography).

The fact which asserts itself at the first glance is, that the Palæolithic artist devoted his skill almost entirely to the portrayal of animals. When he tried to engrave or draw the human figure he came to grief. It is absurd to pretend that he was not trying to

reproduce the real thing. He was only able to draw animals: the difficulties of delineating the human form were too much for him, and his essays are not deliberate stylizations but mere failures.

The Palæolithic masterpieces are representations—literal representations—of various animals; sculptured in the round and in high relief, incised on plaques or on the flat surfaces of bones, and painted and engraved on the walls of caves. The great majority of these works of art have been found in France (mainly in the Dordogne) and in Northern Spain.

Incised drawings begin in the Aurignacian period, to which belongs an interesting sketch of the woolly rhinoceros. The best work occurs in the Magdalenian phase, when we have some first-rate line-drawings, scratched with flint gravers on plaques or flat bones: these include pictures of the reindeer (very frequent), the wild boar, horse, bear and bison, and there is an admirable engraving of a mammoth. The animals are sometimes treated singly, sometimes in groups or processions; associated with them are occasional ill-drawn figures of men and women. Decorative themes —spiral motives, geometrical motives, plant-forms, etc. —are found on some of the bone points and spatulas. Little *rondelles* of bone, probably worn as ornaments, had pictures and decorations cut on them.

Popular interest is chiefly attracted by the well-known wall and roof paintings of the French and Spanish caves. These were first noticed by a little girl in 1879—the daughter of Marcellino de Sautuola, who, while her father was grubbing about for bones and flints in the Altamira caverns, looked up and saw the

A drawing from one of the Prehistoric pictures of bison in the cave of Font-de-Gaume (S. France).

painted " toros " on the roof. Such a discovery was bound to meet with scepticism. It was not until many years after that first " find " that the authenticity of cave-paintings was definitely proved. The proof was really easy : paintings very similar to those of Altamira were found elsewhere; and they had been covered up, in many cases, by more recent deposits which contained evidence of the later cultures, both Palæolithic and Neolithic. In some instances the walls had been screened by the undisturbed débris of later times; in others, the entrance to the cave or the corridor was blocked by ancient falls. Some of the frescoes, when discovered, were found to be sealed over by a coating of thin but hard stalagmite.

The cave-pictures are chiefly of animals. Later and earlier periods are mixed up; a general scheme of decoration is entirely absent, the figures of the animals being evidently done independently of the whole effect, and placed here and there by hazard.

Two Spanish cave paintings of an exceptional kind, those at Cogul and at Alpera, are of great interest : in the first we have the so-called " dance " of women in skirts; and in the second there are spirited though badly-drawn representations of huntsmen, with decorations (perhaps feathers) on their heads; and these huntsmen are equipped with bows and arrows. The paintings are probably of Magdalenian date. (Men with bows and arrows, perhaps fighting, are also shown on the fresco of Minateda.)

Where good surfaces occurred, pictures were sometimes made one on top of the other. At the close of the Magdalenian period, when a sudden decadence was very

pronounced, careless conventional shapes—the "tectiform," supposed to be a rough picture of a roofed hut, with various bands, dots, boat-shaped patterns and vague markings—take the place of fine draughtsmanship, and these are superimposed on the figures of the animals.

Painting began in the Aurignac-Solutré phase; first of all a black outline, continuous or dotted, then simple outlines in various colours, with the occasional addition of detail. Later, in the Magdalenian phases, red and black lines broaden out into fluent washes; after that, the figures are painted in solid black, with scraped and rubbed high-lights, the pigment being apparently rubbed on in the form of a smooth, fatty paste. The polychrome phase, in which colours are lavishly used, shows the first indications of a decline. Painting and engraving are combined in the last phase, several colours are used, there is an elaboration and sophistication of technique, and the vigour of the earlier style comes to an end.

The cave artist had a fair number of materials at his disposal. His colours were made of red and yellow ochres, oxide of iron, bioxide of manganese; and, in the later times, china clay. These colours were obtained from crushed and pounded preparations, mixed with fat, and either kept in tubes of bone or rolled up in crayons. Palettes and mortars of stone were used.

As the majority of the paintings are found in dark corridors, they must have been done, and looked at, by artificial light. That fact alone gives us a clear notion of the degree of culture which had been reached in the Reindeer Age.

By way of a concluding commentary on the primitive origins of art, it will not be without interest to take some of the most primitive races which have come within the scope of recent observation, and to see how they make, or made, pictures.

The northern Australians decorate their caves with rough drawings of animals; their materials are red and yellow ochre, white clay, and charcoal mixed with grease. Rock and bark pictures are frequently seen: these are mostly of animals—with the curious convention of showing the internal as well as the external structure—and of mythical beings. (Can we assume that some of the Magdalenian anthropomorphs, or man-like forms, are mythical?) And it is very curious to find that they make stencil patterns of their hands " by placing the hand, with the fingers extended, flat on a rock . . . and then blowing either red ochre or white pipe-clay over it from the mouth." [1] It is curious, because a similar practice is in evidence in the European Reindeer Age; and a further coincidence is found in the fact that the Australians mutilate their hands by removing the first joint of the index finger, and mutilation is apparently seen in some of the European hand-stencils.

Even the Tasmanians, most wretchedly primitive of all observed peoples, had art: they drew animals in charcoal.

Among the Veddas, many of the cave-paintings are made by idle women for their amusement. These paintings are of a loose, free-flowing kind (of the sort which it is now fashionable to describe as " stylized ")

[1] Spencer.

and consist of bands, dots and dashes, and infantile attempts to draw people and faces.

The Reindeer art is most closely paralleled, as every one has pointed out, by the art of the obsolescent African Bushmen; but it is certainly much better. (The Bushman artist was distinguished from his fellows, and regarded as a very important, rather holy person: his work was sacred, and possessed magical qualities.)

Social Conditions.—In the two following chapters we are going to discuss certain elements of the primitive mind and of the primitive order of life which must have been present, at one time or another, among the Stone Age races of Europe. The application of particular details to the different phases of the Stone Age must be left to the reader's discretion. But here we shall deal only with the specific evidence which is related to the lives and habits of the Reindeer Hunters.

The most interesting records of an ancient race are often found in their graves. A good many burials of the Cro-Magnon men and women have been revealed, and they are of the greatest importance in helping us to arrive at some definite knowledge of the thoughts and customs of this ancient people.

We need not give a detailed inventory of the known burials; it will serve our purpose to summarize the results of the discoveries and to give the reader some idea of the prevalent rites and of what may be deduced from the contents and arrangement of the graves.

A casual survey of a number of Cro-Magnon burials shows us certain outstanding features which may be

given concisely as follows: (1) the body is placed in the grave in a conventional, orthodox position; (2) personal ornaments are found with the skeleton; (3) the bones are frequently treated with red colouring matter.[1]

The conventional position of the body, known as the "contracted position," is one which is of world-wide occurrence in the case of very primitive or very ancient burials. In detail, the position has various modifications, but the main conditions are the same: the body is placed on one side in the curled-up attitude of sound sleep, though often the flexing of the lower limbs is so violent that it approaches disarticulation. When the body in its normal state was set in this position immediately or soon after death it must have been closely swathed or bound with ligatures. It appears, however, that the bones were sometimes buried after the decay or removal of the flesh, and that they were coloured by the application of ochres and peroxides. A very curious proof of the burial of a specially prepared skeleton has been found (Grotte des Hoteaux), where the thigh-bones had been incorrectly replaced, the right in the left socket and vice versa; some of the vertebræ were misplaced also.

The contracted form of burial was not universal in the Reindeer Age, but it was apparently a very frequent ceremonial usage. Its meaning is obscure, but is undoubtedly ritualistic. Possibly it simulates the attitude of profound and comfortable sleep; or the fact that the body was tightly bound and restrained may

[1] The provision of colouring matter within the tomb dates back to Mid-Palæolithic times. Peyrony tells us that he has found ochre and manganese in Neanderthal graves.

have prevented the spirit from breaking loose and becoming a terror to the living; or—a most fantastic guess—there may have been some idea of rebirth.

Personal ornaments found with burials include circlets, collars, frontals, pendants, "hair-nets," armlets, anklets and belts. These are made of pierced marine shells, teeth of bear, lion, stag, etc., drilled bones, fish vertebræ, and pieces of ivory. Many of these materials were incised with patterns and dyed with red ochre. Certain individuals were richly bedecked. Flint flakes and blades were often placed near, and sometimes in the hands of the deceased.

The coloration of the bones is a very curious matter. It is a practice which is well represented among existing "savage" races, where the bones of the dead, and especially the skulls, are decorated in a variety of ways (see Chapter XIII). In some instances Cro-Magnon burials seem to have been enveloped in a pasty, thick preparation of red earth; in others the bones are lightly coloured, and apparently by the direct application of powdered ochre; the skull of a man found in the Grotte de la Barma Grande at Mentone had a "cap" of red ochreous paste. Supplies of colouring matter, in little grooves or receptacles, were placed close to the body. Occasionally the head and thorax, sometimes the whole body, were protected by a simple arrangement of stones.

The coloration and decoration of the dead body afford valuable evidenc as to the dress and make-up of the living: it was a primitive custom to bedeck the dead in all their festival finery. Decoration of the face and body by means of mineral and vegetable dyes is a

common practice among primitive races, and is associated with the most important rites and with the most solemn occasions. It is fitting therefore that the dead man should set out for the spirit-world in the dress of one who is prepared and ready for a great ceremonial.

We cannot say whether the Reindeer Hunters observed complicated rites analogous to those of certain primitive existing races—rites which involve the pre-sepulchral removal or decay of the flesh, the subsequent carrying about of parts of the skeleton, and finally the complete burial. It may be that such practices account for the curious state of affairs found in some of these prehistoric graves; but the practices were evidently not uniform.

Burial with pomp is a social distinction. It was assumed from the earliest times that the illustrious dead required special treatment; the reasons being that the soul of the dead man was still in a position to command the obedience and respect of the living, and that the relations and dependents felt that their own pride and honour were intimately concerned with the provision of a grand funeral. (In some of the Polynesian Islands they believe that the souls of illustrious people ascend to the sky, but those of commoners go down to the under-world.)

From the evidence of the Cro-Magnon graves we infer that the men of the Reindeer Age had reached a graded social order, that those who deserved it were buried with special care, and that personal finery (ornaments and the use of prepared colour) was of great importance. Ritual, of course, is very plainly indicated by the

above evidence; and it may be noted that the African Bushmen (whose culture is supposed to resemble that of the Cro-Magnons) had ceremonial dances. "For social gatherings they made an elaborate toilet; the women sprinkled their head and neck with a green powder obtained from copper ore, and dusted scales of mica or threads of asbestos over their hair, which was first dressed with a red ochre pomade. The men painted themselves with red, yellow, or black. . . ." [1]

Great accumulations of kitchen refuse—notably the bones of horses—and the number of "hearths" found in a small area, show that the Solutrian folk lived in communities of considerable size. But throughout the Upper Palæolithic ages men were essentially hunters. They had no permanent residences, though they had doubtless places of assembly to which they resorted at stated times.

Dress is actually depicted in the cave-paintings of Cogul and Alpera. The exquisitely made bone needles show that, by Magdalenian times, the *costumiers* were able to carry out work of a delicate nature. Probably all clothes were made of prepared skins.

Statuettes make it clear that the women dressed their hair in a way which implies the use of greasy matter of some kind: the *coiffure* is rolled into knobbly bands or pendent tassels.

Hunting methods can only be guessed at. The long barbed weapon of bone which is usually described as a harpoon may have been used for spearing animals as well as fish. The reindeer was the most sought-after animal—supplying men with flesh for cooking and

[1] Sollas.

eating, horn for the manufacture of tools and ornaments, an excellent hide for making clothes of, fat and marrow for dozens of useful purposes. The mammoth was decreasing rapidly towards the close of the period: he disappears at the end of the Magdalenian epoch.

Transition.—The last phase of the Old Stone age seems to have been marked by a general decline. A smaller type of man replaced the tall Cro-Magnon people. Instead of the fine art of the caves, we find miserable daubs and dashes and a complete absence of representation or design. The relatively advanced culture of the height of the Magdalenian age seems to dissolve; nothing remains of the industries and the arts which distinguished Cro-Magnon man at his best. So marked is the decline, so strange the apparent break between this and the succeeding age (the Neolithic), that some writers believed in a cessation of human activity in Europe at this time, caused either by the withdrawal or the extinction of the Reindeer men. Others think that the Neolithic folk, tougher but infinitely less cultured than the enfeebled Magdalenians, " invaded " Europe and became the dominant race.

CHAPTER VIII

PRIMITIVE PSYCHOLOGY

Psychology and Prehistory.—In comparing the mind of a modern European with the mind of primitive man, we must remember that we are not comparing two different things, but two aspects of the same thing. We are studying the essentially human mind at different stages. During the infinitely greater part of his existence man has been living in what we call the "primitive" state. We convey a very incorrect idea when we speak of modern man as "emerging from savagery" (or some such phrase), as though he had suddenly found the gate in the field and had walked out of it.

Psychology is not an exact science. Its professors are united in disagreement. We are not concerned here with the "primordial images" of Jung or with the eternal "libido" of Freud or with the hopeless welter of confused thought that marks the English and American schools: we will try to discover, on the merits of plain evidence, what are the everyday thoughts of the primitive mind. If we can arrive at some knowledge of the mental habits of the primitive races who are living, or have lived, in modern times, we may be sure that we have seized on the broad lines of thought

which must have occupied the minds of the men of the Stone Ages.

The Cult of the Dead.—We have seen something of the way in which the prehistoric Europeans buried their dead, and we have been able to form some idea of their spiritual beliefs. In order to understand more fully how the primitive mind reacts to the fact of death, we shall now glance at the funeral rites, the conception of the ghostly existence of the deceased, and the general views on these subjects which are characteristic of living races of primitive folk.

At the outset we notice a difference between civilized and uncivilized creeds. Punishment after death is an idea which belongs to the classic and modern ages. To primitive man it is much more likely that the dead will punish the living; because, in his view, the spirit after death possesses illimitable powers of retaliation, and can strike secretly in the darkness. To him, death has no terrors; the dead have terrors. It is a common thing, among uncivilized people, to find that the dying man, having announced calmly the hour of his demise, watches with placid interest the arrangements for his funeral. So deep is the conviction that death is the gateway to freedom and happiness that, in Africa and the East, there was often keen rivalry for the privilege of being buried or burnt with the body of an important person.

Suicide is practised as a means of liberating the spirit for some mischievous design.

The ghosts of the slain are greatly feared by the primitive warrior—bodies are bound or mutilated in order that the spirit may be similarly restricted or

maimed, and thus unable to take revenge. Animals —even trees—are placated before they are slaughtered or felled.

The name of the deceased must not be spoken: if the name was that of some familiar thing, another name has to be found for it.

Belief in the annihilation of the spirit at death is extremely rare, though it is recorded of certain Nilotic Negroes; and they made an exception in the case of wizards. Propitiation is one of the main features of the primitive cult of the dead: the Papuasians extend the idea of propitiation to ghosts that were never in the bodies of men. The propitiation of departed kinsfolk, particularly of chieftains, was very marked among the Maoris, who thought that the spirits of the dead, rising from below the earth, could enter living or inanimate things, keep an eye on the affairs of the tribe, and see that due observance was paid to its laws. The North Australians believe that spirits throng to visit the body of a dead person. The Tasmanians believed that the ghosts of the deceased might return, either to do good to the living or to injure them; and they often carried one or more of the bones of their relatives as protective talismans. Even the Eskimo, who do not exhibit a marked religious sense, believe in the after-life and in the existence of spirits: the bodies of the dead are laid in the snow on low hill tops, and with them are placed the dress, tools and weapons which are considered necessary for the comfort, maintenance and protection of the ghost.

Professor Seligmann states that "the Vedda religion is essentially a cult of the dead"—with them the cult

is of the usual form with regard to dead kinsfolk, and is extended and elevated to the worship of mythical Vedda heroes: the strong shades of great hunters, whose powers are equal to those of divinity.

Between the dead body and the soul the connection, in primitive thought, is a very close one. The African Ibo consider that the incorrect or hasty burial of the dead will prevent the spirit from reaching its home; a belief which is probably universal. The dead body is a holy thing; the centre of mysterious spiritual actions; and hence it shares the dangerous qualities of a thing which is unclean, and those who touch it are tabooed, and forced to observe ceremonies of retirement and purification.

Although the practice of burial is subject to many variations, both in the case of prehistoric peoples and those of modern times, the underlying thought is the same: the need to make provision for the welfare of the soul. That is the primary, ancient need. In sophisticated ages the old thought is distorted and exploited, used as a means of impressing the community with the importance of a ruling house, or a caste, or even a political party.

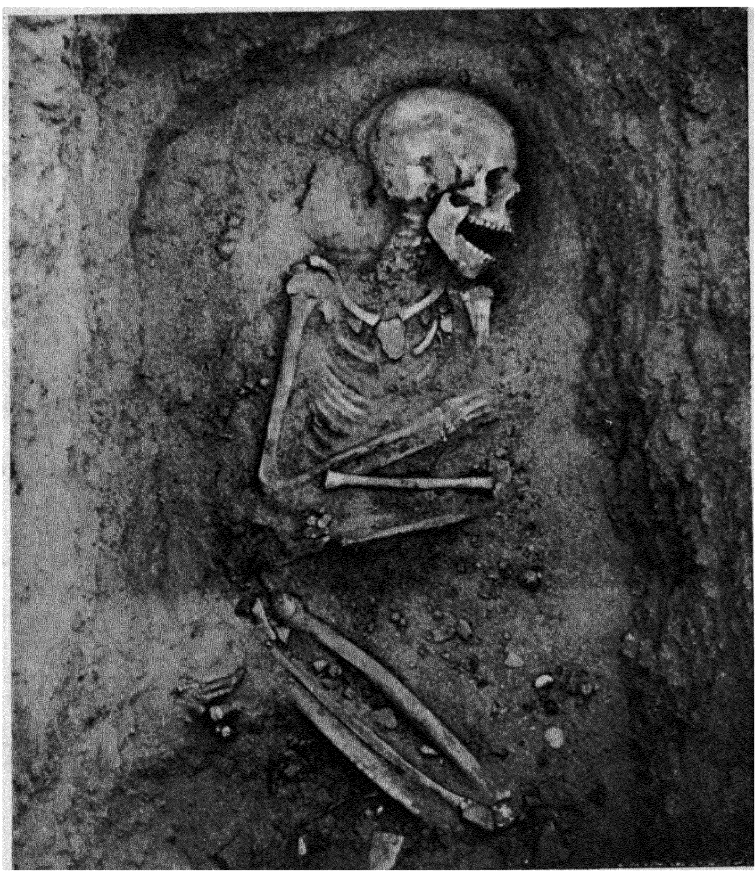
The primitive races of to-day treat the bodies of their dead in many different ways. Cremation does not often occur until we reach a relatively advanced stage. The burial of the entire body, accompanied by provision of weapons and sustenance and by the presence of the personal decorations and finery of the deceased, seems to have been the first practice, and an immensely ancient one.

Sometimes the body is exposed in a tree until the

flesh has decayed; and the bones are then collected, some of them handed to the relatives and others buried. Sometimes the corpse is sewn up in mats, saturated with sacrificial blood, and placed in a sitting attitude. The burial customs of the most interesting of all vanished peoples—the Tasmanians—varied considerably: they bent the body into the contracted position, binding it with twisted grass; they placed the dead upright in hollow tree-trunks with a spear transfixing the neck; they did occasionally incinerate the body, and smear the ashes over their faces.

In some places the dead man is left in the hut or cave in which he lived, and so his residence becomes his tomb—it may be reoccupied when only the bones are left.[1] Burial in tumps and mounds of earth (tumuli) is common. In other cases the body is loosely covered over with stones. Decapitation of the body was practised by the Neolithic Egyptians, and mutilation of the dead is still a feature among certain modern primitives. The Wanyamwezi of East Africa are an exception among primitive peoples: they do not bury the body at all, or treat it with reverence, but throw it on to waste ground to be devoured. Although the Indians of North America buried the dead in various ways, they always made provision for the journey to the shades: food, weapons, tobacco-pipe and medicine-bag were invariably placed beside the body. Similar provision is practically universal, and in some

[1] In other intances the corpse is buried beneath the floor of the cabin or shelter without causing the least inconvenience to the inmates; and sometimes it is left to decompose in the presence of the bereaved family.



By courtsey of Major H. G. C. Hynes

THE WORLD-WIDE PRIMITIVE CULT OF THE DEAD IS WELL ILLUSTRATED BY THIS PHOTOGRAPH OF AN EARLY EGYPTIAN BURIAL, ABOUT 6,000 YEARS OLD

cases the supplies of food within the tomb are renewed from time to time.

We shall have occasion to discuss other details of primitive burial when we come to deal with the varied and interesting practices of the Neolithic people (Chapter XIII).

Religion and Ritual.—In all cases where we find a people who are burying their dead with care and with provision for the after-life we find that those peoples have rituals and ceremonies which are essentially religious in form. Such ceremonies are connected with seasons and events, and they may even have a distinctly social aspect. Among living races of primitives there are many such ceremonial observances. And whether it is an annual beer-drinking, or a commemoration service, or the funeral of some great person, the ceremony is usually one in which all the adult men of the tribe take part, either as performers or spectators. The women and young people are generally excluded.

One of the most curious features about the rituals of uncivilized folk is the strict observance of traditional form. Orthodoxy is the rule. Everything has to be done in the correct, time-honoured way; everything must be according to regulation and custom. The corroborees of the Australians or the ritualistic dances of the Veddas are carried on in a perfectly formal manner. Certain steps,. certain words and gestures, certain mimicries—all must be enacted at the proper time and in the proper style. Conservatism is a feature of the primitive mind.

Sacrifices and offerings belong to the more highly

evolved forms of religious thought, and the sacrifice of living things (either animals or men, or the symbols representing them) to the highest forms of all.

Cannibalism is almost invariably a ritual: there is seldom such a thing as cannibalism unassociated with a religious concept. The underlying idea is, generally, that the virtue and the courage of the dead man may enter into those who eat his body. It is wrong altogether to believe that cannibals habitually eat their own kind as we eat pigs and sheep—because the flesh is savoury.

The idea of a god, or gods, with personal attributes is probably derived from the cult of the ancestral dead (which is the basis of all primitive mystic thought). First, the spirit of a mighty hunter or chieftain is credited with special powers; then he becomes a tradition; and at last a divinity. As we have seen, the most primitive expressions of religion are connected with the invocation of departed spirits. But we find also a vague general belief in the ghostly: demons of the darkness who are bad; angels of the light who are good. There is an almost universal belief in the ghostly beings who are connected with rivers and with running waters. Rocky hill-tops, big stones, trees and dark glades are often regarded as the haunts of particular and terrifying goblins, or as the meeting-places of the nameless dead. In all parts of the primitive world, great stones are the objects of veneration and fear. The Indonesians propitiate the spirits of the air. Religious thought is directed everywhere towards the sun, moon and stars.

The creation of men and of spirits is often attributed

to the work of a god, or a god and a goddess. The Arunta of Australia say that their ancestors in "the old time" made spirit-children and shook them from their bodies as a moulting hen shakes its feathers. In due time these spirit-children entered human mothers and were born incarnate. The Kakadu tell how Imberombera, the ghostly mother, stalked over the land, leaving behind her groups of spirit-children: her itinerary is given in detail, with the names and locations of the chief spirit-groups from which the present tribes have sprung: one of the most remarkable instances of elaborate and consistent tradition.

Sometimes the first men and women are made out of moistened clay; sometimes out of pieces of wood or bark, out of mud or stone.

In some stories the descent of man from wild animals, or from an ancestor who was identified in some way with an animal, is the main feature. The natives of Celebes believe that they are descended from apes.

Magic and Witchcraft.—Magic is the science of the uncanny. It is the technique by means of which man believes that he can propitiate, control and employ for his own purposes the mysterious forces that surround him. By using various formulas he thinks he can obtain the assistance of incorporate beings, who will aid him in the furtherance of his designs. Thus, magic is really an aspect of religious thought, but it differs from the higher religious ethic in this—that the powers invoked are usually malignant, and they are called on, not to do good, but to do the greatest possible amount of harm. That is the meaning we must attach to the word magic in its primitive

sense. The fairies who do all sorts of pretty and benevolent things, the miracles and marvels of civilized religion, belong to a social stage infinitely in advance of that which we are now considering. Of course there is protective magic : the defence of the individual who is being attacked by evil spirits. This defence consists of pitting the resources of one magician against those of another, or against the malevolent sprites who are threatening life or health. Amulets and charms, worn on the person, are considered efficacious in warding off the powers of evil. But in primitive society of the earliest kind there is no such thing as magic which is set going with the idea of doing good to anyone.

It is a very general belief among primitive races that death (except in the case of old people) cannot be anything but the effect of evil spells cast on the victim by his enemies. When an important person dies, his household is immediately suspected of black magic, and his wives, relatives and slaves are often subjected to an ordeal in order to prove their innocence or culpability. Evil magic can be worked effectively against a person if those who wish him ill can obtain some of his nail-parings, hair, excrement, teeth, blood, saliva, or any fragment of his organism. (It is believed that a sympathetic connection exists between any scrap or atom of a thing and the thing itself, and that if even the smallest portion of a man, separated from his body but once a part of it, is treated in the prescribed manner by the person who wishes to hurt or destroy him, so he will be injured or die.)

The Primitive Mind in General.—There are certain

general conditions of primitive thought which do not come under special categories, but which must be taken into account when we are trying to get at the contents of the human mind in its early stages of development. Many of these conditions are present in the minds of children: as, for instance, the inability to distinguish between what has really happened and what has occurred only in dream or imagination. The inability to distinguish between words and things is also a characteristic both of the child and the savage. These confusions are more easily understood when we remember that the bodily life and the spiritual life are not clearly separated in the primitive mind.

The attitude of primitive man towards other animals is a subject of great interest. He believes that he shares with animals, not only the realities of the physical life, but also the realities of the spiritual life; so that animals may become a source of spiritual danger as well as of physical danger, of spiritual as well as of physical benefit.

This simple belief of spiritual kinship with animals leads to complex lines of thought. An animal that threatens life or security must be warded off or killed. An animal yielding food or useful material must be killed also; but, in this case, the slaying of the animal, especially if it is one of an inoffensive species, is often preceded by apology or prayer. The totemistic significance of animals—the spiritual ancestors and the incarnations of the protecting divinities of the tribe—ensures their special treatment and veneration.

Gods in animal form are to be found in most primitive mythologies, though not, perhaps, in the earliest:

in Europe, the cult of the bull in the Ægean countries and of the pig among the Kelts are typical examples; but the worship of animal gods reached its height in Egypt. In Africa, India and Oceania it is still much in evidence. Certain African natives believe in possession by the spirits of animals, and this possession is indicated by appropriate pantomime and by acts of murderous ferocity. The Ibo believe that the spirits of animals pass after death to a special resting-place.

Animals are commonly believed by primitive man to possess greater knowledge and greater spiritual power than he himself does.

As the savage does not make a clear distinction between words and things, the name of a person has, for him, a tremendous importance. The personal name is an actual part of the person to whom it belongs. To utter that name is to establish an immediate connection between the speaker and the person whose name is pronounced; and this holds good in the case both of the living and of the dead. But so powerful is the fear of the deceased that the speaking of his name is strictly forbidden. Only when the name is that of one of the tribal demi-gods, or of a person whose shade is ceremonially invoked, may it be spoken for the attainment of a special purpose by the living. Mention of a dead man's name may be punishable by death. A similar taboo is sometimes extended to the names of the absent living, of rulers, and of parents-in-law. The name given to the young Australian native when he attains the rank of manhood and is duly initiated is kept partly secret: on no account

must it be revealed to strangers. Similar instances are widespread, and occur in ancient and in modern times.

A sense of humour is so essentially and so exclusively a human characteristic that we are naturally interested in finding out how it shows itself in a savage or primitive person. We find that the savage, even when he is on the lowest human level of which we have knowledge, does possess a sense of humour. He is immensely pleased by the sight of some one who is placed in an undignified or ludicrous position. If a man tumbles over a log, or runs away from a snake, or hurts himself and cries out, the event is regarded as exquisitely funny: those who did not see the accident are told all about it by the lucky witnesses, and the victim (if he is able) is requested to show exactly what happened, to the accompaniment of roars of laughter. Practical jokes appeal to the primitive mind; even the Tasmanians took a delight in them. Mimicry, often of a remarkably clever kind, is much appreciated by a savage audience. White men have recorded how the serious and flustered efforts of photographers have been admirably parodied —with an improvised camera of sticks—by the natives among whom they were obtaining records.

Primitive ideas about sex will be touched on in the next chapter. Here we will only observe that the primitive mind is not only very far from being mainly occupied with sex, but is often regardless or ignorant of the real nature of the subject, and leaves it to the elaborate rules and regulations which are laid down by tribal custom and which do not admit of evasion or dispute.

Memory in the primitive mind is often well developed. The savage retains in detail the time-honoured observances of his clan: he does not forget the conventional steps of his dances, the stories of gods and heroes, or the correct way of making an invocation. He has an unerring sense of locality, and remembers any place that he has seen.

Sanctity and pollution are strangely confused by the primitive thinker. A king and a murderer are both regarded as the centres of immensely strong ghostly activities (as we saw was also the case with a dead body), and they have to be treated with reverence and precaution. Women are often regarded as unclean and are carefully isolated at certain periods. And this spiritual danger is contagious—it can be transmitted to objects which are associated with the holy or unclean person. That is one of the reasons which account for the burial with the dead body of the various things which belonged to it when it was alive; and even when these things are retained for the use of the living, they have to be purified and made harmless.

There is hardly anything in external nature to which the primitive mind does not attach a mysterious significance. Trees and plants are venerated and become the objects of cult; oddly shaped stones are worshipped; rivers, waters, woods, high places, caverns—all are invested with a spiritual life or are regarded as the haunts of ghostly beings. Man, in his primitive state, feels that he is closely and sympathetically united to the whole of nature. He is subject to fears and ecstasies which lead him to emo-

tional levels that have no counterpart in our civilized life. If, on the one hand, his fears drive him to degrading excesses of cruelty and cowardice, his ecstatic moments produce an intensified state of mental sensation which is identical with the rapture of the saint or the seer.

. . . . . .

We have dealt in this chapter with those elements of the primitive mind which are associated with the early stages of human development and are practically universal. We have done so because we are justified in supposing that Palæolithic man had thoughts and ideas which correspond to those which have been traced in the minds of the primitive races of modern times. By discovering the modes of thought which are characteristic of the general primitive mind, we get into closer touch with the men of the Stone Ages, and we are better able to understand the meaning of their customs and arts, or at least to form conjectures which have a strong probability.

In the next chapter we shall discuss the general facts of primitive social life, with the same object in view.

CHAPTER IX

PRIMITIVE LIFE

The Family and the Community.—Society begins not with the alliance of individuals, but with the alliance of families. The family group is a unit which exists outside society altogether—outside humanity. Until the offspring are able to shift for themselves, primitive family life is an absolute necessity: there must be, at least, a temporary union of a male and a female (whether the parents or not) to nourish and protect the young during the period of their immaturity.

Society begins when several families join together for mutual assistance and protection, establishing a collective identity as a clan or tribe. And although the family unit is a thing apart from the communal life it is the reason for, and the first concern of, the communal life; and the immediate aim of primitive society is the preservation and maintenance of the family unit.

Since it is necessary to protect the family, as far as possible, from discord and disturbance within its own circle, as well as from interference from without, it is not surprising to find that one of the first concerns of primitive society is the regulation of sexual relationships. Every savage has a dread of incest; and he dreads it presumably because it threatens the security of the family group, and ultimately the security of the whole

tribe. Incest and sexual promiscuity are so rare as to be almost unknown among primitive races, and the laws controlling marriage and sexual conduct in general are strict, methodical and rigidly enforced.

Conversation between brother and sister is looked on with disfavour among certain primitive folk; and the avoidance, by both sexes, of their parents-in-law is a primitive counterpart to the attitude of the modern European. If the Kafir chances to meet his mother-in-law when he is out walking, he covers his face with his shield and slinks by as quickly as possible. The Kakadu man of Australia is not allowed to look at his mother-in-law, neither must he permit her to do anything for him: if it is really necessary for them to speak to each other, they have to shout from a great distance, standing back to back. (Among the same people, while the man is allowed to speak to his elder sisters at forty yards distance or so, he must not speak to the youngest under any conditions.) In some instances there is a kind of general prohibition which confines a man exclusively to the company and conversation of his wife and forbids him to approach or speak to any other woman.

Marriage, in most primitive societies, is a purely conventional institution, and the choice of the parties (where there is any choice at all) is severely restricted by the tribal code. It is not regarded as a matter of any spiritual significance, but as one of civil expediency. Marriage by capture or barter, or as the climax of romantic adventure, is extremely rare. Primitive marriages are formal and pre-arranged.

Widows are often handed on to the dead husband's

brother; widowers receive a sister of the dead woman. All this is purely a matter of the undisputed code. It is not possible to imagine anything less primitive than the teachings of free love.

Prostitution is not unknown among uncivilised peoples, but this again is run on orthodox principles, and for the exclusive benefit of young bachelors.

We may take it for granted that nowhere in primitive society do we find unrestricted licence in sexual affairs; but we find, on the contrary, that these affairs are severely regulated, to the exclusion even of what we should regard as innocent romance. We find that the integrity of the family is jealously guarded, and that nothing is more dreaded than the mere suggestion of an illicit love.

Elements of Society.—There is no "inherent law of human progress." Many coincident causes and events make up the history of a race, just as they make up the history of an individual; and it would be manifestly absurd to believe that a "law of progress" held good in the one case or the other. A race passes through adventures and accidents collectively, as a person does individually, and the results of those adventures and accidents cannot be foreseen; for the simple reason that what we term "accidentalism" is a condition of all existence, and there is in reality no such thing as calculable progress. Because one stage is reached, it is not to be assumed that another given stage necessarily follows: changes of climate and environment, contact with other races, and the strength or weakness of native resource are among the main causes which affect vitally the shaping of social conditions. (Living on the

earth at the present time, remember, there are wild rampageous savages who wear hardly any clothes; and there are polite gentlemen in black coats, well-pressed trousers, and shining boots—elegant and thoughtful creatures of whom we may well be proud. Both are descended from equally remote ancestors, but the races to which they belong have not travelled along the same lines of social evolution.) We can only be sure of the two principal stages: first, men were hunters and wanderers, moving in small bands and rarely establishing a head-quarters; then, coinciding with the stage of agriculture and the domestication of animals, they settled down to the life of the encampment or the village. And even here, admitting that, broadly speaking, these two stages do follow each other in primitive development, there are exceptions and discrepancies which we cannot explain.

Hunting is a matter of the first importance to man in a primitive state. Game laws and the delimitation of tribal preserves are included in the first social ordinances. The movements of game affect the movements and customs of whole communities—even of races. The earliest societies are essentially societies of huntsmen and trackers.

As far as we are able to say, it is probable that the first individuals who were placed in authority over their fellows were men who combined the attributes of king and priest. They were the repositories of the tribal sentiment; necessary for the success of the tribe in hunting, and in its encounters with visible and invisible enemies. They were entitled to the lives and loyalty of the tribesmen, but were subject to restriction and to

the innumerable inconveniences which befall a semi-divine person. Many African kings are (or were) never permitted to leave their palaces : they do not see the faces of their subjects; their feet are pushed out from beneath a screen of matting in order that they may receive the unseen homage of the multitude. The king of the Matabeles used to pray, not only to the spirits of his ancestors, but to his own spirit also : to the divine thing within himself.

No man is so fettered by regulation as the savage. At every turn he has to do the right thing, or say the right thing, and take great care to avoid doing what is wrong. He cannot eat when he pleases or what he pleases. He is not allowed to go a-hunting here, there and anywhere. He must not hang about after the girls, or even look at them too much. He must not touch this thing or that thing; must not kill this animal, and must kill that animal. He has to take part in all the orthodox ceremonies; has to learn the steps of the dance and the words of the chorus, and dance and sing with the others. His speech is not free : his actions are governed by tribal law. Arrangements which he is powerless to alter, and which he does not even question, control his marriage, his place of abode, his hunting-grounds, and finally his burial. So strong is the discipline imposed by tradition that he may actually die of fright if he discovers that he has unwittingly transgressed some important taboo. The savage is a conservative and the slave of custom : that is why he is savage.

The primitive criminal, the person who does, or who is suspected of doing, the wrong thing (and primitive

crime is an offence rather against convention than against humanity), or who is believed to unloose the powers of evil magic, is usually obliged to undergo the test of ordeal. He is made to drink poison: if he vomits it up, he is innocent; if he retains it, he is guilty—at any rate he dies. The ordeal may be undergone by a whole group of people; and, as long as some of them die, justice is satisfied. If the whole tribe is guilty of a collective offence, or if it is considered necessary to clear the moral atmosphere, a scapegoat may be selected (preferably a young girl) and ceremonially killed. Murder is dealt with in various ways, corresponding to different cultural levels. In small communities, the murderer who is caught red-handed may be dispatched without trial or ceremony; but if he can avoid capture for some time, and allow tempers to cool, he may be let off with a fine. In countries that are ruled by a despot, murder is regarded as an offence against majesty, and comes within the scope of formal jurisdiction. Composition by fine or forfeiture is quite usual. Similar conditions obtain in the case of adultery, which is extremely rare; the punishment being sometimes death and sometimes a substantial penalty.

It is impossible to generalize about the status of women in primitive societies. That status, however, is usually much higher than it was in Victorian England. The willing co-operation of men and women in the essential affairs of life, a fair and clearly recognized division of work, and a considerate regard for the physical weakness of women are widespread characteristics of society in its earliest forms. But they are not

universal characteristics. Woman is sometimes treated as a slave or as a piece of mobile and transferable property: this, however, is not often the case until the social organization is of an advanced kind, and it is a feature of that peculiar ascendency of the male which accompanies the higher civilizations. Women are sometimes admitted to the lodges and secret societies which are occasionally found in savage communities; and the Pueblo Indians have clubs which are organized and run by women, and from which the men are excluded.

Property is naturally of great importance to the savage, and to his clan or group. Distinctions are made between (1) the collective belongings of the tribe, (2) the special belongings of the individual, (3) the joint possessions of a family, and (4) the moral claim of the individual to anything of his own unaided invention. The balance is nicely adjusted between communal ownership and private ownership. Dr. Lowie (to whom we are greatly indebted for many of the facts which are recorded in this chapter) tells us that, among the Andaman Islanders, only the composer of a new song is allowed to sing it. In other cases, he says, incantations are copyright, or granted to individuals and jealously guarded by them.

Theft is not a primitive crime. Stealing from their fellows is very rare among savages; partly, no doubt, on account of the extremely high value of personal belongings, and the certainty—if the thief is detected—of swift and terrible retaliation.

Social distinctions, in primitive society, apply less to groups than to individuals. Bravery and wealth are

sources of distinction, as also are success in hunting, the ability to secure good supplies of food, the possession of spiritual gifts, and the general reputation of being lucky.

Primitive language presents a study of infinite complexity, far beyond the scope of our present purpose. Old writers tell us that the Almighty spoke Swedish, the angel Gabriel Turkish, Adam and Eve Persian or Danish, the Serpent Arabic or (we regret to observe) French. Many of the views of modern etymologists are not less ridiculous. Apart from the great difficulty of understanding and transcribing such languages, the many variations and the use of synonyms make it terribly hard to get anything like a reliable vocabulary. To take one instance: the Tasmanian words which were supposed to mean "nose," according to the various people who attempted to record them, are no fewer than thirteen, including variations; and as a curiosity, affording specimens of primitive word-sounds, we give them here: muguiz, medouer, megrooera, mudena, muidje, minarara, mugid, mena rowarriga, manewurrar, moonar, mununa, muye, muggenah. Although the ideas conveyed by primitive speech are naturally simple ones (a deeper inexpressible significance may be latent), the words themselves are often made up of many syllables. The Kakadu word for "clear" is "ungarabillamireri"; the word for "shark" is a soft-sounding one—"munabulbulba." Simple, broad vowel-sounds, with an absence of sibilants, distinguish most of the recorded primitive tongues.

Dress and personal adornment are matters of supreme

importance to the savage, and they were obviously of equal importance to the prehistoric races of Europe.

. . . . . .

Social development is largely dependent on two conditions: the settled residence of the tribe, and the amount of time which can be spared from the immediate concerns of existence—the provision of food and shelter. As long as man is exclusively occupied with the mere maintenance of life he is incapable of making any great social advance. The history of progress is the history of specialization and invention. It is the expert, the man who improves things or discovers things, who really makes the wheels go round; and the expert is only produced under conditions which afford the leisure and seclusion of the individual. We do not find that anything approaching modern civilization becomes possible before the stage of agriculture, tranquil and continuous local residence, and the establishment of relatively large communities. It would be fascinating indeed to trace the story of the specialist throughout the ages, and by doing so we should trace the story of human progress.

Warfare does not appear at all in the early stages of society: the warrior is the regrettable contemporary of the peaceful specialist, and may be regarded as his evil counterpart. You do not get the soldier until you reach a level at which honest labour ceases to provide a sufficient outlet for human energy, and men begin to form ideas which are to develop, in later ages, into the blood-red efflorescence of conquest and massacre.

We shall conclude our survey of the general facts of primitive life by giving very short accounts of two of

the most primitive races (one extinct, and the other still dragging on) which have been examined by modern observers: the Tasmanians and the Veddas. For our information concerning the first we have to rely on the instructive but confused compilation of Dr. Ling Roth; for the latter we draw from the admirable work of Professor Seligmann.

The Tasmanians.—This extremely interesting people, who were living in a true Stone Age, were, for the most part, methodically exterminated by the English settlers; and the miserable remainder decayed and died in captivity. The last surviving male died at Oyster Cave, near Hobart, in 1869; the last woman in 1876.

The records which have been published are not made by competent or reliable observers, and our knowledge is therefore very incomplete. We set down here only those facts concerning which there is agreement; disentangling them as best we may from the pompous, stilted and rambling accounts of the Victorian settlers, so wretchedly distorted by prejudice, and from the more sympathetic descriptions of the earlier French "naturalists," Billardière and Péron.

The culture of these people was probably not as high as that represented in Europe by the Chelleans.

Stone was not the only material used in tool-making. They had wooden chisels with which they dislodged shell-fish from the rocks; and they had wooden spears (the point hardened in the fire and shaped with a flint scraper), in throwing which they showed extraordinary skill. They had also a "waddy" or club.

Their rude shelters were made of boughs and bark. They did not stay long in one place. There were no

villages, no settlements, and no property in land. When they started on their wanderings, the sick were left to die, with a little food and a vegetable purgative.

Baskets were made of strips of leaves, bark or grass, and of sea-weed. They had no pottery.

Clothes were hardly ever worn: they consisted of skins. Personal ornament, however, was comparatively elaborate. The hair was trimmed with flint and shells, and was heavily pomaded with red ochre and grease, so that it hung in stiff, clotted rolls. Bodies were scarified, smeared all over with red ochre and fat, or charcoal. They bedecked themselves with strips of fur, strings of shells and teeth, garlands of flowers, and necklaces of kangaroo sinew.

They had organized dances, festivals and choruses.

The arts of medicine consisted in the laceration of the affected part with bits of stone, and in the application of the bones of dead relatives. A man with a headache placed a triangle of three leg-bones on top of his head.

Food was always cooked, and was eaten in company. They ate vegetables, oysters, mussels and rats.

We have spoken already of their burial customs. No matter when a person died, they did not believe that he was quite dead until the sun had set.

The Tasmanians were not strong, judged by the European standard, but they were astonishingly quick and agile, and the men could dodge a spear as it flew towards them at short range. They swam well; the women in particular, who remained under water for an incredible time when they were after shell-fish. They used a kind of raft or canoe, but there is no reliable account of these. Like other primitive folk, they

squatted on their heels; and they slept " in a sitting posture, with their heads between their knees."

The Veddas.—We have here the case of a people whose shyness and sophistication have made it no easy matter for the white man to discover their habits. Living in touch with civilized races, they have learnt how to act in a way that they consider interesting from the civilized point of view, and there is no more peculiar sight than a Vedda who is playing up to what he thinks the correct thing for a primitive man.

They represent an intermediate stage between a wandering and a settled people. The " forest " Vedda makes a different home two or three times a year, as hunting conditions or the season may demand. He builds a hut on the low ground, and occupies a cave on the high ground. Unlike the Tasmanian, he does not abandon the sick or the aged of his family, but when he moves he takes them with him. Caves are occupied communally, and the space allotted to each family is strictly observed. Relationship laws are rigid, and marital infidelity seems absolutely unknown.

Partial or interrupted cultivation is practised : land, hills and caves are recognized as property, and form a part of the marriage settlement.

The attitude towards the dead is curious, since it exhibits a kindly, reverential feeling towards the spirit of the deceased, coupled with a relative indifference as to what becomes of his body and bones. When a person dies from sickness, the body is left in the cave—it is neither washed nor dressed nor decorated, but is merely " covered with leaves and branches." The occupants then leave the cave, because, if they stayed,

the spirit of the deceased would throw stones at them. Later, the cave may be again occupied; but not before the dead body has decayed; and if the returning family find that the bones are still there, they collect them and throw them away. And yet the Vedda has a passionate desire to establish friendly communion between himself and his dead ancestors. This discrepancy in the treatment of the dead body and the veneration of the spirit is a very strange anomaly, and is a notable exception in the recorded facts of primitive practice.

The "unsophisticated" Veddas had a peculiar way of working up their courage or restoring their confidence. In the betel-pouches which they carried round their necks they placed a dried fragment of human liver, taken from a slain enemy. When the Vedda found himself in a tight corner, or when he was making up his mind to attack some one, he would chew a bit of the liver: "Well! I have killed *this* man; so why should I be afraid?"

Women live on an equal footing with the men, even if they do not receive greater consideration.

Vedda songs have been recorded by the phonograph, and the tunes are published in Seligmann's book. Of the thirty-four tunes thus recorded, nine contain only two notes, twelve have three notes, nine have four, and one has five.

The Vedda culture is somewhat higher than that of the Tasmanians, and includes pottery; but this may be a recently acquired art, and it must be remembered that many of the primitive characteristics of the Veddas have been lost through their contact with the Sinhalese, and latterly with white men.

CHAPTER X

RECONSTRUCTION

The Bones of Prehistoric Man.—Deep down, far below the present surface of the earth, lie human bones of incalculable antiquity. Others, fossilized and brittle, are rolled in the ancient gravels from heights that have long ago vanished—how long ago we can only guess. Of more recent date, but of an age that must be reckoned in tens of thousands of years, are the skeletons that rest beneath the stalagmitic deposit in caves. Later still come the human remains in the great stone tombs of the Neolithic folk—burials that took place a mere six or eight thousand years ago.

The known human relics that come under the first category—the most ancient of all—are as yet of extreme rarity.

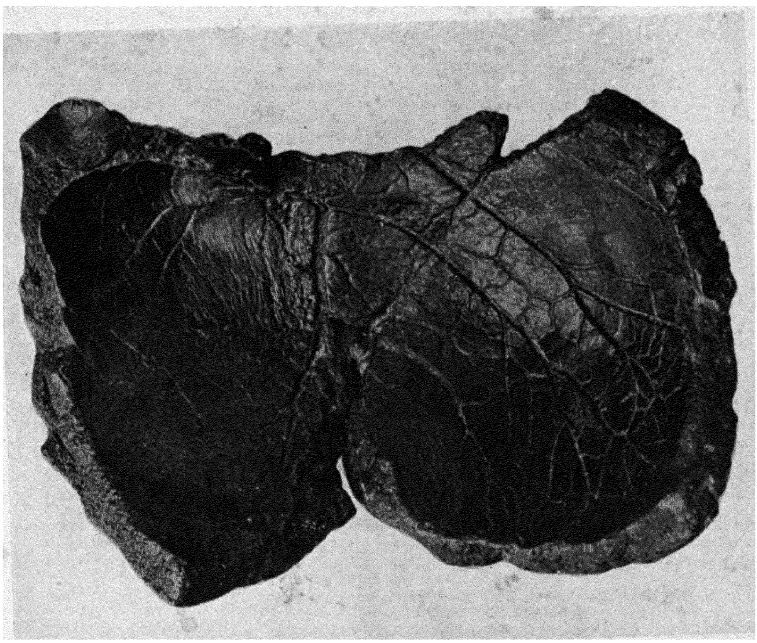
Our evidence is perhaps too scanty to warrant the assertions which have been put forward. When we find that two of the greatest living experts differ very materially in their views as to the proper way in which a broken skull should be rebuilt, we are reminded forcibly that the layman should keep silence, waiting for the accumulation of fresh evidence or for the disclosure of irrefutable proof. The writer will not consider those problems which are reserved for the province of scientific controversy, but will try to make the reader

acquainted with the salient and established facts which are made clear to us by the study of ancient bones.

The Earliest Traces.—What are the oldest human bones in the world? We cannot say; but at the present time (1924) the claim to greatest antiquity lies between the fragments of the Piltdown skull, the Heidelberg jaw, and the remains of the Javanese *Pithecanthropus*. Let us examine these in succession.

The Piltdown remains (parts of a skull, a piece of a lower jaw, and a loose canine tooth), if they are not those of the first man on record, are certainly those of the first Briton.

The skull was found at Piltdown in the Sussex Weald by some men who were digging gravel for road-repairs; but it was "discovered" by Mr. Charles Dawson, a geologist and antiquary, and his name is now attached to that ancient creature—*Eoanthropus Dawsoni* (Dawson's Dawn-Man), or, as one prefers to call him, the Piltdown Man. The men who found the skull, little knowing that they had chanced on one of the most important discoveries of modern times, promptly broke it up and threw it away. Mr. Dawson got one of the pieces, searched the gravel, and eventually picked up several other fragments. Further search in the gravel revealed, besides the human remains, the bones of extinct animals, both of Pliocene and Pleistocene times, and a collection of flint implements; some of them eolithic, resembling those of the Kentish Plateau, and others of a type which curiously anticipates the Mousterian form. There was also a remarkable bone implement, something like a cricket bat, but pointed at the end where the handle would be. This



By permission of the Trustees of the British Museum

THE LARGEST FRAGMENT OF THE PILTDOWN SKULL. NOTE ITS GREAT THICKNESS, WHICH IS DOUBLE THAT OF THE AVERAGE MODERN EUROPEAN SKULL, AND THE DEEP IMPRESSION OF THE ARTERIES

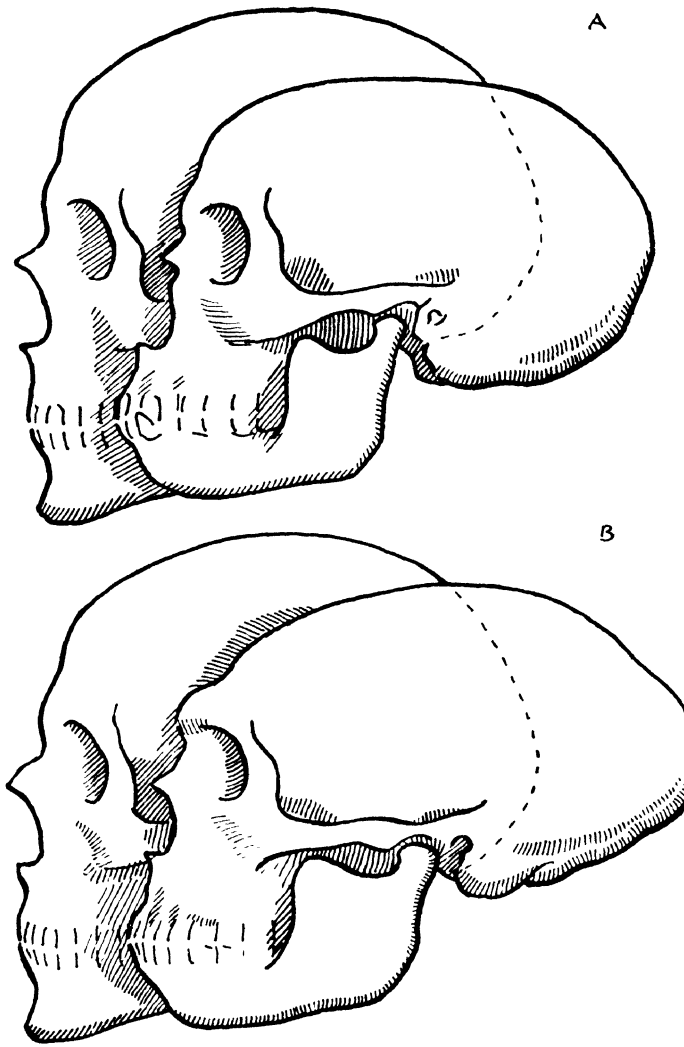
implement is apparently made from the thigh-bone of one of the great elephants that preceded the mammoth, and, if it was made by the Piltdown Man, then it would seem that the latter must date back to the beginning of the Quaternary epoch, at least.

Whatever may be the correct reconstruction of the entire skull, certain characters are manifestly present. The outstanding and most unexpected peculiarity is this: while the brain-pan is essentially human and relatively capacious, with a frontal bone that shows no sign of abrupt recession but rises steadily above the eyes, the lower jaw is much more like that of an ape than of a man. Even allowing for the disagreement of the experts as to the exact brain-capacity of *Eoanthropus*, we are bound to assume that his thoughts were those of some kind of man; but the jaw (*if it is really part of the same individual*) imparts to the reconstructed face a sinister and stupid expression and cancels all that was promised by the elevated brow. The canine teeth interlocked—a feature which is essentially not human.

One of the strangest things about this skull is the great thickness of its bony walls; a thickness which is not seen elsewhere in normal circumstances, but which is due neither to disease nor to any chemical change, and shows the natural, healthy condition of the bone.

The remains of the Piltdown Man may be not less than half a million years old: as for the whole truth concerning this strange creature, and the race to which he belonged, it can only be known, if it ever is known, in the light of further discovery.

The true chronological position of *Homo Dawsoni* is



Diagrams showing the assumed reconstruction of the Piltdown skull (A), and a composite drawing of a Neanderthal type (B), placed by the side of a modern European skull: the latter is slightly enlarged in order to bring out the contrast.

not yet well established, and it is not certain that the skull and the jaw belong to the same creature. It is unfortunate that the remains were not simultaneously discovered; they were found at different times and by different people, and we have no record of the completeness or otherwise of the skull when it was first seen by the workmen. The veteran French palæontologist, Marcellin Boule, places the Piltdown Man in the Lower Palæolithic, at a more recent stage than the Heidelberg jaw.

Heidelberg Man—*Homo Heidelbergensis*—is only represented by his lower jaw, but that jaw is absolutely unique. It was found in the sand-pit of Mauer, in 1907, beneath some seventy-eight feet of overlying strata, made up of twenty-four distinct layers. The layer in which it was deposited may be attributed to the second glacial epoch. Various animal remains, including those of *Elephas Antiquus*, the Etruscan rhinoceros, two species of extinct bear, the cave lion, and an extinct wolf, were found on or near the same level, and prove the great antiquity of the jaw.

Compared with the mandible of any existing type of man, the Heidelberg jaw is exceedingly massive, widely arched, and remarkably broad across the "ascending ramus." There is no chin-prominence. In their anatomical characters the teeth—all of which are present—are of a human but primitive type: according to Sir Arthur Keith they show peculiarities which are found only in the case of Mousterian man, and he infers that Heidelberg Man was a remote ancestor of the Neanderthal people.

A passing reference will suffice for the man-ape of

Java: *Pithecanthropus Erectus*. His remains were found in 1892 in a deposit which seems to be of late Pliocene date; they consist of a long, flattened brain-case, two teeth, and a thigh-bone. Pithecanthropus is more like what used to be popularly known as the "missing link" than any other creature of which we have knowledge. His thigh-bone shows that he walked upright, but the top of his head indicates something midway between man and ape. His height has been estimated at 5 feet 6 inches, his weight at 11 stone. It may well be that he represents an extremely early human form which existed in one of those areas in which man was first evolved (the Malay Archipelago), and from which, passing over the ancient land-ways that united Asia to the East Indies, he moved into the Eastern Continent.

Palæolithic Man.—It is a dreary landscape that you find on the southern side of the Thames, between Dartford and Gravesend. The London road, passing between flint-built walls and crossing the huge excavations made by chalk and gravel pits, leads you through drab, industrial regions, largely devoted to the manufacture of cement. Before you come abreast of Tilbury on the northern bank of the river, you rise to the hideous eminence of Galley Hill. Below the crest of the hill, facing the river, is a steep cutting from which they used to remove gravel. In this gravel, on the "100-foot terrace" (the ancient bank of the river), there were found parts of a human skeleton.

The Galley Hill remains were not discovered by scientific investigators, and there is some doubt as to the period to which the bones may be confidently

assigned. Rutot considers that they were lying in a Strepian deposit: probably a burial from the higher land-surface—the Chellean level. Boule is frankly sceptical, and rejects the discovery on the grounds that the geological evidence is not good enough. If the relics are actually those of a Chellean man, then they are probably more than a hundred thousand years old, and we should expect them to show strongly marked primitive characteristics. But they do not. The Galley Hill man was a little fellow, about 5 feet 3 inches high, deep-chested, with a big head—a head of an essentially modern type. It is precisely this modern character of the skull which induces scepticism if we are inclined to disbelieve the evidence of antiquity, and which is of such tremendous interest if we agree that the bones are actually those of a man of the Lower Palæolithic ages.

The skull is unusually thick, and is exceptionally long and narrow, but although it does show primitive features, it is of a relatively refined type, and resembles the skull of a modern man. The brain that was once contained within this skull was inferior, though not greatly inferior, to the average brain of to-day. Sir Arthur Keith writes: "The teeth show primitive characters; and in all their parts they are of an older and more simian type than the molars of Neanderthal man." We have therefore a skull which is very far from "ordinary"—the epithet applied to it in a certain official publication,—which may be one of the oldest human relics yet discovered, or may be relatively recent; may prove the immense antiquity of a human form scarcely distinguishable from our own; and may

only prove that ape-like teeth are not incompatible with a very human countenance.

Whatever may be the ultimate verdict on the Galley Hill discovery, we stand on firmer ground when we reach the Mid-Palæolithic ages, and come on the more abundant traces of the first race of human creatures concerning which we have positive evidence—the Neanderthal men.

The celebrated skull-fragment which gave a name to this mysterious race was found in the Neanderthal near Düsseldorf in 1856. Together with it were found two thigh-bones, two arm-bones, and pieces of the pelvis, shoulder-blade and ribs. The portion of the skull which was preserved is the top of the brain-case, and a most peculiar thing it is—long, flat and narrow, closing in towards the frontal region, and with immense bony ridges over the eye-sockets.

It would not be wrong to say that scientists, at the time of the discovery, were shocked and horrified at this monstrous piece of bone. They said it betokened disease, imbecility, something altogether abnormal. The limb-bones indicated a powerful build; the skull was that of a terrifying idiot. But it was found later that another representative of this curious race had been found in the Forbes quarry at Gibraltar in 1848; and in due time other remains of the same type were unearthed, in sufficient numbers to give us the positive certainty that the Neanderthal brain-cap is not an abnormality, but is a type-specimen of the sort of skull which was peculiar to an extinct and decidedly ape-like race of men who seem to have inhabited Europe in Mid-Palæolithic or Mousterian times.

The human remains from La Chapelle-aux-Saints in the Corrèze, found in 1908, may be taken as typical of the Neanderthal race. With the skull is associated the greater part of the lower jaw, and it is one of the most complete and most interesting of the specimens. The skeleton shows us that the man of La Chapelle was about 5 feet 3 inches in height, that he was of sturdy build, and that he did not stand perfectly upright. The bones of the trunk and limbs of this, and of other Neanderthal skeletons, show peculiarities which are not found in any living race; and those peculiarities are all of an ape-like kind.

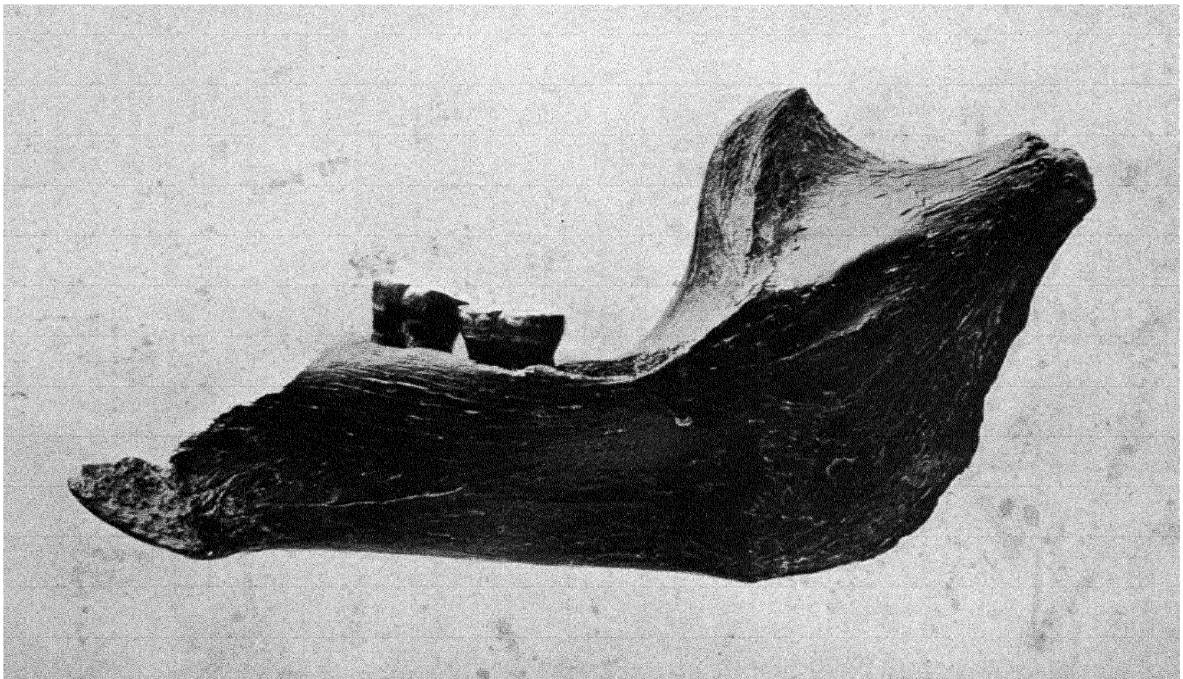
From the study of the La Chapelle skull we are able to grasp the main characteristics of the Neanderthal head and face. We see that the eyes were overhung by tremendous projections of bone; that the nose was short and broad; that the lips and teeth were pushed forward like the muzzle of an ape; and that the lower lip must have hung pendulously over the abruptly receding line of the lower jaw. The cheek-bones are not prominent, and slope back and downward from beneath the eyes. The jaw has a broad and powerful upward branch; the chewing-muscles were large, and the biting mechanism of the most effective kind. Next we observe, from the great length of the base of the skull, that the individual had a remarkably thick neck; so that the head had a tendency to sink between the broad shoulders, and the upper part of the spine curved forward. Judged by our present ideas of what people ought to look like, this was a repulsive and brutal creature. Yet there was plenty of room inside the skull of the man of La Chapelle, and it held a well-evolved

brain, somewhat larger than the average of the present day. It is surprising to learn that this ugly and obsolete person had developed a palate which is less ape-like than that of modern races.

The existence of a superior race, at any rate on the Mediterranean littoral, living at the same time as the Neanderthal men in Europe, may perhaps be indicated by the celebrated "Grimaldi" skeletons, discovered in 1901 in the Red Caves of Mentone. These skeletons, buried with personal decorations and in a prepared grave, are those of a youth and an old woman. The skulls are high and capacious, though narrow from side to side; negroid characters are suggested by the broad nose and projecting muzzle. There is, however, some doubt as to the age of the burial, which may be of Upper Palæolithic date; though it cannot be more recent than the very beginning of that period. Whether a superior race existed in Europe at the same time as the Neanderthal race or not, it is perfectly clear that it must have existed somewhere at that time. The type succeeding the Neanderthal is so highly evolved that its origins must be sought in some infinitely remote period, and it is not a type which could possibly have been derived from the Neanderthal stock.

There are no features in a Cro-Magnon skull which are not to be found in the skulls of modern Europe. Although the heads of the Cro-Magnon people were long and massive, they do not differ essentially from modern types except in bigness.

Facial Comparisons.—It will be seen that we have to go back as far as the Mousterian age before we discover a human form which is absolutely unlike our own. We



By permission of the Trustees of the British Museum

THE **RIGHT** HALF OF THE PILTDOWN JAW, **SEEN** FROM THE INNER SIDE. OPINION IS BY NO MEANS UNANIMOUS AS TO WHETHER THIS REMARKABLY **APE-LIKE** JAW REALLY BELONGS TO "*Eoanthropus Dawsoni*."

are still in some doubt as to whether the Mousterian was not preceded, in Europe, by a superior type (the Chellean, as represented, perhaps, by the Galley Hill man), and in greater doubt as to whether the Chelleans were the ancestors of any race existing at the present day. If we desire to form any general conclusions as to the main characteristics of those prehistoric races of Europe which differed entirely from those of all existing peoples, we have to get our ideas from the evidence afforded by the Neanderthal remains and by the fragments from Piltdown and Heidelberg—that is to say, we have to determine what are, and what are not, constructional features of an essentially primitive and obsolete kind associated with the early development of a creature that is radically human.

There is no great difficulty in arriving at a composite reconstruction which shall unite the truly primitive human characters.

We have to imagine a long, rather "depressed" head, with a tendency to bulginess above the ears; a forehead that recedes sharply from the great ridge of the brow; large but sunken eyes; a very wide, projecting, and toothy mouth, with long canine teeth; and finally, a deep, massive jaw, with no "chin" at all in the modern sense of the word; and then we picture this heavy, ugly head supported by its thick neck: altogether a most unpleasant and disquieting vision.

If we contrast this composite reconstruction with the head of Cro-Magnon or modern man, we shall see clearly in what way the evolution of type has modified the primitive outline. We shall see that the sides of the skull have been pressed inward, thereby elevating the

vault; while, at the same time, the line of the forehead becomes steep, obliterating the great ridges over the eyes. We see, moreover, that the projecting muzzle is pushed in, and the mouth becomes narrower, the teeth smaller and more closely set together—the canines falling to the level of the rest, and the cutting edge of the lower teeth inclining to pass behind that of the upper. While the alveolar ridges are pushed back, the shape of the lower jaw changes completely in one respect: instead of receding in profile like the bow of a rowing-boat, it pushes forward into a projecting ram—in other words, the eminently civilized, jutting chin comes into existence. Thus, above and below the inward and backward movement of the profile line of the muzzle, the profile lines of the brow and the chin come forward. Viewed from in front, the main facial change, from primitive to modern, consists in the relative elongation of the mask, the elevation of the forehead, and the narrowing-in of the lower jaw from side to side.

In this brief survey, in which we have tried to give only such an idea of the appearance of the early prehistoric men as is warranted by their actual remains, we have merely skimmed lightly over a very intricate and perplexing theme. The student who desires to go seriously into these matters will find that there are many books that will help him—notably Sir Arthur Keith's *Antiquity of Man, Ancient Hunters and their Modern Representatives*, by Professor Sollas, *The Antiquity of Man in Europe* by Sir J. Geikie, and the masterly work of M. Boule, *Les Hommes Fossiles*.

CHAPTER XI

THE NEW STONE AGE

Transition.—The traces of the men of the New Stone Age are abundantly in evidence on the present surface of the earth. On many an English hillside and moor stand their great tombs of stone; their flint implements are scattered over many a field. In the course of an easy day's walk over the moors near Land's End in Cornwall you may see three or four "dolmens," a dozen "standing stones," and two perfect stone circles; while on the fields below these moors (if they are ploughed), and especially on those near the coast, you may pick up large quantities of flint cores and flakes, and perhaps some fine arrow-heads.

It is most improbable that humanity, in Western Europe, had entered on the New Stone Age farther back than fifteen thousand years ago, and the period certainly continued until 2000 B.C. Yet, in spite of the relative closeness of the European Neolithic age, overlapping in its final stages with historic times in Egypt and Chaldæa, and with the increasing use of metals in the countries bordering on the Eastern Mediterranean, it is an age concerning which our knowledge is very incomplete. We are particularly short of information about the interval between the

close of the true Palæolithic and the dawn of the new cultures. That interval (at one time supposed to have coincided with a cessation of human progress, if not with the unaccountable disappearance of man in Europe) is known as the Azilian, because implements of a kind evidently transitional between Palæolithic and Neolithic have been found in a cave at Mas d'Azil in the extreme south of France: implements of similar type have been found as far north as Oban in Scotland. Briefly, the continuity between the Old and New Stone Ages is proved by the following evidence:

(1) The coloration of the bones of the dead (whether by direct application of the colour to the desiccated bones or by burial in a prepared couch of ochre or iron oxide) can be traced from the Upper Palæolithic, right through the transitional phase (Azilian), to the Neolithic period.

(2) The "pygmy" flints characteristic of the late Magdalenian phase occur freely throughout the transition, and are especially numerous in the lower Neolithic stages.

(3) Contact between the Azilian and the late Magdalenian periods has been admirably proved by Obermaier, who shows that the decadent stylized forms that occur in the decaying art of the Magdalenians reach their ultimate simplification in the well-known coloured pebbles of Mas d'Azil.

(4) The contact is also proved by the continued production of harpoons, obviously derived from the Magdalenian type, in the Azilian (distributed as far north as Oban) and Lower Neolithic periods.

We are extremely ignorant of the nature and causes of the racial movements which accompanied the introduction of the Neolithic culture in Europe. We must remember that the introduction of a culture, or of objects of culture, does not imply necessarily the introduction of a new race. The Elizabethans discovered tobacco-pipes in America and brought them to England: thenceforth, tobacco-pipes were used by Red Indians in America and by Elizabethan dandies in England—the same instrument, implying the same habit, was being made use of at the same period in two different parts of the world and by two utterly different sorts of people. In the same way, cultural objects and raw material passed from race to race, together with habits and usages, from the Neolithic age (if not much earlier) onwards.

There are absolutely no reasons for believing that a Neolithic people ever "invaded" Europe. Confluent migrations may have united here and there and formed a group that became distinct; simultaneous movements may have occurred: a movement from the African shores northwards across the Mediterranean, another from Asia Minor in a north-west direction; another due west pushing through between the Urals and the Caspian marshes. A slowly-operating infinite number of causes, combining and re-combining, must have produced the various features of the Neolithic period. Increasing populations, the growth of invention and enterprise, the development of the communal idea, and a climate favourable to human advance, united to produce that interplay of social energies the sum of which makes up what we call "progress."

Such military phrases as "a war of ruthless extermination," "wave after wave of the invaders," or "a great movement of conquest," are not applicable to the conditions of the Stone Age.

As we have said, there is a connection between the men of the Upper Palæolithic ages and the men of to-day. It is true that the physical excellence of the Cro-Magnon folk was not reproduced in the subsequent phases of the Stone Age, but that excellence was already ceasing to be evident, we believe, among the last Magdalenians. The standard of height and of physique seems to have fallen before the dawn of the Neolithic epoch, and the human type associated with the New Stone Age is not in any sense an innovation. Unlike the abrupt substitution of a superior for an inferior type, of a superior for an inferior culture, which marked the beginning of the Aurignacian phase, there is not, in the opening stages of the Neolithic period, any pronounced improvement either in race or in manufactures. The chain is not broken. There is a gradual interfusion of racial elements, accompanied everywhere by the forms and ideas which were inherited from the more ancient peoples. It is wrong to speak of the "Neolithic race." There never was such a thing as an isolated Neolithic race: one might as well talk of a ferro-concrete race or a coal-burning race. The Neolithic culture spread in diverse ways and among diverse peoples in Europe.

The animals of the transition period may be regarded generally as those which still exist in Europe. The cave lion survived into the Azilian phase, and the brown bear and probably the great elk into the full

Neolithic. But the larger and fiercer species had become extinct. Probably the mammoth followed the reindeer northwards, to realms of congenial cold. The great cave bear and the cave hyena are seen no more. The bison disappears, and so does the woolly rhinoceros.

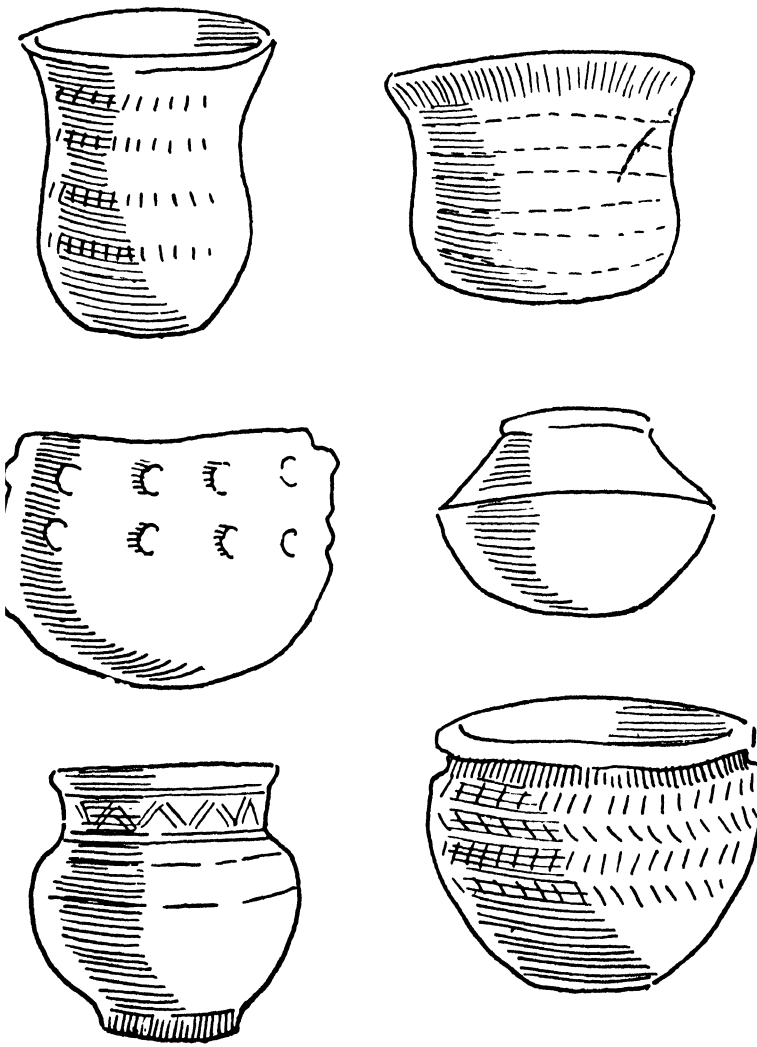
Beyond all doubt, the Azilian phase is post-glacial. The climate of Europe, during that phase, was passing from cold to temperate, and by the middle of the Neolithic epoch it resembled that of modern times. But it would appear that the early Neolithic men lived at a time when the general elevation of the land was considerably higher than at present.

The most northerly traces of Neolithic culture are found in Scotland and in southern Scandinavia. It does not extend far north in Norway and Sweden—not far beyond the great lakes of Gottland—and seems to have arrived there in a stage of advanced development: scattered relics of the culture have been found as far north as latitude 65° and 68°. Stone graves of fine dimensions were very common in Denmark.

General Characteristics.—The characteristics, both cultural and social, which manifest themselves during the New Stone Age and distinguish it from the preceding periods may be thus summarized:

(1) Pottery. This appears at the very beginning of the period; but there are no proofs of its abundant existence in Palæolithic times.[1] (2) Special forms of stone implements, and the development of the art of flint working, which, in this age, reaches a pitch of excellence that

[1] It must be remembered that we are dealing with European Prehistory: in Egypt, for example, the case is different.



Neolithic pottery of various types, British and Continental.

sets it on a level with the finest craftsmanship of any time or in any material. (3) The practice of grinding, polishing and boring stone implements. (4) Burial in tombs of special construction, with details which indicate a highly elaborated cult of the dead: this applies to the later phases. (5) The domestication of animals. (6) Agriculture. (7) The foundation of settlements and villages, including lake-dwellings: the continued occupation of well-favoured, chosen sites. (8) Development and improvement of domestic appliances: concentration on severely practical and useful things. (9) Textiles, and weaving, of a simple kind. (10) The entire absence of the "fine arts." (11) Navigation; if such a word can be applied to what must have been very hazardous and very short voyages on rafts and in dug-out canoes. (12) Cookery and the preservation of foods. (13) Surgery; at any rate, operations on the bones of the skull, whether for curative or occult purposes. (14) Organized labour. (15) The distinction of classes? (16) Flint mines, with shafts and galleries. (17) In the final stages of the period, the erection of long upright stones, avenues and circles. (18) The first traces of domestic architecture, and of fortification.

As regards the chronology of this age, we are not in the possession of really complete data, but it is usually agreed that there are three main divisions and an established sequence of cultures. These divisions and their features, in ascending order, are as follows:

(1) The Campignian period (named after Campigny in the Department of Seine-Inférieure). To this

period belong those immense piles of kitchen refuse known as "kitchen middens" which have yielded such interesting material. Implements of flint and other stone are roughly dressed and never polished. The typical forms are the long "pick," and the small axe (*tranchet*) with a straight cutting edge. There is not much information as to burial practices.

(2) The Robenhausian period (Robenhausen, near Lausanne, in Switzerland). Throughout this phase the technique of flint working improves greatly; stone implements are drilled and polished. Burial is by inhumation in caves and grottos—the latter are improved artificially.

(3) The Megalithic (big stone) period. A stage which is marked by the great stone monuments and burial chambers which are so plentiful in France, and well represented in Ireland, Wales and the south-west of England. The "dolmens" belong to an earlier phase of this division; the kists and "long barrows" to a later (see next chapter). Towards the close of the period the Stone Age produces its most highly finished and most beautiful implements. The arts of literal delineation and of sculpture, properly speaking, do not exist—the attempts made in these directions are pitifully inexpressive and crude.[1]

As a whole, the New Stone Age in Europe shows the steady development of social and religious ideas, the steady improvement of tools, weapons and utensils, the extended conquest of material, and the laying

[1] Some of the figurines from Malta, recently published by Professor Zammit as Neolithic, might, if they are really of this date, constitute a local exception.

down of all the essential bases on which the society of the present world is resting. We say "essential" advisedly. For some 8,000 or 10,000 years there seems to have been a preoccupation with practical concerns, and at the same time the growth of the most powerful spiritual beliefs. Men were bent on improving their hammers and axes (it is significant of the times that the axe-head became an object of religious cult), on raising the standard of comfort, and on evolving an impressive and worthy form of burial for their leaders. They became very practical and very religious. But they had nothing which we of the present day can describe as "art."

Neolithic Man.—We are familiar with the skeletons of the Neolithic folk, and we know that, in form, there is no difference between them and the people of to-day. The men of the New Stone Age were smaller than we are; that is, the average height was lower than ours, the stature of the men being very seldom over 5 feet 6 inches. Most of the skulls are long or "dolichocephalic"—the measurement from the back of the head to the front is much greater than that across the head from side to side. But the long head, though predominant, is far from being the exclusive type.

There is a certain racial uniformity among the Neolithic people of the Mediterranean (who spread northward by way of Spain and introduced the Mediterranean type to France, the British Isles and Scandinavia; a long-headed people of short stature. Another group of races, perhaps Mongoloid, with round or "brachycephalic" heads, moved into Europe before the Neolithic epoch was far advanced; and so

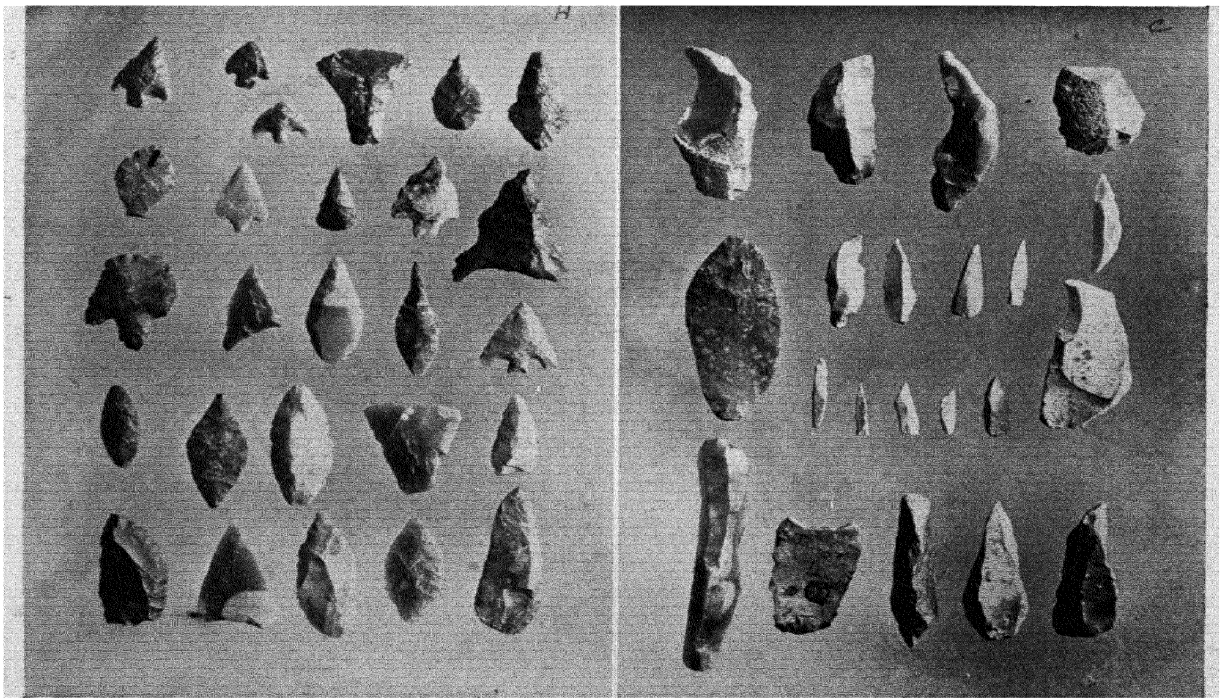
led to the production of intermediate and varied types, especially in Central Europe and the Alpine districts, long before the Stone Age had come to a close. We cannot generalize, but, roughly speaking, the long, rather small head and the short though well-proportioned body are characteristics of the predominant racial strains in Neolithic times. Two quite distinct racial elements are sometimes found in close association, and every one who has excavated the burial-places of the later Stone Age knows that the human bones of that time exhibit the most varied characters.

In Neolithic France two distinct human varieties co-existed: the long heads of Baumes-Chaudes and the short heads of Grenelle or Furfooz. The early Neolithic type of skull is known by the rather misleading name of "river-bed" type, and is characterized by the backward projection of the head into a kind of "bun."

One anatomical peculiarity of the bones found in the later burials may be noticed here: the presence on the ankle-bone of what is known as the "squatting facet"; a peculiarity which shows that these people habitually rested in a squatting posture.

Thurnam, on the evidence of skeletal remains, calculated the average span of Neolithic life at about forty-five years.

The Neolithic Community.—We have nothing like sufficient material at our command to justify us in giving a full account of Neolithic communal life. Certain obliging writers have not hesitated to undertake such an account; but the results, to put it politely, have only a relative value.



By courtesy of Mr. F. G. Marsden

A TYPICAL SELECTION OF NEOLITHIC FLINT IMPLEMENTS, THE SECTION ON THE LEFT CONSISTING MAINLY OF VARIOUS TYPES OF ARROW-HEADS

There is a tendency to regard the Neolithic period as a phase which is sharply marked off from what preceded and followed it, and to cram together all the known facts which occur within that period (not less than ten thousand years, remember) inside the frame of a most unedifying spectacle. It is like taking the reign of, say, Charlemagne as typical of the whole Christian era; or regarding the Houses of Parliament (if the reader will excuse so horrible a thought) as representative of all modern European architecture.

The communities of the New Stone Age, in all its phases, were often of considerable size. This is known from the great refuse heaps of the early stages, from the surface distribution of flint flakes and implements, from the discoveries of lake-dwellings in Switzerland, and from the monumental remains. By the middle of this age, men had domesticated the pig, horse, ox, sheep, goat and dog. They still hunted, and obtained venison (red deer). Their diet was well varied, and included the flesh of all, or most, of the animals mentioned above, fish and shell-fish, nuts, sloes, green peas, strawberries, apples and pears—the two latter were preserved by the Swiss lake-dwellers. Wheat and barley were cultivated; flour was ground, and baked in round cakes. Stone "querns" (mortars in which grain was pounded) were sometimes buried with the women who had doubtless used them.

The earlier dwellings were round pits, roofed over with wattle and daub: there are a few traces of stone-built huts, or huts with a stone base. Caves were still used as dwellings, and occasionally as burial-places.

Colour was employed for the adornment both of

the living and the dead. Arrows and axe-heads were dyed with cinnabar and red ochre. A great variety of ornaments have been found—armlets, necklaces, pendants, bangles and rings. Talismans to protect the wearer from harm may be assumed to date from this period: the "swastika" symbol (probably of Mediterranean origin) has been found on a fragment of what appears to be Neolithic pottery. Ceremonial and magic objects are probably typified by the little clay figurines of the Ægean and by the miniature axe-heads, made of all sorts of polished stone and of amber, which are widely if not universally distributed. In the Baltic areas, numbers of axe-heads have been found planted upright in circles. In northern Slesvig they have been found "laid in regular layers divided by sand."

We have referred to the curious and unexplained practice of trepanning—the removal of slices of bone from the brain-cap of the living subject. This operation was carried out with success. It must have been done with surgical instruments of flint or crystal; and it is interesting to note that it is undertaken in modern times by natives of the East Indies, who do the job with obsidian knives, and afterwards apply a vegetable poultice. The operation may have been performed to effect the release of some mental annoyance or of some evil spirit which had got inside the sufferer's head: it can hardly indicate advanced surgical practice. And it is very curious to observe that little rounded pieces of skull-bones (*rondelles craniennes*) were pierced for suspension on a string, and probably worn round the neck as a relic or charm.

CHAPTER XII

ANTIQUITIES

DURING the later stages of the Neolithic period in Europe—say from 4000 to 7000 years ago—men set up great burial-chambers; they built circles and avenues, and erected large, sometimes gigantic, columns of rudely shaped stone. These are the most ancient constructions which have survived to the present time. We cannot state definitely what they were all intended for, but it is likely that in every instance they were connected with the cult of the dead.

Of all prehistoric remains, none are more impressive than these early monuments; none make a more obvious appeal to the imagination; and none have provided more attractive themes for people with ideas. A single instance will suffice to prove the necessity for caution when we apply any of our pet theories to stone remains of the type under consideration.

On the open moorland not far from Penzance there is a well-known and curious group of three stones. Two of these are small uprights, and between and in line with them, set up on edge, is a flat, irregularly shaped block of granite with a counter-sunk hole in the middle of it; large enough to permit a thin person to wriggle through. It is called "Mên-an-Tol"—

the "Stone-with-the-hole." To the practised archæologist there is nothing very puzzling about this stone, which in all probability was one of the side-slabs of a burial-chamber, and which is clearly not in its original position; but scores of fantastic theories have been woven around it. Of these we shall only consider one: that of the late Sir Norman Lockyer.

It was the pet idea of Sir Norman that old stone temples, circles and alignments were laid out in accordance with the observed position of the stars or of the sun's rising at certain seasons. Most of his arguments have been disproved, but the writer has not seen them discredited in the small, though very decisive, instance of the Mên-an-Tol. But the fact is, that these three stones on which Sir Norman based one of his calculations were arranged in their present alignment no later than the year 1824; and a picture and plan of their previous position (as seen in the middle of the eighteenth century) may actually be found in the antique folio of Dr. Borlase!

This one example, connected, not with an idle dreamer, but with a scientist of the highest reputation in his own department (astronomy), should prove a sufficient warning.

Classification.—Before we proceed, we shall do well to acquaint ourselves with the classification of stone remains. The following are the archæological terms in current use, with definitions:

(1) *Dolmens.*—A dolmen consists of two or more upright slabs—usually four, making a rectangular enclosure—on which is placed a "capstone" (occasionally more than one), the latter being more or less

flat and forming a horizontal roof or cover. Properly speaking, the "covered alley," in which the sides are extended so as to form a long gallery or passage, is a variant of the dolmen. The word dolmen is of Keltic origin: "dol," a table, and "mên," a stone.

(2) *Menhirs* ("mên," a stone, and "hir," long).—Also called long-stones and standing stones: more or less columnar blocks of stone, planted upright, either singly or in groups, their height varying from three or four to twenty or thirty feet.

(3) *Alignments.*—Straight rows of upright stones, which may be in parallels of two or more rows.

(4) *Circles.*—Known in French archæology as "cromlechs" ("crom," curve, and "lech," stone), a term which is often wrongly applied, in England, to dolmens. Standing stones, of varying size, but not usually very large, set in a ring or in concentric rings, with or without a central stone, or group of stones, and an avenue of approach.

(5) *Kists* are rectangular stone chambers, the enclosed space being smaller than that of the dolmens. The slabs are thinner and flatter than in the case of dolmens (the earlier type).

(6) *Barrows.*—Mounds of earth enclosing burial-chambers of types similar to, or derived from, the dolmen or kist.

(7) *Cairns.*—Identical with the above in purpose and form, but constructed mainly or entirely with stones.

For practical purposes the above terms and definitions suffice. The first four categories are the most ancient, and the true dolmen is exclusively Neolithic.

Early Theories and Superstitions.—Things so mysterious as dolmens, standing stones and circles have naturally given rise to many wild guesses and fancies. Inigo Jones, when requested by his royal patron, James I, to give an explanation of Stonehenge, unblushingly and perhaps sincerely declared that it was "a Roman temple, inscribed to Cœlus, the senior of the heathen gods, built after the Tuscan order." Not less wide of the mark were the Druidic theories of a later date, which associated the stone remains with the activities of a shady priesthood of the Keltic Iron Age. In England, Drs. Stukeley and Borlase, and in France the "*savantes Celtophiles*," upheld this view. Borlase spoke circumstantially of the "lucrative juggles" of the Druids, and pored over the "rock basons" in which they collected the sacrificial blood.

Hardly more instructive are the popular superstitions which link the Stone Age monuments with the devil, with King Arthur, with fairies and saints, and with Saracens. A Neolithic barrow recently excavated by the writer was regarded in the district as a Roman burial-place.

We cannot deal here with the fantastic guesses which are put forward to account for the menhirs, circles and avenues. To some, the standing stones are clear evidence of this or that cult; to others, they are sign-posts, cenotaphs, clocks, or battlefield memorials. The circles are looked on as "places of judgment" or of sacrifice, as temples, observatories, or what not.

The Dolmen.—The majority of the older dolmens (those which consist of a single great capstone resting on three or four supports) are known as "free-stand-

ONE OF THE MOST PERFECT EXAMPLES OF A NEOLITHIC TOMB: THE DOLMEN OF CHÛN, NEAR THE LAND'S END IN CORNWALL

ing": that is, the whole construction is exposed. Usually, the ground on which the dolmen is standing is slightly raised above the surrounding level, and there may be piles of earth or stone at or near its base.

It is thought that, after the monument had been erected, it was covered by a mound of earth, or by a cairn of stones. At West Lanyon, in Cornwall, there is a dolmen which is still partly covered by its enclosing mound: at the time of its discovery it was completely hidden. If this was the invariable practice, then the structures as we see them to-day are only the denuded cores of mounds or barrows. However, there is room for doubt. Certain dolmens appear to have been always exposed, or but thinly covered. Some old pictures, of eighteenth-century date, show us immense heaps of stone lying up against the side-slabs of dolmens; at the present day there is no trace of those heaps, and we may infer that the denudation of the dolmens in question has been largely due to recent interference.

Known as "druid's altars," "quoits," "King Arthur's tables," and so on, there is no longer the slightest doubt as to the original purpose and the true age of all dolmens. They are the burial-chambers, the mausoleums and vaults, in which the people of the later Neolithic period buried their persons of importance. Bones, implements, pottery vessels and decorations have been found within many undisturbed dolmens, and from these traces we are able to establish their meaning.

In almost every country where dolmens are found,

a round hole in one of the side-stones occurs with greater or lesser frequency. There are instances of two slabs with semi-circular slices cut out of them being juxtaposed, so that a round aperture was produced. The Indian dolmens of the Deccan (where these remains are numerous) are furnished with a holed stone in fifty per cent of the recorded examples. These holed stones are of much rarer occurrence in the European dolmens, but there are many instances in the neighbourhood of Paris; and it is most probable that the Mên-an-Tol of Cornwall, and other holed stones in that county and elsewhere in Britain, are fragments of destroyed dolmens. We cannot say what their purpose was: the suggestions are, that they served as a means of egress and ingress for the spirit of the deceased, that they were hatches through which supplies could be pushed from time to time, or that they were port-holes which enabled the living to hold converse with the departed. Many other conjectures, equally valid, will occur readily to an imaginative thinker.

The dimensions of the true dolmen vary considerably. The capstone may weigh as much as forty tons, and capstones of ten or fifteen tons are quite average. Interior measurements of the burial chamber vary accordingly, and the plan is often very irregular. The "gallery" types, derived from the original "simple" dolmen, vary in length of plan from sixteen feet to eighty feet, or more. The great "covered alley" at Locmariaquer in Brittany must have comprised originally forty-eight supports and twenty table-stones, extending for a length of more than ninety feet.

Dolmens are found in India (Deccan, Nilgharries) and Syria, in the Caucasus and on the shores of the Black Sea, in Thrace, in Asia Minor, Southern Italy, North Africa, Malta, the Spanish peninsula, France, Britain, Belgium and Holland, Northern Germany, and the southern parts of Scandinavia. They are absent in Crete and in Greece; neither are they found in Sicily and Sardinia. There are none in Central Europe. The areas over which dolmenic constructions are most thickly distributed are certainly those of southern and north-western France. In the former region the department of Aveyron boasts of 487 dolmens; and, in the latter, Morbihan has 312. For the whole of France the figures are given as 4458.

Whether there is any justification for assuming a race of "dolmen-builders" is open to dispute, neither is it safe to jump to the conclusion that, because dolmens are found in India and also in Western Europe, the people who built them must have travelled from east to west. It might also be argued that they travelled from west to east.

Menhirs.—In all parts of the world, and among all primitive folk, ancient and modern, stones have excited sentiments of awe and veneration. The smallest of round pebbles, the most immense of shattered rocks, have alike received the worship and provoked the fears of men. Something in the aspect of a big stone, or of a mass of stones, has always suggested to the primitive mind the tenancy of a powerful spirit—the spirit of something either dwelling in or hovering near the stone. Rocky places are everywhere associated with riotous demons, witches and ghostly

festivals. The stone cult is universal: it is connected with the primordial mystic impulses of mankind.

It is natural, therefore, that among the first crude monuments of a symbolic kind we should find simple erect long-stones or menhirs.

The reader who has not seen a menhir has only to imagine a tall, rudely shaped block of stone, planted upright in the ground. Most of the larger menhirs are isolated; they are sometimes found in groups of two or more, and they are occasionally connected with stone circles. At Locmariaquer in the department of Morbihan (Brittany) lie the remains of a colossal menhir, the total length of which was originally some sixty-seven feet.

Diggings made at or near the bases of certain long-stones have revealed burnt bones, flint flakes and pottery. Such discoveries are of much interest: possibly they are indications of a more recent date than that of the earliest stone remains.

A menhir is a convenient peg on which may be hung the most whimsical and irrelevant theories. It may also become the centre of rituals and legends of comparatively recent origin; a consideration which discounts the value of tradition as a clue to prehistoric doings. (The peasants of Wales and Cornwall associate prehistoric remains of all kinds with Romans and Druids.) Although nothing can be asserted with regard to the original purpose of standing stones—and it may well be that their purpose was not always the same—it is reasonable to consider them as most probably connected with the veneration of the dead.[1]

[1] The traditional Welsh name for menhirs—"meini gwyr," or "stones of the heroes," is interesting in this connection.

Originally a Neolithic type of monument, menhirs have been erected in all the subsequent periods; the most recent of all for the convenience of itching cattle. They were erected in the Bronze and Iron Ages: the antiquary is familiar with their "christianization," which was effected by the incision of a cross. The early Cornish crosses are unquestionably derived from the menhir, and some of them are probably only "converted" long-stones.

The distribution of the menhir is practically world-wide.

Alignments.—The most celebrated of these are the wonderful parallel alignments at Carnac in Brittany. The size of the stones in the Carnac group varies from about two to twenty feet above ground, and the avenues or alignments are divided in three main series; the total number of stones in the three reaching the impressive figure of 2730.

Alignments are not always parallel. The lines may intersect or branch off at an angle. Old Stukeley, in the eighteenth century, when he turned his attention to the well-known stone remains at Avebury, discovered "serpents" made up of continuous series of menhirs which straggled over miles of country; their "heads" were represented by stone circles. Avenues of standing stones were occasionally set up as approaches to a "cromlech."

Circles.—England can boast of the most complete and magnificent example of Late Neolithic (perhaps Early Bronze Age) architecture—the great circle of Stonehenge on Salisbury Plain. A description of Stonehenge is hardly required: it is familiar to most of us, and popular accounts are so well illustrated

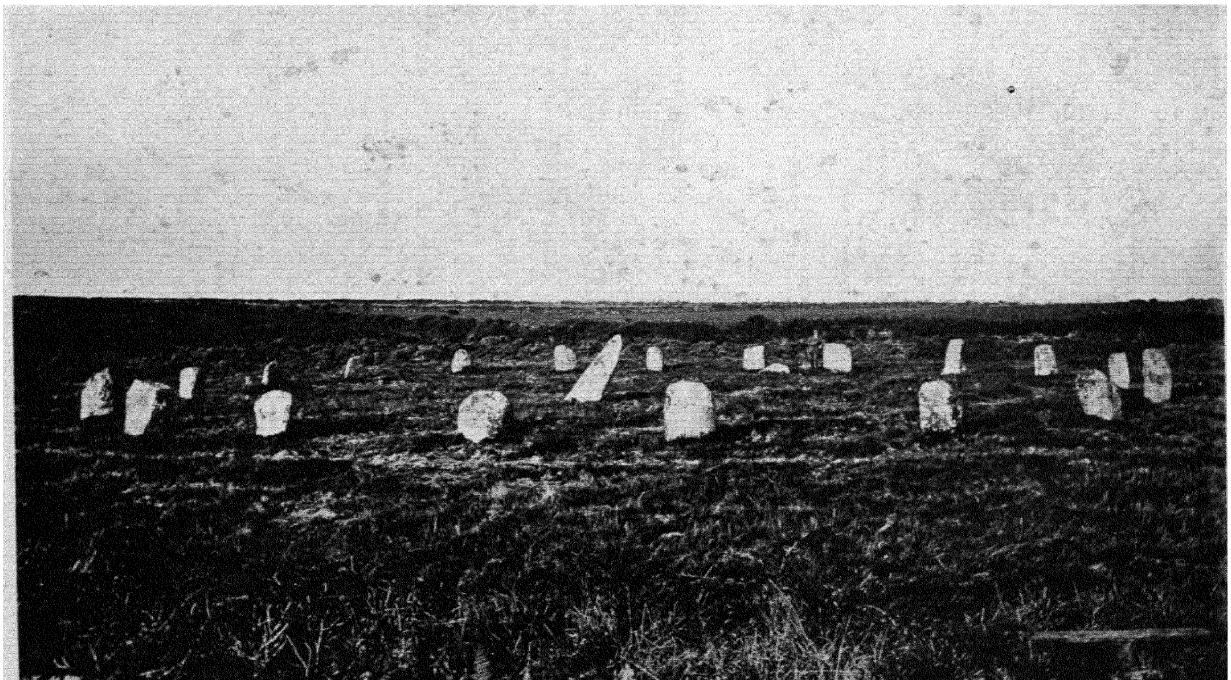
and so numerous that it seems unnecessary to add to them.

A constructional feature is present in Stonehenge which is rarely met with, if not practically unknown, elsewhere—the trilithon or lichvaen. It consists of a huge horizontal block of stone resting level on two uprights. The employment of toggle-joints, mortices and tenons in the building of the Stonehenge trilithons indicates a great advance on the methods of the earlier Megalithic period.

Circles of much smaller dimensions than that of Stonehenge, seldom complete, sometimes isolated and sometimes in close proximity to each other, are found in Wales, Devon and Cornwall, and elsewhere in the British Isles; they are numerous in Denmark and Sweden, but not in France.

The circle of Boscawen-Ûn, near Land's End, is a remarkably interesting example. Here we have nineteen stones grouped in a circle some eighty feet in diameter, with a tilted long-stone about ten feet south-west of the approximate centre. In the north-west sector, between two of the upright blocks, lie two prostrate ones.

Kists, Barrows, and Cairns.—A kist or "kistvaen," already described, is simply a square or oblong construction, made by placing flat slabs of stone on end. It is a reduced form of the large burial-chamber of the true dolmens, and is found also in the Ages of Bronze and Iron, when it reaches occasionally a quite diminutive size, enclosing one or two burial-urns. Single kists may be covered by low mounds or heaps of stones; most frequently, several are contained



THE CIRCLE OF BOSCAWEN-Ú N, ONE OF THE MOST COMPLETE AND MOST INTERESTING OF THE CORNISH ANTIQUITIES. NOTE THE TILTED LONGSTONE

within the covering mound of a barrow. Elongated forms, or "passage chambers," are derived from the earlier "covered alleys."

Barrows of the Neolithic period are invariably of elongated form and are known as "long barrows." The dimensions of long barrows vary from a length of 40 or 50 feet to 300 feet or more. In plan they are more or less pear-shaped or oval; but there are many variants, and towards the end of the period there are transitional forms that are not always easy to classify. The region of principal importance in a long barrow is the broad, elevated end, which always contains the largest burial-chamber. As a rule, the barrow is so placed that it lies between east and west, or between north-east and south-west, with the broadest end towards the east.

Barrows are fairly numerous in the British Isles and in Southern Scandinavia. In England, some of the finest specimens are to be found on the Cotswold Hills. We shall have occasion to describe the construction of barrows, and of burial-chambers, in the next chapter, in which we shall examine in some detail the very interesting funerary rites of the Neolithic folk.

Unclassified Remains.—There are a number of stone remains which do not admit of precise classification. In many cases these are probably stones which have been displaced or removed. Holed stones, as we have seen, are most likely a case in point; and there are similar instances in which stones that are now isolated have doubtless at one time formed part of a construction.

Engineering and Labour.—The building of the big

stone constructions that we have described implies organised labour; whether compelled or voluntary we cannot say. In primitive society the care of the dead and the adequate entombment of chieftains are affairs of primary importance; and perhaps the erection of the great Neolithic tombs was a labour in which the people took part as a matter of course. On the other hand, the modern Papuasians, and other folk whose general culture resembles that of the New Stone Age, employ forced labour and have a slave system.

By what means large blocks of stone were moved, and how they were set in position by the Neolithic tomb-builders and architects are questions that cannot be given definite answers. Judging by analogy, and with the certainty that any mechanical devices must have been of the simplest kind, we may suppose that "ramps" of earth were made use of in the following manner. For the erection of an upright, such as a menhir, a sloping bank of earth would be prepared, ending abruptly at the required level. The stone would be pushed or hauled up the incline, and tipped over the edge into the prepared excavation in which it was to be planted. For getting the cover of a dolmen on to its supports, a ramp of earth would be employed, leading up to the level of the top of the chamber. The capstone would be pushed up the ramp, and then slid over the chamber. Levers and rollers would no doubt be employed also.

Large blocks of stone, weighing many tons, were brought to the site of the construction, in certain cases, from a considerable distance. The problem of

their transport is not easily solved. Whether, as Déchelette suggests, they were laboriously heaved on to the higher ends of earthen ramps and then pushed down the slopes, and so shifted over a long succession of prepared surfaces; or whether (as we think more probable) they were rolled over logs, we have no means of knowing.

The trimming and shaping of stone blocks was sometimes attempted, but not often with well-finished results. Many of the long-stones, and the material used in constructing dolmens and circles, are simply well-chosen blocks, scarcely, if at all, touched by the hand of man. Masonry, in the proper sense, was not in existence in the Stone Age. Probably the circular holes with which slabs were occasionally pierced (as described above) were made by rotary grinding with sand and water

CHAPTER XIII

BURIAL AND CEREMONIAL

The Cult of the Dead.—We have already seen that, from the very earliest stages, men have been dominated by a feeling of mingled fear and respect for the spirits of the dead. A strong belief in the ghostly, as distinct from but related to the bodily life, was in evidence in Mousterian times. When he is still living a half-bestial life, still fighting with wild animals for the possession of his cave, and still having an appearance which is more than suggestive of the ape, man dreams of his life in the shades, and of his duty towards his ghostly neighbour.

As he advances, as he becomes more complex and more recognizably human, these convictions acquire a greater significance. There is a stage at which the cult of the dead is one of the most important concerns of the living. At this stage the supremest material efforts are devoted *exclusively* to the construction of tombs. The existence of the spirits of the dead and their active part in human affairs form articles of faith which are accepted implicitly, as any of the visible facts of life are accepted. No clear distinction is made between events that are caused by the physical actions of the living and by the spiritual actions of the deceased. Living and dead come within one and the same region

of activity. And as the ghostly essence is never entirely divorced from its material wrapper, as the smallest fragment of the body is linked for ever with the spirit, so the body becomes the object of an intensified cult—a cult in which the mystic side of humanity finds its complete and final expression.

In dealing with the worship of the dead we are dealing with the primary, the one universal religion of all mankind. All surviving creeds are creeds in which the victory of the spirit over the tomb is the essential starting-point; and this is true also of every ancient religion that has produced a written account of itself. The study of primitive burial and ceremonial is therefore of immense interest and immense scope. We cannot do more here than suggest a few outlines. Our reasons for giving this subject special attention is that the Neolithic people had reached a stage which is marked, absolutely and distinctly, as one in which the cult of the dead was predominant.

The Technique of Burial.—We propose to divide this subject into five parts, the first giving a few of the facts about primitive burial in modern times, and the other four dealing with Neolithic burials classified under their principal divisions.

(1) PRIMITIVE FUNERAL RITES.—Generalizations are most unsafe, but there are certainly three main considerations which are observed in nearly all forms of primitive funeral technique: first, the special treatment of the bodies of important persons; second, the protection of the body or of its remains from all chance of disturbance; and third, the provision of necessary articles, food, or attendants.

The burial of the complete body is not by any means invariable; among certain peoples it is the exception. We shall see that this applies to the interments of late Neolithic date.

Eating the dead is a rare and very exceptional practice. It has been described, by Sir Baldwin Spencer, as it occurs among the natives of Melville and Bathurst Islands. He tells us that the body is cooked, and everything is eaten, including the intestines; after which the bones are collected and placed on a tree-platform: three or four months later, they are taken down and pulled apart; the skull is smashed, and the bones, except those of the arms, are buried. The arm-bones are handed to a near relative, who may keep them for two or three years; at the end of that time they are buried with elaborate ceremony.

Sacrifice at the burial of a notable personage, with the object of providing him with comforts and conveniences in the after-life, is a custom widely prevalent both in ancient and in modern times. Herodotus tells us how, when a Scythian king died, they slew at the grave-side a concubine, a cup-bearer, a cook, a groom, a lackey, and a messenger; but this is nothing to the bloody rites of modern Africans—now practically abolished. The Dahomeyans used to slay as many as 500 victims at the death of a great ruler.[1] There are terrible stories of how these victims were trampled down into the burial-pit, with broken limbs, while still alive. Not content with one orgy of sacrifice, the

[1] At the funerals of certain Dahomeyan kings this number was greatly exceeded, and the total of those massacred has been given as two or three thousand.

Ibo (Lower Nigeria) used to indulge in a second ritual: this consisted of much feasting and sacrifice, at the conclusion of which a slave was ceremonially decapitated by the dead chief's eldest son in the deathroom, and his body was devoured by all present. It was not unusual when a chief was buried to provide him with three or four men "to raise his soul from the grave." At the same time, others were hung in the various apartments of his house, and others in the public roadway. We need not dwell on these nauseating details: they are mentioned because they were found in the case of people who were, in general culture, not far in advance of the Stone Age; and because we are not by any means certain that similar practices were unknown in Neolithic Europe.

The practice of colouring the bones and of decorating the skulls of the dead is very widely distributed. The Maoris of New Zealand used to put the dead body in a wooden case, or leave it in the hut. When the flesh had partly decomposed, they scraped the bones, painted them red and decorated them with feathers; after which they were wrapped up and buried in a cave or placed inside a hollow tree. The heads of distinguished people were preserved, after the removal of the eyes and brain, by being smoked. The Andaman Islanders decorated skulls with red ochre. The Dyaks of Borneo smoked the heads of the deceased, and mounted cowrie-shells in the eye-sockets. In the Torres Straits Islands, features were modelled over the skull in beeswax, nacreous shell was fixed in the sockets, and missing teeth were replaced by bits of wood.

Provision of food and utensils, or weapons, for the

use of the deceased is a custom which is absolutely world-wide among primitive races. The objects to be placed within the grave are occasionally broken, so that they may be "killed" and their spiritual counterparts released. Food supplies are sometimes placed inside the tomb and sometimes on or near it: there are recorded instances in which a tube was pushed into the dead man's mouth, so that drink might be poured into him as he lay below. The provision of grave-food extended into historic times in Europe, and we find St. Augustine declaiming against "the sinful mistake of placing meat and drink on the tombs of the dead."

We may safely infer that the practice of depositing weapons, food and utensils with the bodies of the dead constitutes the most ancient and the most universal of all primitive funeral rites, and that it is present long before the stage at which the sacrifice of living creatures becomes an established procedure. Sacrifice was never universal: provision of the means of defence, occupation, or nourishment is found everywhere among primitive peoples.

Cremation has never been a general custom among any people of ancient or modern times. It may be the prevalent, but it is never the exclusive practice. Sometimes it is complete, sometimes partial. The whole body may be consumed, or only the desiccated bones, or only parts of the body, or some of the bones. Cremation is often an alternative to inhumation, and is occasionally the final stage of a progressive ritual.

(2) NEOLITHIC BURIALS "EN PLEINE TERRE," WITHOUT EITHER KIST OR TUMULUS.—There are not many discovered instances, except in Central Europe. Some of the

By courtesy of Major H. G. C. Hynes

ANOTHER EXAMPLE OF A PRIMITIVE BURIAL FROM EGYPT, SHOWN BY A GRAVE OF THE FIRST OR SECOND DYNASTY (ABOUT 4,000 B.C.). THE PHOTOGRAPH IS TAKEN LOOKING DOWN INTO THE TOMB

bodies were buried lying on their side with the limbs bent; others, full length on the back. Flint tools and pottery were frequently placed with the bodies; and with the burials of women it seems to have been the practice to include stone implements of a domestic kind, and supplies of colouring material.

(3) BURIAL IN TRUE DOLMENS.—Cases in which the funerary contents of the earlier dolmens have been preserved intact are unfortunately rare, though sufficiently numerous to give us the main facts.

The burial-chamber usually contained only one or two bodies. The contracted position was usual, and there are records of bodies in a *sitting* or kneeling posture: of these the most interesting example is that of the dolmen of De Hus in Guernsey, in which there were two kneeling skeletons.

The "grave-furniture" of the most ancient dolmens, though scanty, is varied. It includes pendants of shell and ivory, necklaces of stone and bone beads, of fish-vertebræ and of clay; bone implements, stone axes (sometimes burnt), arrow-heads, blades and pottery.

(4) BURIAL IN KISTS AND PASSAGE-CHAMBERS.—By far the greater number of the discovered burials come under these categories.

We may divide these burials in two groups: (*a*) those containing the bones of an individual, or of more than one individual, representing the complete skeleton, proving that the bodies were entire when they were buried; (*b*) those (known as ossuaries) in which parts of the skeletons of several individuals, often mixed up with animal bones, are scattered in disorder in a relatively small space; proving, unless there are signs of

subsequent disturbance, that only parts of bodies or parts of skeletons were placed within the tomb. As a general principle, it may be said that the majority of kist-burials come under one or the other of these groups; but there are exceptions which prevent the unreserved application of a rule. Entire skeletons have been found associated with the dispersed and incomplete remains of others. Moreover, it is reasonable to suppose that after the bodies of the first burials had become skeletons, other burials of complete bodies may have been added—indicating the continued use of a tribal or family mausoleum. The kist-burials of Chamblandes in Switzerland are remarkable as containing in most cases only two skeletons: that of a man (who was buried first) and that of a woman.

There are many variants of the kist and the passage-chamber, all showing the same principle of construction: upright slabs forming the walls or sides, and horizontal covering-stones making a roof. The main gallery or corridor may lead to a single large enclosure, or there may be side-chambers opening at right angles to it, or the passage may be closed at both ends. In most cases the tombs are covered by a mound; that is, they are contained within a cairn or barrow.

Not many objects are found, ordinarily, in kist-burials: the Scandinavian tombs—containing clay vases, ornaments, arms and implements in considerable numbers—are better furnished than those of other countries.

(5) Burial in caves and grottos.—The Neolithic people sometimes lived in caves, and they buried their dead in them—often in close proximity to the domestic

hearth. Caves may have been used successively as places of residence and as tombs, or as residences and tombs at the same time. In certain instances, a natural grotto has been used exclusively as a tomb, and the entrance closed by lumps of stone, by one great slab, or by dry-built walls. The French burial-cave of Baumes-Chaudes contained not fewer than 300 bodies.

Artificially-made grottos have been discovered (first in 1816) in the department of the Marne: their existence elsewhere is doubtful. They are carved out of chalk or soft earth, and in every case they have contained a great number of bodies—the total of the skeletons found in the Marne grottos is about 2000. The bodies were sometimes piled on top of each other; sometimes separated by slabs; and sometimes enveloped in ashes and fine earth. Cremation was extremely rare. Most of the skeletons lay at full length. A very singular detail consists of the intentional filling of skulls with rubbish, with the bones of children, and with various small manufactured objects.

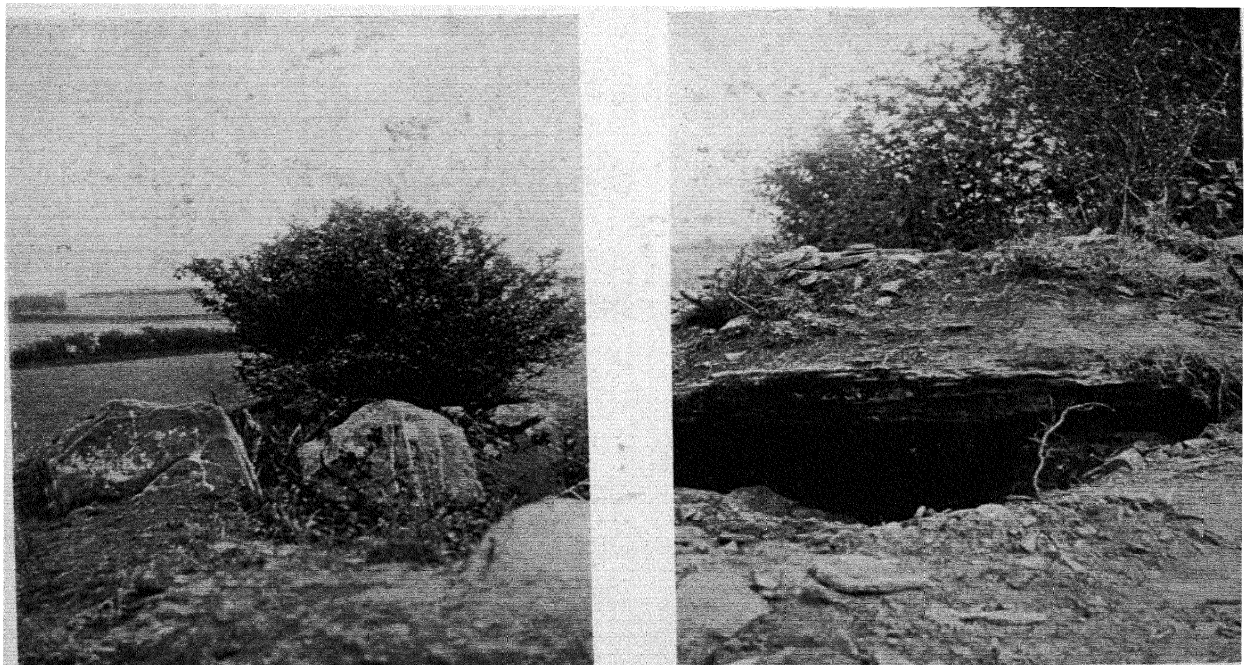
Certainly one of the most curious features of Neolithic burial, and of prehistoric burial at all periods of the Stone Age, is the use or provision of colouring matter: red ochre, yellow ochre, iron oxide, limonite, and cinnabar (red mercuric sulphide—vermilion).[1] It is not a very frequent practice in Neolithic times, but it is fairly widely distributed in Europe. Sometimes the skull is heavily rouged; sometimes all the bones have

[1] This practice is very marked in primitive burials in North America.

traces of colour. Little pinches and morsels of ochre may be scattered about: there is an instance of one of these morsels being found in the hand of a skeleton. In the tombs of Terranova in Italy there were pots of bright red colouring matter. In the Ligurian region, the entire grave was often filled with red ochre, staining not only the bones, but every object or stone within it. As it is clear that whatever was placed with the dead had value or significance in the daily life of the deceased, we may infer that colouring materials were used for personal decoration; and it is permissible to assume that it was used in the European Stone Ages as it is still being used by living savages—for daubing and smearing over the face and body, or for rubbing into the hair with grease.

Some Excavations.—As a means of bringing clearly before the mind of the reader some idea of what a Neolithic burial actually looks like when it is excavated, the writer will give a short account of two of his own diggings.

These were made in the remarkable group of burial-mounds at Ffostill, a farm close to the little market town of Talgarth in Breconshire. The mounds are three in number, and are situated on a foothill of the Black Mountain range, at a height of about 1020 feet above sea-level. The peculiarity of the group is this: the three barrows are in rough alignment and in close proximity to each other; one is a small mound of irregular plan (32 by 29 feet) lying to the north of the group; the central mound is a magnificent long barrow, and below it, barely 40 yards away, is another long barrow which is only slightly smaller. Measurements



ON THE LEFT, THE RUINED BURIAL-CHAMBER IN THE LONG BARROW AT FFOSTILL, BRECONSHIRE. RIGHT THE KIST EXCAVATED BY THE AUTHOR, SHOWING THE MASSIVE COVERING-STONE IN POSITION

proved that the length of the central barrow was 135 feet, and of the southern barrow 110 feet. The placing of these long barrows is singular: the axis of the central barrow (imaginary line drawn through the length) points 76 degrees east of north, while that of the southern one is 21 degrees. Thus the position of the two big mounds in relation to each other gives an effect of irregularity and hazard which is not easily explained.

An excavation was carried out in the small barrow, but nothing was found except some pinches of greasy charcoal, a few pieces of flint, and fragments of burnt bone. The two long barrows proved of much greater interest.

It should be explained that these impressive burial-mounds are built of blocks and slabs of red sandstone, of which material each contains many thousands of tons. Both have been interfered with, at different periods and for different purposes: the middle one by some inquiring or covetous person who rifled the main burial-chamber and flattened out the broad end of the mound; and the other by the tenant of the farm, years ago, with the idea of getting a ready supply of stones for various rural requirements.

By good fortune the principal burial-chamber of the latter had not been disturbed in recent times. It consisted originally of an oblong kist, 10 feet long by 4 feet broad, covered in part by a large capstone which had been pushed over on to the side of the mound—apparently in ancient times. Blocks and laminated fragments of sandstone filled the interior of the kist, so placed as to leave fairly large interstices between them. There was no soil. Throughout the entire

length of the kist, lying between and wedged beneath these blocks, there was an abundance of human bones, sadly broken and in complete disorder. Above these remains, at a depth of only one foot beneath the turf which covered the mound, there was a layer of calcined bones—those of a youth, a very young child, and domestic animals. It was found that the bones of the chief burials (which were unburnt) were those of at least nine individuals. There was a man of about forty years old, whose head, Sir Arthur Keith told us, was " very narrow, relatively high, and rather small." There was an old woman who " must have had a face cast in a small, almost delicate mould." There was another man with a prominent ridge over his eyes; and there were children. In no instance was there a complete skeleton. All the individuals were short, the adult males being about 5 feet 4 inches in height.

Domestic animals were also represented in the kist by the remains of pig, ox, goat, and cat. Outside the chamber, and in line with it, were the burnt remains of a child of about six years of age, the unburnt bones of an adult and of an unborn child, animal bones, sixteen pieces of calcined flint and fragments of rough pottery—of a pudding-like texture, thickly mottled with grains of quartz.

Careful examination of the central barrow showed us that there was an undisturbed kist close to its northern edge. This was found to be an irregularly shaped chamber, formed of four slabs, and covered by a single massive capstone. The capstone did not rest upon the side-slab nearest the edge of the barrow, and it was possible to remove the contents of the kist without disturbing the structure in any way.

Our excavation here revealed a very interesting and characteristic burial. We found that the interior of the kist measured only about 3 feet by 4 feet, and that its depth, taken from the under surface of the capstone to the floor, was 3 feet, 8 inches. But in this restricted space were the remains of half a dozen people, together with those of an ox, a horse, a dog and a pig.

The kist was filled with stone, and with a fair amount of soil. Moisture was everywhere present beneath the upper layer, and deposits of unctuous charcoal were freely scattered from a depth of one foot downward. As for the bones, they were for the most part dispersed and broken; but in a few cases the bones of the limbs were in correct anatomical relation to each other; and in others, those of skull, limbs, or trunk were roughly localized, though not in articulation. We found no "grave furniture" except some pieces of flaked but untrimmed flint, and a few shards of pottery.

Examination showed that the human remains were those of men, women and children. One of the men had been the possessor of massive thigh-bones, and a remarkably heavy but well-modelled jaw. The neck-bones of a woman showed that she had suffered from rheumatism. Two of the burials were those of children, six and eleven years of age. All the bones were jammed between the small blocks and slices of stone that filled the chamber; they showed varying degrees of rottenness—some being relatively hard, and others crumbling at the lightest touch. The remains of the ox, including the teeth, were freely distributed throughout the whole of the funerary deposit. As is practically always the case in excavations of this kind, we found numbers of single human teeth scattered about in all directions.

Here then is an instance of a burial which showed that the *complete* bodies of the persons and animals composing it could never have been placed within the chamber. There was nothing approaching a complete skeleton, although the remains represented every part of the body.

In the writer's opinion, these burials took place in the later Neolithic age, and the calcined layer in the southern barrow represents an intrusion—a burial of the Bronze Age or of a later period, accountable for the removal of the covering-stone and for the very marked disorder of the original interments.

But we must not forget that the disturbance of Neolithic burials is brought about by a variety of causes. Movements are set up in the stones or soil of the mound, rats and rabbits burrow and crawl, wind and rain loosen the outer covering and promote collapse.

General Deductions.—It is the most utter nonsense, of a kind that makes the scientist blush, to pretend that we know anything of the exact nature of the rites and ceremonies of the Stone Age. We see, clearly enough, that there must have been rites and ceremonies. Human remains were not thrown like so many parcels or so much rubbish into the elaborate and impressive tombs which had been prepared for them. There was a funeral service. We cannot say what kind of service, and we cannot give a conclusive explanation of the curious things that are so evident when we take the contents and arrangement of a Neolithic grave. Obviously, we must not allow ourselves to do more than make suggestions, based on the observed facts, and on what we know of the primitive mind in general.

The later Neolithic folk, it would seem, did not always bury the complete body, or even the complete skeleton. Either they made a selection of some parts and excluded others, or they retained certain bones to become the objects of a private cult, or they transported the remains of the dead from one place to another, or they ate the deceased (not so improbable as it might sound), or they threw away some of the original occupants of a tomb in order to make place for more recent arrivals.

The chips of flint which are so frequent in Neolithic graves have been supposed to indicate a ceremonial flaking of flint over the bodies. This is very far-fetched, and is, of course, a pure invention, for which there is not one tittle of sound evidence. It is impossible to say what these unworked flints really do mean: they must have had significance, or they would not be there; but whether they are merely valuable material, of use to the deceased, or whether they have a religious aspect, is a problem that is not of great importance.

Shards of pottery (complete vessels are very rare in the later graves) may be evidence of the breaking-up of the property of the dead—on the strength of the analogy we have mentioned—in order that the "souls" of the said property might be free to accompany their owner.

The animal remains may be those of selected stock belonging to the deceased, his pets or favourite property, or the relics of the funeral banquet, or sacrifice. Human remains may represent sacrifice—or even a feast. Manifestly the great tombs of the barrows and dolmens were not built for ordinary folk: they were built for

notables; and notables are exacting in death, and must be buried with their dues. Charcoal, too, may be traces of the funeral feast: it should be observed that charcoal is found in association with bones that show no sign of fire—therefore it must have been collected from elsewhere and placed within the tomb as a matter of ceremony.

Deposits of complete instruments, of vessels or of ornaments, though found in the true dolmens, are rare, generally speaking, in the kists and barrows. This might seem to indicate a period of religious decline; and we could assume that the chips and shards are substitutes for the finished article. It is not easy, however, to reconcile a stinginess of this kind with the colossal size of the largest barrows, and with the evidence of a powerful and compelling ritual.

It is equally unlikely that the idea of economizing space and labour would account for the overcrowding of kists. This overcrowding is more likely due to the innate conservatism of the primitive mind, and to the continued use of one burial-place by the same tribe or family.

The manufacture of special objects as offerings to the spirits of the dead may be inferred from the presence in dolmens of miniature axe-heads ("votive axes"), some of them barely an inch long.

. . . . . .

Such are the main facts of Neolithic burial, and a few of the permissible deductions. We have been describing a phase of human culture in which holy places, constructed by man—the burial-chambers and monuments—make their first appearance. The simple

dignity of these monuments, the extraordinary skill and energy which the building of them implies, the mere fact that the first great architectural works were made for the residence of the dead, and not of the living—all this makes clear, in a vivid and unmistakable way, the tremendous part which was played in the later Stone Age by the cult of the dead : a cult which must have demanded and obtained the supremest efforts and the unquestioning obedience of the community.

CHAPTER XIV

INDUSTRY AND ART

Pottery.—Dr. Lowie (*Primitive Society*) tells us that "... wherever earthenware is manufactured by hand, it is produced by the women." If that observation applies to the women of the Neolithic age, they must have been both industrious and skilful, for pottery exists throughout this period in abundance, and in varied forms. Many of these forms are exceedingly beautiful. Ornamentation was accomplished by different methods—one of the most characteristic consisted in pressing thin plaited cords on the moist clay. Pointed and spatulate tools, as well as finger-nails, appear to have been used also for the incision of criss-cross lines and for the tracing of dots or little elongated holes. Geometrical patterns are more frequent in Western Europe than spirals. Knobs or excrescences, and small handles for the suspension of the pot on a cord, appear, in certain localities, at the close of the period; three or more knobs are sometimes found on the flat base of the vases, forming legs on which they were intended to stand.

Neolithic pottery is reddish, red-grey, dark brown, or black in colour. When it is broken (as it usually is, unfortunately) the fractured edges often show a carbonized streak in the middle, which proves that the

pots were not properly baked. The use of the potter's wheel was unknown, and all the earthenware was modelled by hand.

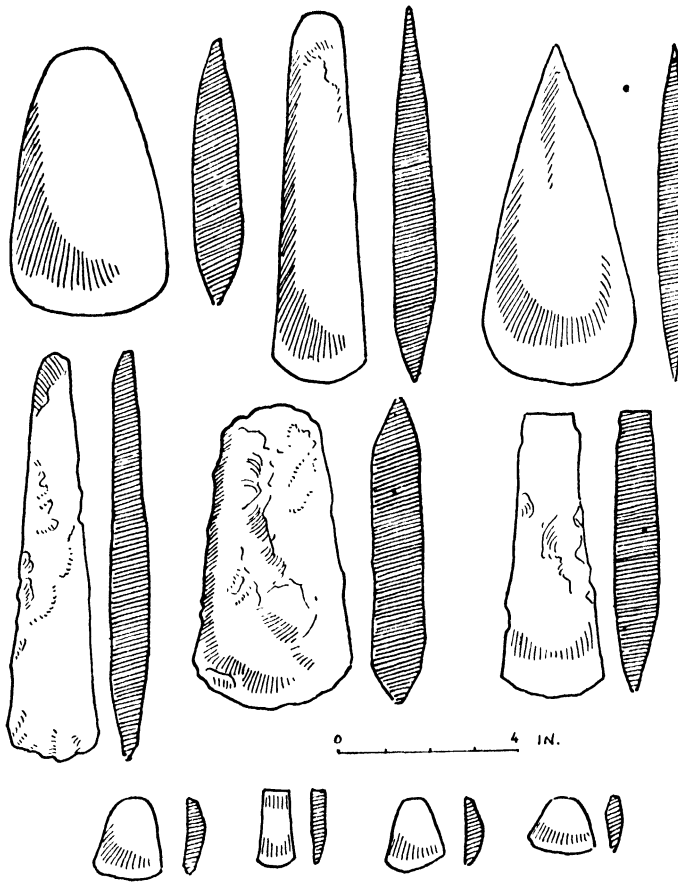
However humble a craft the manufacture of clay pots may be, we must remember that it is a craft which indicated a settled existence on the part of the pot-makers: house-keeping and the storing of food must be assumed; and so the clay pot is one of the first signs of civilized domesticity. It becomes an object of value and of ritualistic meaning. At the very end of the New Stone Age there seems to have been a falling-off in the quality of the earthenware; but we must be careful to distinguish between rough domestic vessels, hurriedly made to replace breakages, and the more highly finished productions.

Stone Axes.—Evolved, probably, from Palæolithic forms, one of the distinctive Neolithic manufactures is the stone axe or "celt." ("Celt" is a word which has nothing whatever to do with the race-name of Celt or Kelt. It is a pedagogic and often misleading term, derived from a word in the Vulgate—*celtis*—which means a chisel.)

The earliest forms of this instrument, or weapon, are usually of unpolished flint; later, all kinds of suitable stone were used, and the surface was highly polished. This burnishing of celts and other tools has given rise to an alternative, but not very good name for the Neolithic period: the "Age of Polished Stone."

In shape, the celt always conforms to a general principle of design, but it varies from extreme elongation to extreme compression; and the size ranges from miniature specimens about one inch long to heavy

implements that measure a foot and a half from end to end.

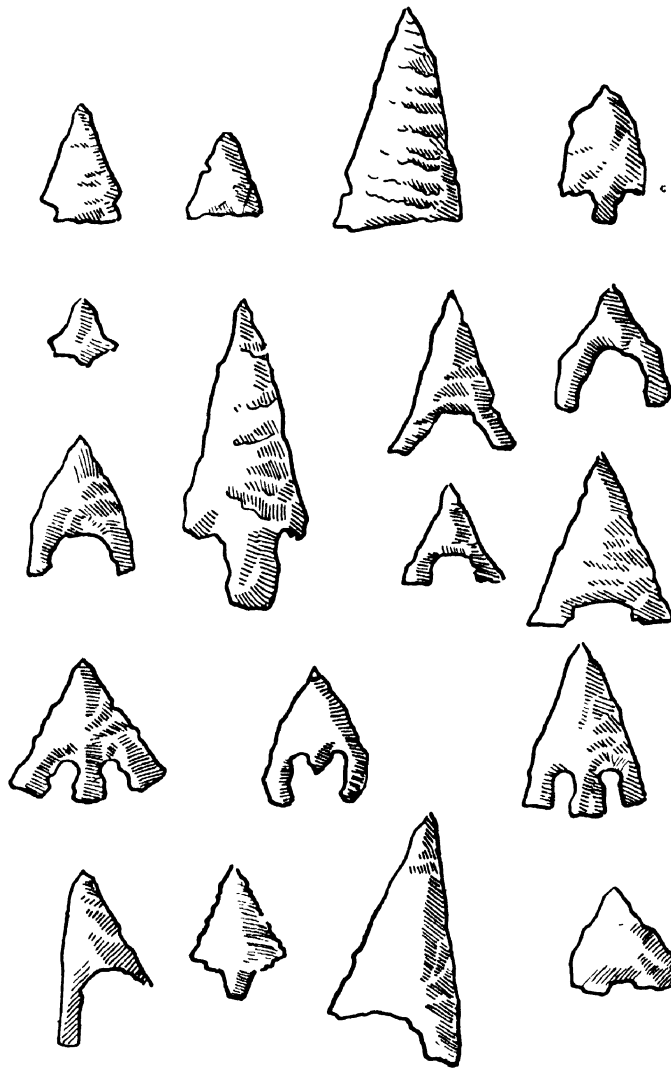


Typical celts: the upper row of various stones, highly polished; the middle row of flint; the "miniatures" of hard stone.

Primitive peoples of all times and in all parts of the world have produced celts. The crudest examples are

merely adapted stones, the natural shape of which was already suggestive of the implement. The celt was intended to be fixed in a haft: there are cases in which the haft itself has been found, with the axe-head still in position. The cutting edge was often resharpened; a process which has greatly modified the form of certain specimens and reduced their length. Stone axes became the objects of religious cult. They were engraved on the walls of dolmens; they were made in miniature forms and worn as amulets; and these miniatures were frequently placed with the bodies of the dead. In the Bronze Age the cult of the axe became a very marked religious symptom among the peoples of the Ægean Islands and the Orient.

Hammer-heads and mace-heads of various forms are made of every kind of stone that is sufficiently hard and will take a good polish. These implements are pierced for the insertion of the haft. Of the hammers, some are canoe-shaped, others have one end pointed and the other broad and flat, others have incurved ends (*talons*), others again are axe and hammer combined. The mace-heads are either disc-shaped or compressed spheroids, pierced in the centre. It is probable that these latter were designed as weapons. The piercing or drilling of the hole was presumably done by the sand and water friction method—a rod being patiently twiddled between the hands, and gradually wearing down the stone by the rapid rotation of the particles of sand. The drilling is usually carried half through one side and then through the other, which is termed "counter-sinking." Another method consisted in the use of a cylindrical borer, such as a straight



A series of typical Neolithic arrow-heads from the British Isles, including, perhaps, one or two of Bronze Age date.

piece of hollow bone; in which case, the hole itself is cylindrical, and equal in diameter right through.

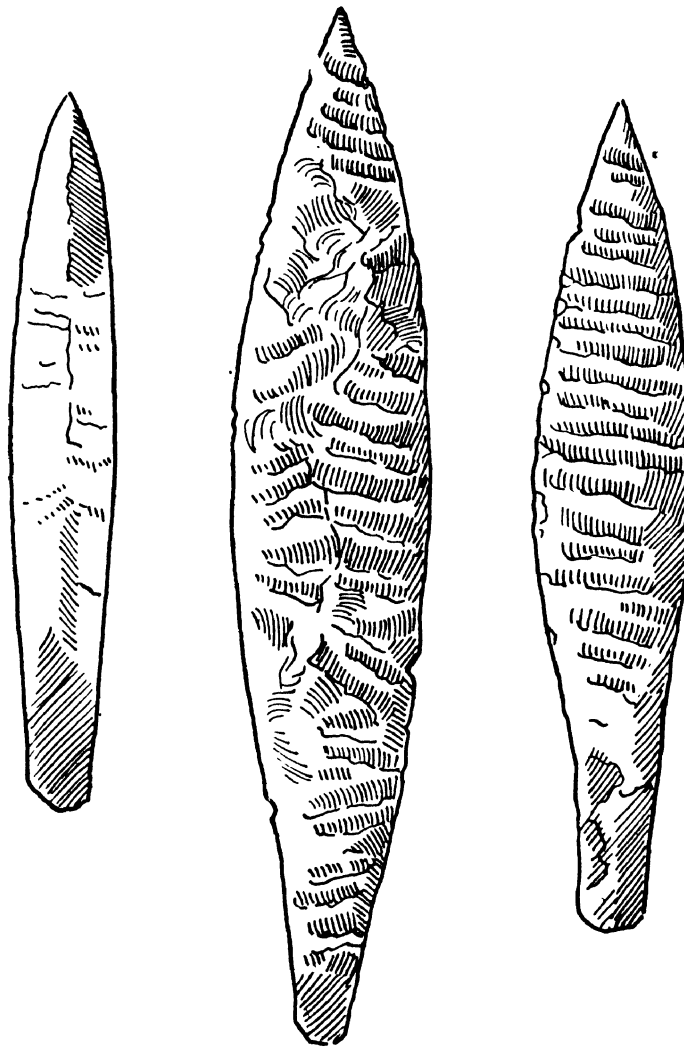
Arrow-heads.—The "mere collector" is particularly fond of arrow-heads. And the finest examples are certainly most beautiful things—delicately chipped, thin, and admirably symmetrical. Moreover, anyone with sufficient patience can pick them up on the surface of ploughed fields.

Déchelette contented himself with classifying Neolithic arrow-heads under three categories: those with neither tang nor barbs; those with a tang and no barbs; those with barbs and tang. He admitted that these principal categories contained numerous variations.

As a matter of fact, it is possible to define twenty or more distinct types of arrow-head. No great purpose would be served by going into minute questions of typology—our illustrations must be sufficient commentary—but a fourth category should be added to those given above: arrow-heads with barbs and no tang—it is not sufficiently correct to define these as having "concave bases."

Arrows were used by the men of the Reindeer Age: the Solutrian willow-leaf and laurel-leaf types were doubtless intended as heads for arrows and javelins. But the barbed arrow-head (the most effective shape for a weapon that was hurled or shot) makes its first appearance in Neolithic times.

Designed, probably, rather for the chase than for combat, some of these arrow-heads are extremely small—not more than half an inch from tang to point. Others are between three and four inches long. Varieties



Flint knives or daggers from Denmark. Together with similar specimens from Egypt these represent the perfection of the flint-worker's craft.

of form are more numerous than varieties of size. Some of the specimens from the Yorkshire Wolds are mere battered triangles of irregular outline, with a roughly notched base. (We must remember that rough workmanship is not a test of antiquity: inferior craftsmen are to be found in all ages.) There is a world of difference between these crude essays and the highly finished specimens, which are marvels of skill and precision of touch.

As regards the method of manufacture, it is interesting to note that the Indian of North America used to make his arrow-points on a flat stone which he placed on his knee. On this little anvil he chipped away at his obsidian flake with an agate, and the finished implement would be turned out in about an hour's time.

Other Implements.—Incontestably supreme among the flint implements of the New Stone Age, both in respect of their perfect symmetry and of the marvellous skill with which they are flaked, are the long knives or daggers of Denmark. Only one other country in the world—Egypt—has produced examples which can be fitly compared with these; and the comparison may, perhaps, prove to the advantage of the Egyptian worker. In Europe the Danish knife has no rival. It is impossible to look at the rippled surface of one of these knives, at the delicacy of its edge, and the admirable grace of its outline, without realizing that we are looking at one of the highest manifestations of pure skill and of knowledge of material which can be found in any stage of human culture. No living man could make such a knife with only stone or bone tools at his disposal. Yet the men who made these knives—the Neolithic

Dane and the Neolithic Egyptian—were most certainly "savages" in the popular sense of the word. A technique of the most highly evolved kind, a complete mastery of material, must therefore be conceded to persons who were living in a state of savagery.

It is fitting that the close of the Neolithic period should be marked by achievement of this kind; the whole phase shows us a steadily progressive sense of craftsmanship, an extended power over matter, and a growing desire to produce forms which should combine the qualities of grace and usefulness.

"Fabricators" are narrow, pointed tools, supposed to have been used for fine flaking by means of pressure.

"Cores" are usually small conical lumps of flint, sliced down the sides, and with a flat base. Although many of these are probably the cast-away remains of a flint nodule from which small blades have been struck, it is obvious that some of them (especially those reminiscent of the Aurignacian "keeled scraper") have been designed as implements, and we are justified in describing these latter as "core-scrapers" or "cone-scrapers."

The "scraper" exists in an infinite variety of shapes and sizes. Some are indistinguishable from the scrapers of Upper Palæolithic manufacture. In general design the aim was to produce a tool with a flat surface on one face, a ridged back, and a rounded scraping-edge. Perhaps the commonest form is the long scraper (*grattoir sur lame*), in which the working-edge is chipped down on the end of a long, thick blade: if both ends have a working-edge, the tool is known as a "double scraper." There are round or disc-shaped scrapers; scrapers

with concave working-edges ("hollow scrapers"); scrapers worked on the side ("side-scrapers" or *racloirs*); thick scrapers and thin scrapers; humpy scrapers, flaked all round, and sometimes called "planes": in short, scores of types and an infinity of variations of this useful tool.

In Neolithic times, as in all the preceding ages, convenient flakes of flint were often merely retouched and used as implements without further elaboration. We have thus, in any collection, a prodigious number of informal, unsymmetrical tools which, though unquestionably worked, do not admit of classification.

Blades and points are of frequent occurrence and of varied forms. The best cutting edge is one that is produced by a clean fracture, without secondary chipping or retouch of any kind: simple long flakes, detached adroitly from the core and slightly adapted at one end for hafting or handling, were most efficient knives.

The so-called "pygmy" flints are minute flakes, delicately retouched, slender, keen-edged and pointed. Probably they were not intended in every case for separate use, but formed the teeth or barbs of harpoons and javelins.

Wood, horn and bone were freely used for the making of tools and weapons: clubs, truncheons, picks, mallets, and so forth.

Ornaments.—We have seen repeatedly that personal adornment is a most important matter to the uncivilized. There is no creature so low in the scale of social development but that he takes delight and pride in bedaubing or bedecking himself; no savage who is so unmindful

of his appearance that he neglects to decorate his face and body, even by the repellent processes of laceration or mutilation. The New Stone Age affords many specimens of trinkets and ornaments.

In some respects these are less highly finished than might have been anticipated. Necklaces and pectorals are still made, as in the Old Stone Age, of pierced shells, stones and bones. Teeth (including those of man) are drilled and strung together. Beads are carefully made, and for this purpose many suitable materials are employed—lignite, jet, amber, alabaster, steatite, gypsum, red quartz, white limestone and serpentine. Talismans or pendants, often of lustrous highly polished stone, shaped like axe-heads or discs or eggs, drilled for suspension, were much in vogue. Bracelets of schist, jadeite and other stone are found in the later phases of the period.

There is little doubt that the effect of these ornaments was heightened by the use of colour, not only on the objects themselves (which were sometimes dyed red) but on the faces and bodies of the people who wore them. There is evidence which leads one to suppose that the practice of tattooing was not unknown in Neolithic times.

Textiles.—Nets, cords and rough fabrics were certainly made by the later Neolithic folk; but we have no evidence of fine textiles, and it is likely that garments were generally made of skins.

Engraving, Sculpture and Architecture.—The art of representing living creatures, so brilliantly developed by the men of the Reindeer Age, was extinct at the beginning of the Neolithic phase. That phase, as we have seen, was severely occupied with the improvement

of necessary things, and there was no attempt to produce statues or engravings until a comparatively late stage—a stage at which the foreign influences of the Orient were taking effect in Western Europe.

At that time a very simplified "female divinity" found her way from Asia Minor to the European shores of the Atlantic. In her most elementary form she is seen in the dolmen of Bellhaye (Oise), where she is represented by two round knobs of stone and three curved lines: her breasts and her necklaces. The "statue-menhirs" of Mid-France show her in greater detail—with eyes and nose, hands, a belt (?) and things that may be either tassels or feet. She rarely has a mouth. In the grottos of the Marne she appears to take on the rôle of a goddess of the tombs.

A modern European child of six can draw something which is far more like the human form than this poor goddess. It is nonsense to talk of symbolism or deliberate stylization (the latter has never existed apart from times in which accurate representation was possible) when we are dealing with the results of sheer incapacity. The miserable "statue-menhirs" were the best they could do at the time, and they show us that the Neolithic people were absolutely unable to draw or engrave the human form—although they had a desire to do so. It is strange to think that a spiritual impulse was in all likelihood responsible for these awful caricatures.

The incised stones—flat, upstanding slabs with deep lines cut in them—may not all belong to this period. They show rough outlines of human forms, with noughts and crosses and rows of short strokes.

The standing stones, dolmens, circles and align-

ments seem to imply a sense of architectural effect and an appreciation of massive form. It would be going too far to say that they represent a calculated art. Probably they were built or erected because it was right that such things should be as big as possible. The reverence of the child and the savage is accorded most readily to something that is unusually large; and the larger it is, the greater the degree of reverence. Hence the majesty of the dead is best typified by a really immense stone: a stone which has to be trimmed and hauled and set up with a deal of pains. It is not so much the shape as the bigness that is important.

No modern tomb or cenotaph has the simple grandeur of the dolmen or the menhir. Through the desire to set up a tomb or memorial that should be a thing pleasing to the shades of the dead and worthy of the reverent admiration of the living, the Neolithic men made constructions which are among the most impressive, the most truly dignified and appropriate of their kind.

The Discovery of Metals.—The systematic use of metals, as we shall see in the next chapter, spread into Western Europe, if the evidence is correctly interpreted, from Greece and the countries of the Orient. But it is probable that bright ores had attracted the attention of Neolithic Europeans before the introduction of bronze: they had certainly made acquaintance with gold and with copper.

Unalloyed copper seems to have been experimented with long before the predominant culture had passed beyond the Age of Stone. As in every other department of Prehistory, we find a gradual substitution of

one material for another, a slow blending of new ideas and new methods—no sudden burst of discovery, no quick exchange.

The simple theory of diffusion—*i.e.* that an invention is made in one place and carried to others by travellers or invaders—is very convenient, but may be called in question. There is no proof that the invention was not made simultaneously in places that had no communication with each other. Thus, instead of one centre of diffusion, we must admit that there may have been several. At least it is extremely probable that the Mediterranean traders who introduced the finished art of casting in bronze to the peoples of Western and Northern Europe found that a rudimentary knowledge of metals was already in existence among those peoples. The more advanced races of Egypt, Asia Minor, Crete and Cyprus, who were accomplished metal-workers long before bronze was in current use in the west of Europe, were not necessarily the first discoverers of metals, though they were the first to make good use of the new materials. (At the same time, the identity of the earliest copper tools in Asia Minor with those found in Spain, France, Britain and Central Europe supports the view that metals may have been introduced to the people of the West by the people of the Orient. But the argument of identity of form is not, in itself, a conclusive one.)

We can hardly assume that metal first came into use through a lucky accident—an accident that happened once only and in one place. It is well known that, at the period which marks the final phases of the Stone Age in Europe, a relatively advanced civilization was

in full swing in the valley of the Nile. We know that the influences of civilization flowed into Western Europe from the East Mediterranean. But we believe that a people as far developed as the late Neolithic people in Western Europe had probably discovered the existence and divined the use of metals on their own account; and that it would be incorrect to say that metals were " discovered " in the Orient—that mysterious Orient which was as useful to the archæologist of the old school as the splendidly vague " unconscious " is to the psychologist of the new school. Anything may originate in the unconscious; anything may come from the Orient.

CHAPTER XV

THE BRONZE AGE

STONE AGE and Bronze Age are convenient archæological terms, but they must not be regarded as implying a sharp and sudden distinction. There was never an age in which all the implements were made of stone; neither was there an age in which all the implements were made of bronze. When we speak of the Bronze Age, we do not mean that bronze was exclusively used in that age for the manufacture of implements, but only that it was the preferred material. In many respects the Bronze Age may be considered as an extension of the New Stone Age, with the superadded use of metal. Flint is still largely employed for the manufacture of tools and weapons (the flint arrowhead reaches its perfection in the Bronze Age) and is still found in the tombs; pottery of a Neolithic type is still in evidence; and the main facts of burial are almost unchanged, with the reserve that cremation (towards the close of the period) is frequently, but not universally, the practice.

The Stone Age does not come to an abrupt finish; the Bronze Age does not make a sudden appearance. It is necessary, for a proper understanding of the Neolithic age, that we should have a general idea of the age which immediately succeeded it.

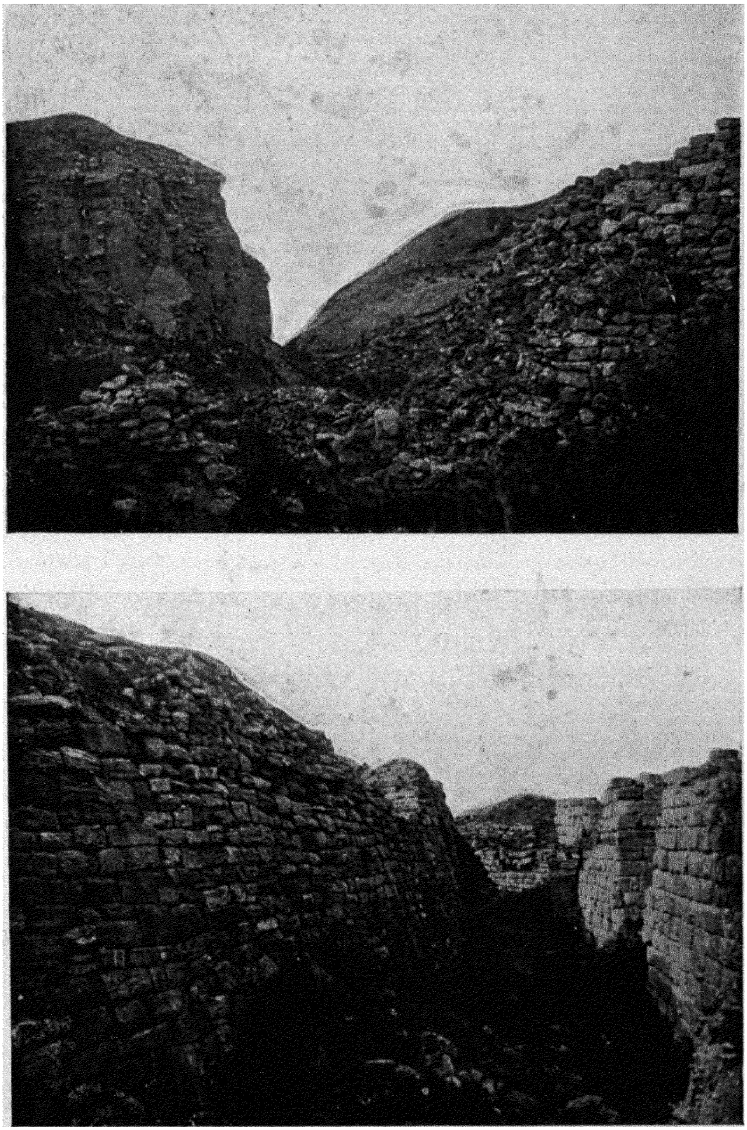
The Orient.—Two thousand years before the birth of Christ, a brilliant civilization was approaching its zenith in the island of Crete. We owe our knowledge of this civilization very largely to the work of an English archæologist, Sir Arthur Evans, who carried out his task in a quiet, scientific way that is in strong contrast to the vulgar methods which have characterized less important excavations elsewhere.

The full Cretan, or Minoan, civilization represents the height of Bronze Age culture : it comes within the archæological division of Ægean chronology which is known as the First Mycenæan period. The civilization of the 12th Dynasty in Egypt, which probably coincides with the middle Minoan phase, does not indicate a more advanced general culture.

Although we have not yet succeeded in deciphering their written language, we know a great deal about the ancient Cretans from their frescoes and coloured statuettes.

We know that the ladies wore great bell-shaped flounced skirts, embroidered tunics, puffed-out sleeves, laced bodices, diaphanous chemises, and sashes of brilliant hue. The hair of the court dames was crimped and frizzled, long tresses hanging down the back. Both men and women are represented with extremely small waists. The young men carried daggers in their belts.

Architecture of a noble order was evolved in Crete, and elsewhere in the Levant—in Greece and in Asia Minor—during the Mycenæan period. Fortresses, palaces, treasuries and tombs were built with admirable design and skill. Nor was domestic and urban archi-



TWO PHOTOGRAPHS RECENTLY TAKEN OF THE FAMOUS RUINS AT HISSARLIK (THE SITE OF TROY). THE LOWER PICTURE SHOWS ON THE LEFT THE WALL OF THE SIXTH CITY, WHICH HAS BEEN INDENTIFIED WITH THE TROY OF THE HOMERIC LEGEND

tecture undeveloped: little pictures of the Minoan houses are shown on coloured porcelain tablets—houses with neat windows, external decoration, and three or four stories. The great palace of Knossos was of vast dimensions and of splendid effect; it is remarkable that it had a perfect drainage system, with a scheme of shafts and conduits that is worked out on well-considered principles.

Religion was highly systematic. Most noteworthy of the cults of the Minoan folk was the cult of the double axe: the symbol of the Cretan Zeus. Little models of this double axe, in various metals, are found in burials, and in the places which were of special sanctity—shrines or caves. Amulets were much in vogue: swastikas and symbols of the sun were placed over various parts of the body in order to protect them.

Long before the discoveries in Crete, the existence of a rich civilization at Mycenæ and Tiryns, and at Hissarlik (Troy) had been proved by the unskilful but ardently enthusiastic Schliemann. He unearthed veritable treasures. He found skeletons which were literally covered with plates of gold and with jewels, and with golden masks over their faces. He found much that dazzled the eye and the imagination; but his deductions were usually false, and his methods at Hissarlik (where he discovered, but failed to identify, the Homeric Troy) were a cause of despair to the more scientific investigator (Dörpfeld) who followed him, and who published the first accurate account of those wonderful remains.

"When the wind was favourable," says the Italian

archæologist, Mosso, "the Minoan ships could sail with a swiftness equal to that of ordinary modern steamers." This—unless we understand "ordinary" in a rather restricted and local sense—is surely an exaggeration; but it is evident that long voyages were undertaken by the mariners of Mycenæan times. By the sea routes of the Mediterranean, the influences of Ægean culture spread to Western Europe, as other influences had spread before them. Not only by the sea routes from the Ægean lands, but by the overland commercial route, the "amber route," from the Balkans to the Baltic, those cultural influences were spread and diffused; but in no other part of Europe did the Bronze Age reach such a level of magnificence as at Knossos or Mycenæ.

Western Europe.—At a time when the elegant Cretans were watching girl-toreadors in the bull-ring, or admiring the new frescoes in the palace, or taking part in some highly ornate religious ceremony, the savage people of Britain were making their first crude experiments with metal. The date of the beginnings of the Bronze Age in Western Europe may be taken as not earlier than 2000 B.C.—in all probability it would be safe to make it considerably more recent. Certainly, in the north-west of Europe it was later than in the Spanish peninsula, and in the countries bordering the western and central Mediterranean.

As we should have expected, the first essays in the use of the new material consists of the reproduction of forms that already existed in stone: notably of the celt. The first metal implement is the flat celt in copper. A shallow mould was cut in a block of stone, the molten

metal was poured into it. and a flat stone was placed on top. In later stages the mould was made in two halves which fitted exactly over each other, and the cast was obtained by pouring the metal through a groove or duct.

The flat axe develops gradually into the flanged and socketed axe. Diminutive forms (well shown by specimens from Ireland and Brittany) were doubtless used for ritualistic purposes.

We believe that the use of pure copper, in most parts of Europe, preceded the use of bronze, the mixture of copper and tin.

Arrow-heads were still made of flint until the end of the Bronze Age, but the flint knife or dagger was soon replaced by a short triangular metal blade, riveted to a handle.

The approach of civilization is shown by the production, first of large daggers, longer than the early types, and then of beautifully proportioned swords (the first swords) and socketed spearheads, breast-plates, shields and helmets.

But if the arts of war, so essential to the self-respect of a well-organized society, were rapidly developing, so also were the arts of peace. It would be impossible to describe here the infinite variety of trinkets—safety-pins, collarettes, golden gorgets, beads, ear-rings, buttons, bracelets, buckles, girdle-chains, pendants and so forth—which were made in great numbers during the full development of the period.

Pottery becomes more ornate, but the earlier forms are indistinguishable from Neolithic ware.

Burial.—The features which distinguish Bronze Age

burials from those of the Neolithic period are: (1) The general reduction in size of the burial-mound, which usually has a circular base and a dome-shaped covering. (2) The appearance of "cupola" and "beehive" tombs with long approaching corridors. (3) Side-walling of small stones, instead of the big slabs of the dolmenic burials. (4) Cremation: never a universal practice, or even exclusive in any one district, and not much in evidence until the end of the period. The ashes are contained in earthenware vessels of a special kind ("cinerary urns"). (5) The appearance of metal objects, with flint and pottery, in the grave. (6) Disappearance of "collected" burials—those in which the bones of several individuals are mixed up together in a small space. The body, if inhumed, is buried in its entirety.

The "round barrows" of Great Britain are of great interest in the study of Bronze Age burial customs. We shall give a very brief analysis of the evidence which they afford.

Pottery vessels were specially made for the funeral rites: of these, the "beakers" (goblets of a Neolithic type) are the earliest, followed by the broad-mouthed and shallow "food-vessels." The practice of cremation is associated with large cinerary urns (sometimes three feet high), in which the burnt remains of people and animals were often deposited together. The position of the inhumed body varies, but the bent or contracted position is usual: the hands are sometimes raised to the head or face, or on top of the head; sometimes placed within the sacral hollow, sometimes under the hips; or each hand may be in a different

position—one on the head, one on the breast or thigh, and so on. The principal grave in a barrow may contain only the body of a child : in one case recorded by Canon Greenwell, a barrow sixty feet in diameter contained the calcined bones of a child of twelve, and no other human remains. Planks of wood are occasionally used to protect the burial. Implements of flint and stone, or fragments of these materials, are much more frequent than objects of metal.

In Scandinavia the kists were sometimes covered over with planks, and there are many discoveries of burials in coffins made of hollowed tree-trunks. One of these tree-trunk burials (in the tumulus of Borun Eshoi in Jutland) contained the body of a woman whose dress was preserved : she had a knitted woollen cap, a jacket with short sleeves and a long robe, both of woollen fabric ; the robe was secured by a belt of two bands (one showing an admixture of deer-hair) with heavy tassels. Daggers were often buried with the Danish women.

Burials in gigantic urns are found in Spain, Crete and the ancient Liguria. Diodorus Siculus relates how the Balearic Islanders used to pound the dead body with clubs, so that they could get it stowed away in a big jar.[1]

Although the coloration of the bones (a primitive practice of immense antiquity, as we have seen) did not continue into the true Bronze Age, there are a few records of instances which may, perhaps, be ascribed to the beginning of the period, or to the phase of transition.

[1] Jar-burial is, or was, very frequently practised by certain Dyaks of North Borneo.

Suitable provision is made for the deceased: the warrior of the later Bronze Age has his long sword, the craftsman his tools. In the earlier burials, stone implements naturally predominate. Copper makes its appearance in the tombs before bronze.

Religion and Art.—We cannot dwell here on the intensely interesting religious cults—of the sun and the swan, of the bull and the sacred horns, of the sacred wheel and the swastika, and of the axe—which found expression in various parts of Europe during the Bronze Age. The axe, the solar disc, and the horns were probably of religious significance in Neolithic times: they are found, in one form or another, throughout prehistoric Europe, from the Late Neolithic period onwards. Metal, in itself, had a religious aspect; it has always been regarded by primitive folk with awe and with mistrust. Stone is retained for the more important ceremonies, and the use of metal is severely restricted, if not forbidden, in the early days of its introduction. There are well-known instances of metal-taboos in the Old Testament.

Sculpture and pictorial art, in Western Europe, exist only in the crudest forms. There is little, if any, advance on the wretched attempts of the late Neolithic people. A few "statue-menhirs" or steles (tombstones) have come to light in the Genoese area, and there are some strange rock-engravings not far from Ventimiglia, close to the Franco-Italian boundary. These engravings show the importance of axes, daggers, oxen and wheels, and are possibly of a religious nature. Other rock-engravings—of inconceivable crudity, and with details that strike us as strangely obscene—are

found in Scandinavia, particularly in Sweden. Great Britain has little to show of this kind: at Carnwith in Lanarkshire the cover-stone of a kist was found to be engraved on its under-side with concentric rings and with two triangular figures; at Kilmartin in Argyll, two of the upright stones of a kist were engraved, one with axe-heads, and the other with something which looks like the business end of a rake.

Decorative art is characterized by geometric designs in Western Europe, and by spirals and curvilinear patterns in the Orient.

. . . . . .

In this hurried review of the Bronze Age we have touched lightly on some of its more salient features. It has seemed desirable to do this in order that we might round off the outlines of the New Stone Age, and show how gradually the one culture merges into the other. The Age of Iron, which succeeds that of Bronze, leads us into the historic period.

With the complete acceptance and use of metal, man enters the phase of civilization in which he is still living: races clash and scatter with extreme rapidity, whole populations are transported from one side of the globe to the other, primitive leisure is destroyed, records and events multiply, life is alternately checked drastically and assisted drastically by artifice, and the whole scheme of human existence is spun into a texture so intricately interwoven that we of the present time cannot form a clear picture of our own epoch.

In studying the development of man in the Stone Ages we look back on periods of slow, incalculably

slow progress; we see humanity passing through whole millennia with no perceptible change in its manner of living; we observe a cold tranquillity in the natural order of events—a movement which, in comparison with the movement of historic times, is as the speed of a tortoise to the speed of a railway engine.

To-day, human energies are acquiring a tremendous momentum; human intelligences are converging for some supreme effort. We cannot foretell what tragedies or what triumphs are in store for the men of the future.

CHAPTER XVI

FIELD ARCHÆOLOGY

Field Work.—No occupation is more delightful than that of archæological research in the field. The possibility of a great discovery is always present. In some gravel-heap, or protruding from the yellow side of a pit, the bones of a strange, antique man—bones that shall add a chapter to the book of knowledge—may be detected by the enthusiast; on some glorious hillside, covered by furze and bracken, a village or burial-ground of Neolithic men has yet to be identified and excavated; ploughed fields yield countless treasures to those who walk them with an observing eye; every cutting, every cave, every overhanging rock may conceal archæological riches—indeed those riches lie everywhere, both on and under the soil. If only regarded as a pastime, it is one with which a man may occupy himself continuously and pleasantly.

The charm of field work, be the object natural history or archæology, is one that has always been recognized by the English amateur, from boyhood to old age; and it needs no recommendation to those who love the open air, the hills and the moors and rolling pasture-lands.

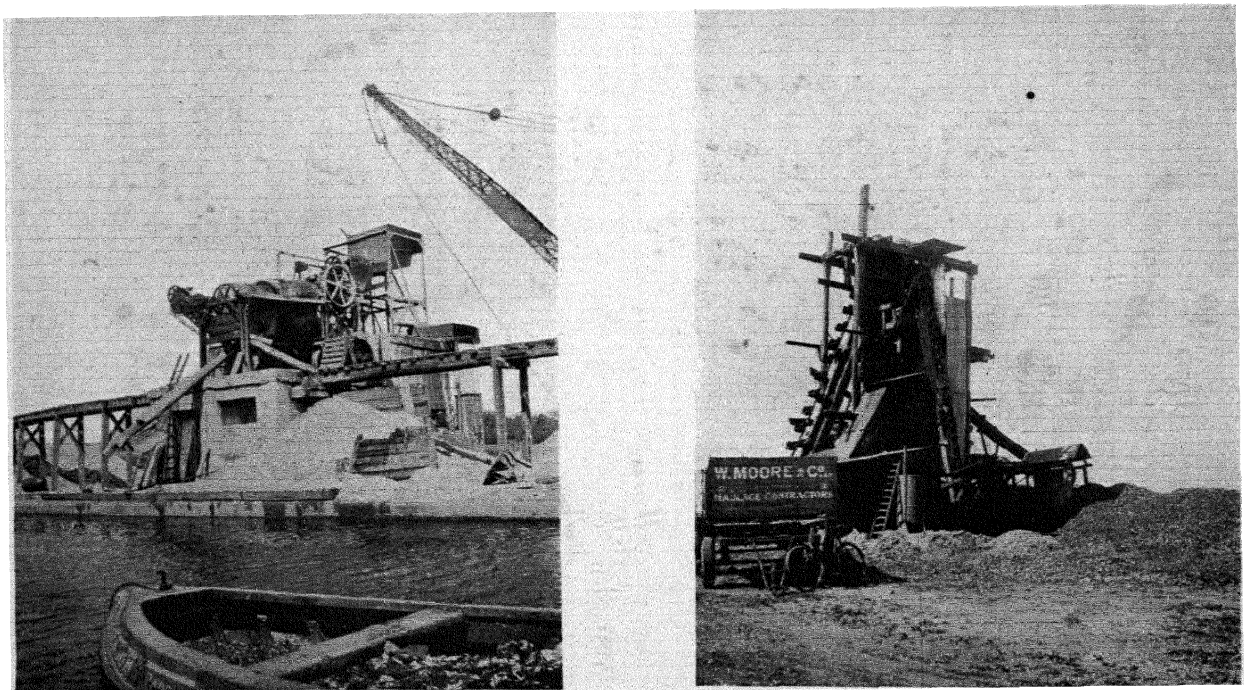
Dangers of Inexperience.—Enthusiasm is a fine thing; but enthusiasm misdirected and without knowledge is sure to defeat its own ends—it is, indeed, one of the

worst foes to science. The activities of the amateur should be limited by his fitness for the task in hand. Not much skill is required in picking up worked flints on plough-land, but a good deal is required in the exploration of a cave, or the removal of fossilized bones. There are limits even to what one expert, unaided, may accomplish; and we saw in our first chapter that there are occasions which call for the services of at least three, working in close collaboration.

The pleasure and value of field work grow in proportion to the degree of understanding with which it is carried out. Too much should not be attempted at the start; ambition and knowledge should move with equal step. When he strikes on a discovery that is likely to be of importance, the archæologist must ask himself: "Can I tackle this alone, or shall I want assistance?"

Excavation should not imply destruction, as it too often does.

The writer once saw a Neolithic kist-burial quite ruined, and the discovery robbed of all its value, by careless spade-work. The most important material contained within the kist was thrown aside in the piles of unregarded débris that rose on either side of the digging; the evidence of an intruded Roman burial was completely overlooked; and the excavators, working as if they were unloading a barge, were ignorant of the fact that the grave contained flint flakes and charcoal. In this sad example the diggers were impelled by one consideration: to get the grave emptied with all possible speed—as though the really important thing was to see the bottom of it. They



PILES OF GRAVEL FROM PITS IN BUCKINGHAMSHIRE, NEAR THE GRAND JUNCTION CANAL. IN THESE, AND IN SIMILAR PITS IMPLEMENTS OF PALÆOLITHIC DATE ARE NUMEROUS, AND MAY BE READILY PICKED UP BY THE ENTHUSIAST

could not well avoid noticing the larger fragments of bone which came away with each spadeful, but they broke up and threw away, without knowing it, a far greater number than they observed. So much for enthusiasm without science.

Another danger of inexperience is the danger of arriving at false conclusions, of failing to recognize the true nature of the discovery, or to see that the evidence is not good enough for a definite ascription. People rush into print with the most extraordinary and confusing announcements, only to suffer the humiliation of being proved wrong by other people who rush into print in order to refute them. Very probably both parties are wrong. Even Royal Commissioners make mistakes—and very glaring ones too.

Where to look.— Some one who has never picked up a flint implement suddenly thinks that he would like to do so. How is he to gratify that wish?

Neolithic implements are the most widely distributed; they lie on the surface and may be found practically everywhere, except on very high ground or on recent alluvium (river-deposit). Ploughed fields are therefore the best hunting-grounds of those who seek for traces of the New Stone Age, especially ploughed fields which are not far from brooks or water-courses, springs or pools, or which are adjacent to megalithic remains or barrows. Exposed surfaces and collections of surface-material should be examined anywhere; and in time a knowledge will be acquired of the best local sites—the searcher will learn where it is, and where it is not, worth his while to make repeated visits.

Palæolithic implements are most readily found, in

England, in the gravels of ancient river-terraces in the south-eastern counties. Hence they are to be picked up either (1) in the gravel-pits or (2) in the gravel after its removal from the pit—as, for example, in piles of flint by the roadside, or on the road itself. The area in which Palæoliths may be found is a limited one.

Caves afford the most ample and precious evidence of Prehistoric Man : the archæologist should always be on the look out for caves whose approaches are concealed by ancient débris. In these, where the possibility of recent disturbance is ruled out, he may find something of immense interest.

Prehistoric burial-places and monuments, villages, barrows and menhirs, have escaped the makers of Ordnance maps, of guide-books, and of commissioners' reports. They may therefore be included among the things that are to be discovered. On finding unrecorded remains of this kind, the observer should make an exact note of their position, and should report his find to the Ordnance Survey and to the Ancient Monuments Board.

Method and Procedure.—The worst that can happen to you if you tramp over the fields of some person with a keen sense of property, without having asked his permission, is that a rude fellow will shout at you and request you to go elsewhere. But, if you are so imprudent as to dig on his land, he can do a great deal more.

Before excavations can be carried out, you must obtain permission from the Lord of the Manor or the owner of the property, and perhaps from a tenant as well. If you wish to attack a monument which is

scheduled by the Ancient Monuments Board, you must, in addition, get leave from the Office of Works.

As a matter of comfort, it is just as well to make yourself and your aims known to the farmers over whose fields you intend to ramble—they will look on you as an inoffensive idiot; but that is better than being abusively expelled.

Experience alone will show you which are the best fields to look over in a given district. Fields are in best condition for flint-hunting after a heavy fall of rain; and a grey, clear day is to be preferred to a bright, sunny one.

In Neolithic times, as in the succeeding Age of Bronze, flint was carried about to all parts of the country: a mere chip, in a place where flint is not of natural occurrence, shows you that you are on the tracks of Prehistoric Man. In areas where flint is thickly scattered over the fields by nature it is less easy for the unpractised eye to detect implements; but in such areas the implements exist in greater numbers, and so matters are equalized. You have to work until you "get your eye in." A trained eye will see chips and implements where the novice will see nothing at all.

A great number of chips and flakes, together with implements, in a small space, is a sign that you have come across a "workshop site"—a place where the ancient craftsman used to hammer away for years on end. The chances are, however, that you will not get many finished tools, though you may pick up flakes by the thousand.

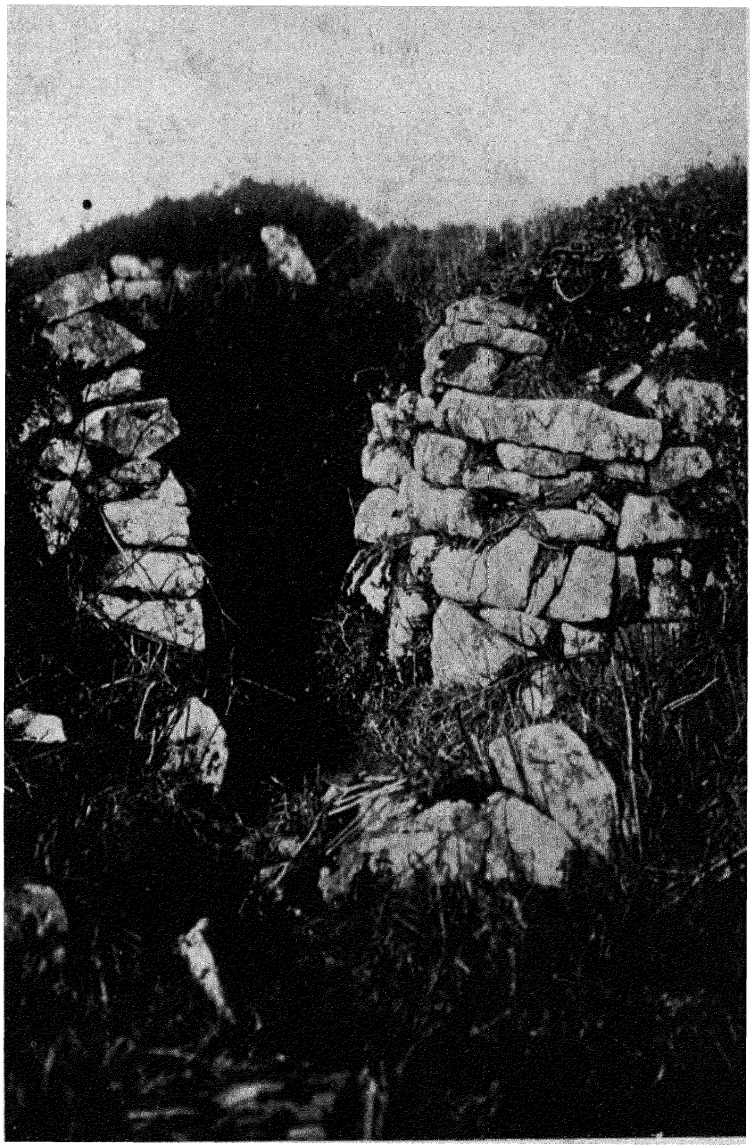
When visiting a gravel-pit, choose a Saturday afternoon or a Sunday, and make friends (if you can) with

the watchman. Devote your attention to the piles of unbroken flints which are piled up prior to crushing, and finally have a look at the sides of the pit and at the material which is lying about on the floor.

Besides flint implements, remember that there are other things that you should be on the look-out for —celts, hammers, objects of the metal ages, of Roman or mediæval times; but most important of all—bones.

Gravel-pits, quarries, sand-pits and caves are the places in which you may expect to find the bones of ancient man and of the animals that lived with him. If such a discovery is made, bear in mind that it is of the first importance to see whether the remains are in an undisturbed geological layer, and to ascertain the age of that layer. The amateur should not attempt to remove ancient fossilized remains, unless he believes that they will be lost or wantonly destroyed if he leaves them, but should obtain the advice and assistance of an expert at once.

If the excavation of a burial-chamber is undertaken, the points to be observed are, (*a*) the preservation of the structure as far as possible, (*b*) the careful observation of the nature and contents of each layer as it is removed, (*c*) the noting of the position of all the funerary objects in relation to each other and to the plan of the grave, (*d*) the making of plans and photographs of the main features of the tomb and its contents. Remember that the actual removal of the material may be of quite secondary importance, and that you are not looting or body-snatching. Bones and delicate objects —pottery and such like—should be removed in boxes well padded with cotton wool; but nothing should



ENTRANCE TO A HUT IN ONE OF THE SO-CALLED "BRITISH VILLAGES" IN CORNWALL. REMAINS OF THIS KIND HAVE OFTEN ESCAPED IDENTIFICATION, AND THE ARCHÆOLOGIST SHOULD BE ON THE LOOK OUT FOR THEM

be taken out until a clear idea has been obtained of the *ensemble* of the burial. Excavation should not be attempted by the beginner.

Equipment.—Good, heavy boots are obviously essential. A belt with swivels (for big knives, etc.) is much to be commended. Clothes should be old; dirty they will become as a matter of course.

A quarter-plate camera is useful: smaller sizes are not much good. A fifty-foot steel measure, marked off in feet and inches, is very necessary; so is a prismatic compass, and so is a protractor. Maps should be folded or cut up, and carried in a large map-case with a transparent celluloid cover. (The maps of the Ordnance Survey are incomparably the best, and are the only ones which can be recommended for serious work.) Paper (for drawing plans on) may be conveniently secured by being placed in flat sheets in a stout portfolio, and held in position by elastic bands.

Co-operation and Obstruction.—The farmer and his men, once they have become convinced that you are harmless, and will not damage their crops or leave their gates open, may prove your most valuable allies. They will keep a look-out for flint, and will give you all sorts of local information which is likely to be of assistance. From them you will learn when such-and-such a field is to be ploughed or harrowed; and if you can awaken their interest in the objects of your search you will receive reports, from time to time, as to the condition of the most favourable sites. The surface of the soil is closely and continuously observed by those who work on it, and it is to the advantage of

every archæologist to keep in touch with the land-workers of his district.

Unfriendliness and obstruction are rarely met with. There is, of course, a blustering type of landowner, having neither manners nor learning, who takes up an instinctively tyrannous attitude towards anyone who asks him a favour, especially a favour of a sort that appears to him incomprehensible. But this person is fortunately scarce. Others again, a trifle more civilized, require to be approached with strict formality and with a grateful deference. Humour them—it costs nothing. The only really hopeless person is the gamekeeper, who believes that the attention of mankind should be concentrated on the preservation, nutrition, and properly conducted destruction of pheasants.

Keep clear of what are termed "Field Clubs," "Natural History Societies" and kindred leagues. They raid the country in *chars-à-bancs*, and do an incalculable amount of harm. Three or four of the members fall fiercely on what, after they have finished with them, may well be called prehistoric "remains," and then invite the club *en masse* to the scene of devastation. (It is to be understood, of course, that we draw a distinction, and a very sharp one, between learned societies of repute and these groups of provincial marauders.)

Collections: their Delights and Disadvantages.—There is no merit in amassing a great number of objects with the sole idea of making that number as large as possible.

The method of a scientific collector is to get together good specimens, typical of particular industries or particular sites. As he adds better examples, so he

discards those that are less perfect or less instructive—usually he gives them to museums. Nothing is gained by preserving every fragment of worked flint that one picks up, unless a special study is being made of a site which exhibits local peculiarities.

At the same time, he is no true archæologist who does not appreciate the beauty and the human value of his flint implements. The man who merely regards some choice specimen as "amygdaloid, late Acheul, slightly rolled," and does not take note of the admirable care, the knowledge of material, and the fine regard for symmetry which the specimen displays—that man may be a good collector, a "mere collector," but he is nothing more.

It is precisely because they are associated with the lives of primordial men, because they show the beginnings of skill and artistry, that flint implements have such a powerful attraction for those who are conscious of their meaning.

A good Palæolithic specimen is a joy to the eye, the touch and the imagination. Its lustrous, richly coloured surface, the passage of light over its smooth facets, its compactness and well-designed form, make it a thing of real beauty and of wonderful suggestion. It is one of the chief delights of the collector-archæologist to handle and examine such specimens.

Too often the collector is a selfish creature. The passion for mere collecting overcomes the passion for science. He fills his pockets, his boxes, his shelves, his rooms, whole houses. He snatches and trespasses, having no regard either for his brother collectors or for the gain of knowledge. Neither the public nor his

colleagues are any the wiser for his activities; at his death, perhaps, the whole collection is pushed away in the basement of some already overcrowded museum.

The making of a collection is a delightful pastime; but it should not become the first, still less the exclusive, aim of the archæologist. A collection is something like a reference-library: it serves to keep one reminded of the finer details of prehistoric handiwork. But as the true archæologist will not devote himself entirely to the acquisition and reading of books, so he will not devote himself entirely to the accumulation and examination of flints. Books and materials are both necessary, but to each must be assigned their proper place and value.

. . . . . .

The aim of Prehistoric Archæology, as of every true science, is to add to knowledge. By studying the materials which our ancient forerunners have left behind them we are helping to build up a deeper and truer knowledge of the nature of man and of the evolution of society. If there are many doubts and difficulties in our path, we can only hope to overcome them in the light of fresh discoveries, which will enable us to advance to firmer ground. It is within the power of the most humble searcher to make those discoveries, if not to unravel their meaning; and the writer hopes that his book may not be entirely without value to those who, whether they intend to make a more serious study of this great subject or whether they only wish to regard it as the most delightful of scientific pastimes, feel the desire to form a closer acquaintance with the life and handiwork of Prehistoric Man.

SHORT LIST OF ARCHÆOLOGICAL TERMS IN COMMON USE

Abri-Audi point—a flint implement belonging to the transitional period between Le Moustier and Aurignac.
Abris sous roche—*see* Rock shelter.
Amygdaloid—almond-shaped; applied especially to Acheulian flints.
Arête—the ridge between the flaked surfaces of a flint.
Barrow—a sepulchral mound.
Battered back—a flint blade, usually of triangular section, with one edge battered.
Beaker—a pottery vessel or goblet, associated with early Bronze Age burials in Great Britain.
Bec de perroquet—a flint graver with a curved point.
Bipenne—double axe.
Biseau, en—chisel-ended.
Borer—a flint implement designed for piercing.
Bracer—wrist-guard of an archer, usually of stone or bone, drilled at each end for attachment.
Breccia—concretionary deposit in caves.
Burin—same as Graver, *q.v.*
Cabane, fonds de—remains of a prehistoric hearth or habitation built in the open.
Cairn—pile of stones covering a burial or burials.
Caréné, carinate—ridged, keeled.
Casse-tête—a club or mace.
Celt—an axe-head of stone, copper or bronze; rarely of iron.
Cist—*see* Kist.
Coffre en pierre, or *de pierre*—a kist, *q.v.*
Cone—steeply-flaked implement with broad, flat base.
Cordate—heart-shaped.
Core—residue of a block of flint from which flakes have been struck.
Coup-de-poing—a hand-axe of stone (usually flint) with a thick and heavy butt, characteristic of the Chelles period.
Dolmen—a stone burial-chamber formed of standing slabs with a massive covering-stone.
Dos rabattu, à—same as Battered back, *q.v.*
Éclat—a flake, chip or splinter of flint.

Encoche—an indentation or notch in a flint blade or flake.
End-scraper—a scraping-edge worked on the end of a blade or a truncated flake.
Éraillure—a scar or chip sometimes found on the bulb of percussion.
Fabricator—a flint implement used for flaking by pressure.
Faceted butt—a flaked striking platform, *q.v.*
Factory—indicated by the concentration of a great number of flint flakes and implements in one place : a workshop.
Ficron—a type of *coup-de-poing* with heavy butt and long tapering point (French workmen's slang).
Floor—an archæological level or horizon on which are found undisturbed traces of ancient man, below the present surface.
Grattoir—scraper.
Graver—a small flint tool with keen point, especially of Upper Palæolithic date.
Hand-axe—see *Coup-de-poing*.
Harpoon—a long pointed hunting-weapon of bone, with one or two sets of barbs.
Hearth—remains of a prehistoric fireplace with kitchen débris, etc.
Hollow-scraper—flint implement with concave working-edge.
Kist, kistvaen—a rectangular burial-chamber of stone.
Kitchen-midden—an accumulation of domestic refuse, shells, discarded flints, bones, etc.
Levallois flake—flake-implement with well-marked bulb and one unworked face, dating from late Acheul period, but most frequent in Mousterian times.
Limande—" dab-fish,"—flat, ovate palæolith of Drift type.
Lissoir—slender, spatulate bone implement, probably used for burnishing.
Mace—a flattish, rounded hammer-head, centrally pierced for the haft.
Megalith—a block, slab or column of stone of large dimensions.
Menhir—a standing stone.
Microlith—minute pointed flint implement or " pygmy."
Muller—rounded stone used as a pestle or crusher.
Ovate—oval.
Palafitte—a lake-dwelling.
Passage-grave—a long funerary corridor, made of upright slabs and covered over with capstones.
Patina—chemical discoloration of flint.
Perçoir—a borer, *q.v.*
Percuteur—hammer-stone.
Pick—a term vaguely applied to long, thick, tapered flint implements.

Pit-dwelling—a bowl-like cavity in the earth, supposed to have been roofed over with boughs, etc.
Plan de frappe—striking platform, *q.v.*
Plane—flint tool with humped back and flat base.
Plunging flake—flake which, when struck off, has not come away level with the core.
Poinçon—a punch, usually of pointed bone.
Pointe à cran—slender, pointed flint implement with a "shoulder," characteristic of the late Solutré phase.
Polissoir—grooved stone for finishing needles, arrow-heads, etc.
Pot-boiler—piece of flint whitened and crackled by fire, supposed to have been used for keeping water heated.
Propulseur—spear-thrower.
Pygmy flint—*see* Microlith.
Quern—basin-like receptacle of stone for crushing grain.
Racloir—flint scraper with worked edge or side.
Ripple flaking—rhythmic, parallel, delicate flaking, seen only on the most highly finished flint implements.
Rock shelter—overhanging rock beneath which Prehistoric Man made his home.
Scraper—any flint implement which cannot be otherwise classified.
Side-scraper—See *Racloir*.
Souterrain—underground stone passage, probably not earlier than the Iron Age.
Striking platform—the plane or butt-end of a struck flake which is immediately beneath the bulb of percussion.
Tarté plane—roughly conical scraper (*grattoir Tarté*) with flat base, of Aurignac date.
Tortoise core—trimmed block of flint from which flake implements have been struck, especially of Mousterian date.
Tranchet—flint axe with transverse cutting edge.
Tumulus—a mound of earth, whether sepulchral or not.
Twisted—applied to the curved edge of Drift implements.

SELECT BIBLIOGRAPHY

Works of special value to the student are marked with an asterisk.

ABERCROMBY, J.—Bronze Age Pottery. 1912.
ANDERSON, J.—Scotland : Bronze and Stone Ages. 1886.
*AVEBURY, Lord.—Prehistoric Times. 1913.
BARKER, W. H., and G. SINCLAIR—West African Folk-Tales. 1917.
BASDEN, G. T.—Among the Ibos of Nigeria. 1921.
BATEMAN, T.—Ten Years' Diggings. 1861.
BAYLEY, H.—Archaic England. 1919.
BICKNELL, C.—A Guide to the Prehistoric Rock Engravings in the Italian Maritime Alps. 1913.
BLEEK, W. H., and L. LLOYD—Specimens of Bushman Folklore. 1911.
BOAS, F.—The Mind of Primitive Man. 1911.
BORLASE, W. C.—The Dolmens of Ireland. 1897.
*BOULE, M.—Les Hommes Fossiles. 1921—23.
—— Les Grottes de Grimaldi. 1906.
BOYLE, M. E.—Man Before History. 1924.
BREUIL, H., OBERMAIER, and ALCALDE DEL RIO—La Pasiega à Puente-Viesgo. 1913.
*BRITISH MUSEUM—Stone Age Guide. 1911—21.
*BRITISH MUSEUM (N.H.)—Guide to Fossil Man. 1922.
BULLEID, A., and H. St. G. GRAY.—Glastonbury Lake Village. 1911—17.
*BURKITT, M. C.—Prehistory. 1921.
BURNE, C. S.—Handbook of Folklore. 1914.
CAPITAN, BREUIL, and PEYRONY—La Caverne de Font-de-Gaume. 1910.
CARTAILHAC, E., and H. BREUIL—La Caverne d'Altamira à Santillane. 1906.
*CLARKE, W. G.—Our Homeland Prehistoric Antiquities. 1922.
CLODD, E.—The Childhood of the World. 1914.
COBB, A. C.—Earth-burial and Cremation. 1892.
COFFEY, G.—The Bronze Age in Ireland. N.d.
CRAWFORD, O. G. S.—Man and his Past. 1921.
—— Air Survey and Archæology (Ordnance Survey). 1924.

CUREAU, A. L.—Savage Man in Central Africa. 1915.
DAWKINS, W. B.—Cave Hunting. 1874.
—— Early Man in Britain. 1880.
*DÉCHELETTE, J.—Manuel d'Archéologie Préhistorique. 1908.
DUBOIS, E.—Pithecanthropus Erectus: eine Menschenaehnliche Uebergangsform aus Java. 1894.
DUCKWORTH, W. L. H.—Prehistoric Man. 1912.
*ELLIOT, G. F. S.—Prehistoric Man. 1915.
*EVANS, J.—Ancient Bronze Implements. 1881.
*—— Ancient Stone Implements. 1872.
*FERGUSSON, J.—Rude Stone Monuments. 1872.
FRAIPONT, G.—Recherches Ethnographiques (Archives de Biologie). 1887.
*FRAZER, J. G.—The Golden Bough, *var. ed.*
—— Totemism and Exogamy. 1910.
*—— Belief in Immortality. 1913—22.
*—— Folk-lore of the Old Testament. 1918.
GEIKIE, J.—The Antiquity of Man in Europe. 1914.
*GREENWELL, W.—British Barrows. 1877.
GREGORY, J. W.—Geology of To-day. 1915.
HARTLEY, C. G.—The Position of Woman in Primitive Society. 1914.
HOBBS, W. H.—Earth Evolution and its Facial Expression. 1921.
HOBLEY, C. W.—Bantu Beliefs and Magic. 1922.
HRDLIČKA, A.—The Most Ancient Skeletal Remains of Man (Smithsonian Institute). 1913.
HUGHES, T. M.—The Gravels of East Anglia. 1916.
JOHNSON, H. H.—Views and Reviews. 1912.
JOHNSON, J. P.—The Prehistoric Period in South Africa. 1910.
JUNG, C. J.—The Psychology of the Unconscious. 1916.
*KEITH, A.—The Antiquity of Man. 1915.
—— Nationality and Race. 1919.
*—— Ancient Types of Man. 1911.
LANKESTER, E. R.—Secrets. 1920.
—— Description of the Test Specimen of the Rostro-carinate Industry (Journal Royal Anthrop. Inst.). 1914.
*LOWIE, R. H.—Primitive Society. 1921.
*LYELL, C.—Elements of Geology, *var. ed.*
—— Geological Evidence of the Antiquity of Man. 1863—73.
*MACALISTER, R. A. S.—Text-book of European Archæology. Palæolithic Period. 1921.
MACCABE, J.—Prehistoric Man. 1910.
MARETT, R. R.—Anthropology. 1912.
—— Psychology and Folk-lore. 1920.
MILLER, G. S.—The Jaw of Piltdown Man. 1915.

MOIR, J. R.—Pre-Palæolithic Man. 1910.
MONTELIUS, O.—La Suède Préhistorique. 1874.
—— Les Temps Préhistoriques. 1895.
MONTESSORI, M.—Pedagogic Anthropology. 1913.
*MORTILLET, G., and A. de—Musée Préhistorique. 1903.
MORTIMER, J. R.—Forty Years' Researches. 1903.
MOSSO, A.—The Dawn of Mediterranean Civilisation. 1910.
MUNRO, R.—Palæolithic Man and Terramare Settlements in Europe. 1912.
—— Ancient Scottish Lake-dwellings. 1882.
NASSAU, R. H.—Where Animals Talk: West African Tales. 1914.
OAKESMITH, J.—Race and Nationality. 1919.
*OBERMAIER, H.—El Hombre Fosil. 1916.
—— Der Mensch der Vorzeit. 1912.
—— and P. WERNERT—Pinturas Rupestres del Barranco de Valltorta. 1919.
*OSBORN, H. F.—Men of the Old Stone Age. 1916—21.
*PARKYN, E. A.—Prehistoric Art. 1915.
PENCK, A.—Die Alpen in Eiszeitalter. 1901—1909.
PERRY, W. J.—Megalithic Monuments and Ancient Mines. 1915.
PETRIE, M. W. F.—Some Sources of Human History. 1919.
PIETTE, E.—L'Art Pendant l'Âge du Renne. 1907.
QUIGGIN, A. H.—Primeval Man: the Stone Age in Western Europe. 1912.
READ, C.—The Origin of Man. 1920.
REID, C.—Submerged Forests. 1913.
*REINACH, S.—Répertoire de l'Art Quaternaire. 1913.
RIO, ALCALDE DEL, BREUIL and SIERRA—Les Cavernes de la Région Cantabrique. 1912.
*RIPLEY, W. Z.—The Races of Europe. 1900.
ROTH, H. L.—The Aborigines of Tasmania. 1890—99.
RUTOT, A.—La Préhistoire. 1919.
SCHOETENSACK, O.—Die Unterkiefer Homo Heidelbergensis. 1908.
SÉCHÉ, A.—Les Noirs.
*SELIGMANN, C. G.—The Veddas. 1911.
SMITH, G. E.—Primitive Man. 1916.
SMITH, W. G.—Man the Primeval Savage. 1894.
*SOLLAS, W. J.—Ancient Hunters. 1911—15.
*SPENCER, B.—Native Tribes of the Northern Territory (Australia). 1914.
—— and F. J. GILLEN—Across Australia. 1912.
SPURRELL, H. G. F.—Modern Man. 1917.
TYLER, J. M.—The New Stone Age. 1921.

TYLOR, E. B.—The Limits of Savage Religion. 1892.
WACE, A. J. B., and M. S. THOMPSON—Prehistoric Thessaly. 1912.
*WATTS, W. W.—Geology for Beginners. 1920.
WINDLE, B. C. A.—Remains of the Prehistoric Age in England. 1907.
—— Life in Early Britain. 1897.
WOOD JONES, F.—Arboreal Man. 1916.
WRIGHT, G. F.—Origin and Antiquity of Man. 1913.
WRIGHT, W. B.—The Quaternary Ice Age. 1914.

INDEX

ACHEULIAN period, 10, 48, 54
—— flints, 52
Ægean, the, 171, 186
Alignments, 141, 147
Alpera, 79, 86
Altamira, 77, 79
Andaman Islanders, 108, 155
Anglia, East, 38, 40
Animals, primitive attitude towards, 97
Antelope, 70
Anthropoids, 33
Arrow-heads, 138, 173, 187
Art, Palæolithic, 73 *et seq.*
Arunta, the, 95
Asia Minor, 179, 181, 184
Ass, 70
Augustine, St., 156
Aurignacian period, 10, 70, 76
—— objects, 71
Australians, 7, 64, 81, 93
Avebury, 147
Avenues, 147
Aveyron, 145
Axes, 138, 169, 187
Azilian period, 10, 72, 128, 131

Badger, 70
Barrows, 134, 141, 148, 188
Bathurst Islanders, 154
Bâtons de commandment, 73
Baumes-Chaudes, 159
—— race of, 136
Beakers, 188
Bear, brown, 57, 70, 130
—— cave, 54, 57, 58, 70, 131
—— grey, 57, 70
Birds of Palæolithic ages, 58, 70
Bison, 57, 70, 131
Boncelles, 37
Borlase, Dr., 140, 142
Boscawen-Un, 148
Boucher de Perthes, 22
Boule, M., 121, 126
Bourgeois, l'Abbé, 37
Breuil, l'Abbé, 38
Bronze Age, 24, 30, 147, 171, 183 *et seq.*
Bulb of percussion, 20
Burial, practice of, 62
—— Bronze Age, 187
—— Cro-Magnon, 82 *et seq.*
—— Mousterian, 63
—— Neolithic, 156 *et seq.*
—— primitive, 84, 85, 91, 153
Bushmen, the, 82, 85

Caddington, 28
Cairns, 141, 148
Campignian period, 133
Cannibalism, 94
Cantalian industry, 37
Carnac, 147
Cat, 70, 162
Cave periods, 13
Celebes, natives of, 95
Celts, 169, 186
Chamblandes, 158
Chamois, 58
Chancelade man, 67
Chapelle-aux-Saints, La, 63, 123
Chellean period, 10, 22, 48
—— flints, 24
—— man, 36, 43, 48, 50, 51, 56
Christy, H., 61
Cinerary urns, 188
Circles, stone, 141, 147
Cogul, 79, 86
Collecting, 200
Combe-Capelle man, 67

Conchoidal fracture, 20
Copper, 187, 190
Cores, 176
Cornwall, 62, 127
Cotswold Hills, 149
Coup-de-poing, 51, 52, 63
Cremation, 93, 156, 159, 188
Crete, 184
Criminal, the primitive, 106
Cro-Magnon man, 67, 68, 124, 130
Cromlechs, 141
Crosses, Cornish, 147

Dahomeyans, the, 154
Dartford, 61, 120
Dawson, C., 116
Dead, cult of the, 89, 152
Deccan, the (India), 144, 145
Déchelette, J., 173
Denmark, 131, 175
Diodorus Siculus, 189
Distribution of flints, 27
Dolmens, 134, 140, 142, 157
Drift period, 13
—— implements, 49, 51
Dubois, Dr., 35
Dyaks, 155, 189

Egypt, 98, 175
Egyptian dynasties, 32
Elephas antiquus, 51, 119
—— *meridionalis*, 36
Elk, 58, 130
Eoanthropus, see Piltdown man
Eocene, 11
Eolithic period, 9
—— man, 36
Equipment, archæological, 199
Eskimo, 7, 74, 90
Etruscan rhinoceros, 119
Evans, Sir Arthur, 184

Fabricators, 176
Fagnian industry, 37
Family life, primitive, 102 *et seq.*
Felis Spelæus, 58
Ffostill, 160
Flint, 17
Food-vessels, 188
Fox, arctic, 57
—— corsac, 70
Foxhall, 41
—— implements from, 41, 42
Freud, S., 75, 88
Furfooz, race of, 136

Galley Hill man, 120, 121
Geikie, Sir J., 37, 126
Gibraltar, 122
Glacial periods, 45 *et seq.*
Gods, idea of, 94
—— in animal form, 97
Gold, 180
Gravels, 28, 49, 196
Gravesend, 61, 120
Gray's Inn, 53
Greece, 184
Greenwell, Canon, 189
Grenelle, race of, 136
Grimaldi skeletons, 124
Grottos, sepulchral, 158, 159
Guernsey, 157

Hammers, 171
Hand-axes, see *Coup-de-poing*
Hare, tailless, 70
Harpoons, 72, 86
Harrison, B., 23, 38
Hautes-Fagnes, 37
Heidelberg man, 35, 116, 119
Herodotus, 154
Hippopotamus, 36, 51
Hissarlik, 185
Holocene, 11
Homo Dawsoni, 117
—— *Heidelbergensis*, 119
—— *Neanderthalensis*, 54, 55
—— *Primigenius*, 55
Horse, 58, 70
Hoxne, 53
Humour, 99
Hyena, 51, 57, 70, 131

Ibex, 70, 155
Ibo, the, 98
Ice Ages, 32, 41, 45
Indians, North American, 175
Indonesians, 94
Ipswich, 40, 41

Iron Age, 147, 191

Java, 35, 120
Jerboa, 70
Jones, Inigo, 142
Jung, C. J., 88

Kaffirs, 103
Kakadu, the, 95, 103
Keith, Sir Arthur, 35, 119, 121, 126, 162
Kists, 134, 141, 148, 157
Knossos, 185, 186

Land's End, 127
Language, primitive, 109
Lanyon, West, 143
Lartet, E., 61
Leopard, 57
Levallois flake, 53, 60
Lion, cave, 57, 70, 130
Lockyer, Sir Norman, 141
Locmariaquer, 144, 146
Long barrows, 149, 160 *et seq.*
Longstones, *see* Menhirs.
Lowie, Dr., 108, 168

Maces, 171
Machairodus, 51
Maffles, 41
Magdalenian period, 10, 68, 70, 72, 76, 79
—— objects, 69, 72
Magic, 95
Mammoth, 54, 57, 58, 70, 131
—— age, 13
Maoris, the, 155
Marne, grottos of the, 157, 179
Marriage, primitive, 103
Marsden, J. G., 62
Marten, 70
Matabeles, king of the, 106
Mauer, 35, 119
Mediterranean, 65, 124, 135, 182, 186
Megalithic period, 134
Melville Islanders, 154
Mên-an-Tol, the, 139, 144
Menhirs, 141, 145
Mentone, 84, 124
Mesvin, 41
Metals, discovery of, 180
Minateda, 79
Minoan civilisation, 184–6
Miocene, 11, 13, 30, 37, 43
Moir, J. R., 38, 40, 41
Morbihan, 145, 146
Mosso, A., 186
Mousterian flints, 59 *et seq.*
—— life, 62 *et seq.*
—— period, 9–11, 13, 56, 66, 152
—— race, 10, 54 *et seq.*
Moustier, Le, 9, 61, 63
Mycenæ, 185, 186
Mycenæan period, 184

Neanderthal man, 54 *et seq.*, 122, 123, 124
Needles, bone, 73
Negro, the, 35
Neolithic period, 9, 10, 11, 127
—— man, 135
—— objects, 168 *et seq.*
—— stone remains, 139 *et seq.*
New Stone Age, *see* Neolithic period
Northfleet, 61
Norway, 131

Oban, 128
Obermaier, H., 128
Oligocene, 11, 24, 37, 44
Orient, the, 179, 181, 182, 184
Otta, 37
Otter, 70
Ouse, river, 53, 61
Ox, 57, 58, 70

Palæolithic period, 9, 10, 13
—— art, 73 *et seq.*
—— man, 120
—— objects, 28, 29, 70, 196
Papuasians, the, 150
Patination, 18
Penzance, 139
Periods, table of, 15
Peyrony, D., 83
Piltdown man, 35, 116
Pithecanthropus, 116, 120

Pleistocene, 11, 35, 45
Pliocene age, 11, 13, 24, 34, 36, 37, 41
Points, 61
Polecat, 70
Porcupine, 70
Pottery, Neolithic, 168, 169
—— Bronze Age, 187
Primates, the, 33
Procedure, archæological, 196
Property, primitive ideas of, 108
Psychology, 88
Pueblo Indians, 108
Puy Courny, 37
Puy de Boudieu, 37
Pygmy flints, 72, 128, 177

Quaternary period, 11, 24, 45, 47, 117

Rabbit, 70
Reindeer, 58, 70, 86, 131
Reindeer Age, 13, 30, 66
Religion, primitive, 93
Reutel, 41
Reutelian flints, 37
Rhinoceros, 36, 51, 57, 58, 70, 131
Robenhausian period, 134
Rostro-carinates, 40, 42
Roth, Dr. Ling, 111
Round barrows, 188
Rutot, A., 37, 121

Salmon, 70
Sautuola, M. de, 77
Scandinavia, 45, 131, 149, 189
Schliemann, 185
Scrapers, 21, 176
Seine, river, 53
Seligmann, Prof., 90, 111
Sollas, Prof., 72, 126
Solutrian period, 10, 70
—— objects, 70, 72
Somme, river, 53
Spear-throwers, 72
Spencer, Sir Baldwin, 154
Stag, 58
Statuettes, Palæolithic, 76, 86
Stoat, 70
Stonehenge, 147, 148
Strépy period, 48
Strepian flints, 48
Stukeley, Dr., 142, 147
Sweden, 131
Switzerland, 137

Talgarth, 160
Talismans, 138
Tasmanians, the, 40, 62, 64, 81, 111, 112
Terminology, 8
Terranova, 160
Tertiary period, 11, 24, 37
—— man, 43
Textiles, 178
Thames, river, 53, 61
Thenay, 37, 38
Thurnam, 136
Tiryns, 185
Torres Straits Islanders, 155
Trepanning, 138
Trogontherium, 36
Troy, 185

Veddas, the, 62, 64, 81, 93, 113, 114

Wanyamwezi, the, 92
Warfare, 110
Warren, Hazzeldine, 37
Wolf, 70
Women, primitive status of, 107

Zammit, Prof., 134

THE ROMANCE OF EXCAVATION

A Record of the Amazing Discoveries in Egypt, Assyria, Troy, Crete and elsewhere.

By DAVID MASTERS

Author of "The Wonders of Salvage."

With Twenty-nine Illustrations in half-tone. Second Edition. Crown 8vo. 6*s*. 6*d*. net.

Daily Telegraph.—"A most useful and popularly written introduction to one of the great subjects before the world to-day. It is a stupendous and inspiring story."

Sunday Times.—"A most fascinating book. Mr. Masters tells the story of these pioneer excavators in a remarkably vivid way. The numerous photographs add considerably to the value of his book. Mr. Masters has done his work very well indeed."

Daily News.—"A book that will equally delight the grown-ups and the small fry."

New Statesman.—"An imaginative boy, into whose hands this book chanced to fall, would in all probability start digging up the garden within a week. Mr. Masters adds to the learning of a scholar the enthusiasm of a schoolboy. The book may confidently be recommended to readers of all ages."

Evening Standard.—"There is adventure and romance sufficient to satisfy the most eager spirit in the pursuit of the science of excavation."

Graphic.—"It enables the reader to capture the thrill of the romance of digging up the world's history. . . ."

Review of Reviews.—"Tales of treasure trove and adventure are always attractive, and Mr. Masters has made good use of the innumerable romantic adventures of archæologists."

Cassell's Weekly.—"A most entrancing book. . . . We turn over the pages with eagerness, and everywhere we find something that attracts us."

JOHN LANE THE BODLEY HEAD LTD., VIGO ST., W 1

THE SAXON SHORE

By JESSIE MOTHERSOLE

Author of "Hadrian's Wall."

Illustrated in colour and black-and-white by the Author, with Maps and Plans. Crown 8vo. 8*s*. 6*d*. net.

An attractive book on the Roman forts of the "Litus Saxonirum," of especial appeal just now when public interest in the Roman relics of England is steadily increasing. This is an ideal book for those who want to "see something" on a motoring, cycling, or walking holiday; it is full of well-presented and accurate information, with plenty of anecdotes and a dash of local gossip.

Morning Post.—"In this pleasant book on Roman remains in South-Eastern England, Miss Mothersole suggests a holiday for those who enjoy a little study with their leisure."

Saturday Review.—"It is a charming book, based on the best authorities."

Daily Chronicle.—"This is even more fascinating than 'Hadrian's Wall.'"

John o' London.—"Miss Mothersole is an enthralling guide."

Outlook.—"Vivid and lively accounts—Miss Mothersole writes with such knowledge and charm."

Bookman.—"The book should take its place as a first-rate holiday companion."

JOHN LANE THE BODLEY HEAD LTD., VIGO ST., W.1