# THE RELATION OF THE PREHISTORIC TO THE PLEISTOCENE AND HISTORIC PERIODS.[1]

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## 1. INTRODUCTORY.

In taking the chair occupied so long by my old friend Sir Henry Howorth, I feel honoured to have been chosen by the Institute as his successor, while I realise that it will be impossible for me to fill his place, because his wide knowledge and remarkable versatility have not fallen to my lot. I can only do my best for the interests of the Institute so far as time and opportunity will permit.

In 1897 in my address to the Antiquarian Section of the Institute at Dorchester, 'on the present phase of prehistoric archaeology,' I dealt with the results of the various discoveries, relating mainly to the antiquity of man, down to the closing years of the last century. I propose to-day to carry on the enquiry, which by a strange chance I had promised the late President to bring before the Institute during the current session.

We are indebted to the geologists for the scale by which the past is measured beyond the historical record, and it is therefore necessary, as a preliminary, to define the stages into which the Tertiary period is divided.

## 2. THE TERTIARY PERIOD.

The classification of the Tertiary period by the stages of evolution of the higher mammalia (*eutheria*), which I proposed more than fifty years ago, has been generally accepted, and the terms Eocene, Meiocene, Oligocene, Pleiocene and Pleistocene, are found to be applicable over

[1] Presidential address read before the Institute, 6th March, 1924.

the whole world. It may be noted that the last is sometimes termed, and more especially in France, the Quaternary period, under the mistaken idea that the Tertiary ends with the Pleiocene, and the two last divisions of the Tertiary (prehistoric and historic) are grouped together under the name of Holocene, or recent. The pleistocene, the prehistoric and historic now only concern us, as covering the field of archaeological research. Our

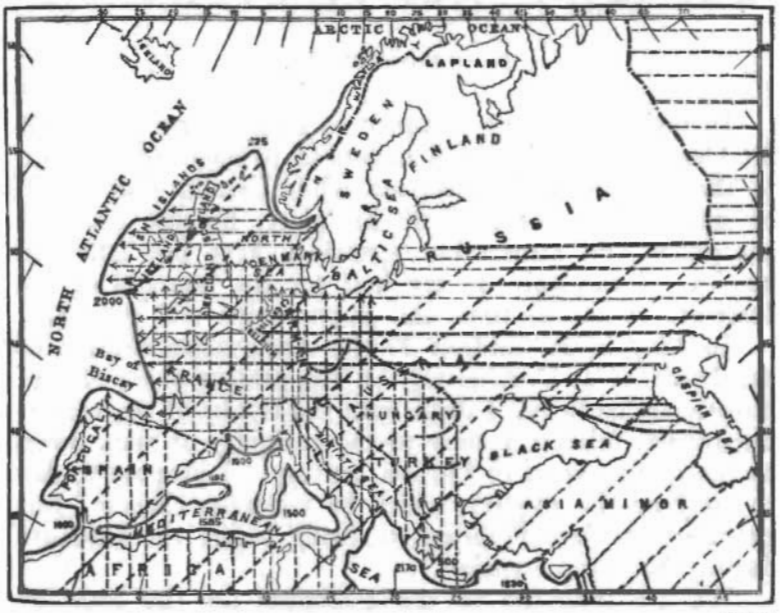


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FIG. I. MAP OF PLEISTOCENE CONTINENT SHOWING RANGE OF MAMMALIA.

Vertical lines = African species.
Horizontal lines = Arctic and mountain species.
Oblique lines = temperate, Asiatic species.

present environment is the outcome of the past. We who are ourselves living in the current phase of the Tertiary period may look forward to the development of a higher and nobler type of man in the due course of evolution.

### 3. THE GREAT PLEISTOCENE CONTINENT.

When man (*Homo sapiens*) first appeared, the geography of Europe was wholly different from that of to-day (fig. 1).

The bottom of the pleiocene sea, extending from the Caspian and Aral Seas northwards to the Gulf of Obi, became dry land that offered to the Asiatic animals an easy route of migration westwards into Europe, those inhabiting the temperate zone coming in first, and those adapted to cold climates (arctic) following afterwards. The first penetrated to the Mediterranean as far south as Greece, Italy and Spain, and are the ancestors of the existing wild European species. They also ranged Palestine and into northern Africa as far south as the Sahara. The second only ranged as far south as the Alps and westwards to the Pyrenees. There were no barriers of sea to prevent their migration into Britain and Ireland, the whole British area being elevated to at least 600 feet above its present level, and the coast-line of the Atlantic being represented by the steep declivity close to the 100-fathom line in the Admiralty charts, passing from the Bay of Biscay due north and then east to Scandinavia, as shown on fig. 1. A still greater change took place in the Mediterranean region by which the temperate Asiatic species found their way into North Africa, and North African species, such as the hippopotamus and spotted hyæna, now living only in warm climates, passed freely into Spain and Italy and ranged over France and Germany and into the British Isles. This implies an elevation of not less than 2,400 feet forming two routes of migration, one across the Straits of Gibraltar and the other extending from Cape Bon, so as to include Malta and Sicily, and thence to Italy. Sardinia and Corsica were hill ranges dominating a tract of land that connected them with the Alps on the Riviera. A broad valley occupied the area of the Adriatic Sea, and the islands of the Greek Archipelago were hills, more or less volcanic, rising out of a plain connecting Europe with Asia Minor. The southern boundary of this great continent was the Sahara, then covered by a prolongation of the Atlantic, as is proved by the shingle and sand and Atlantic species of shells found up to a height of 1,800 feet on the southern flanks of the Atlas mountains. How much further it extended towards the eastern basin of the Mediterranean is a question that can only be answered by further enquiry. It was under geographical conditions such as these that the ancestors of the wild animals of Europe found their way

into the places where they now live, and that the extinct mammalia that characterised the pleistocene age in Europe made their appearance, the mammoth and the woolly rhinoceros, and probably also the cave bear, coming in with the Asiatic species.

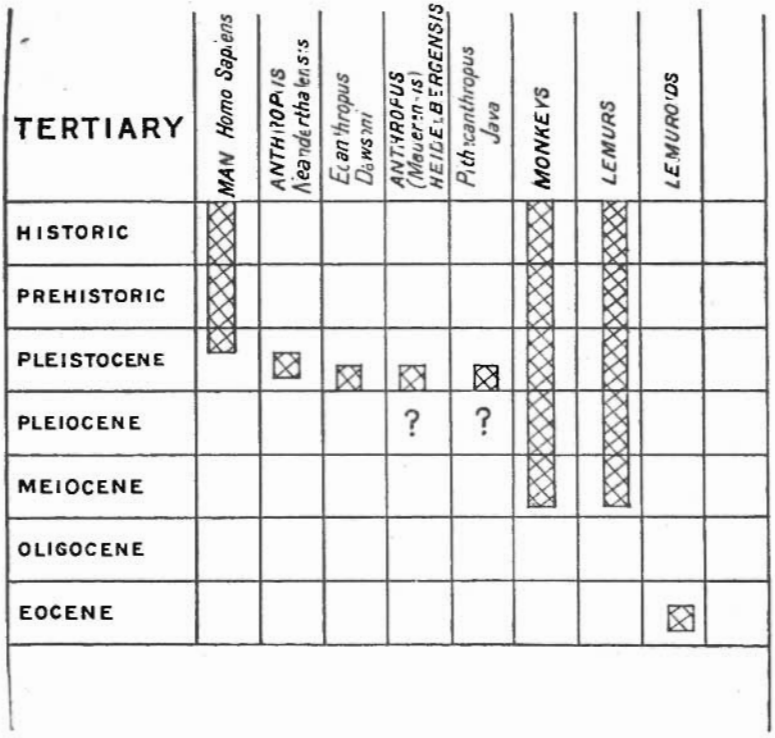


FIG. 2. THE RANGE OF THE PRIMATES IN TIME.

The climate of this great continent, extending from the warmer districts of Africa and of Asia into the arctic regions, presented strong contrasts of temperature, with a severe winter and a very warm summer. The mountains of Europe, the Pyrenees, the Alps, the Carpathians and, in the British Isles, the hills of Wales, of the Lake country and of Scotland, were covered with glaciers. During the pleistocene period a great ice sheet extended over northern

Europe and it gradually crept southwards until it reached its limit at a line passing eastwards from the Bristol Channel through London into Germany and Russia. The ice-sheet however presented many fluctuations, slowly advancing at the beginning of the pleistocene age, slowly retreating at its close, until it is now only represented in Europe by the glaciers of Scandinavia and of the Alps.

## 4. MAN'S PLACE IN NATURE.

Before we can deal with the appearance of man on this great continent we must consider his place in nature, now so clearly defined by Elliot Smith, Smith Woodward Boule, and others. His relation to the higher mammalia is as follows:

*Order Primates.*

Family 1. *Hominidae:* existing races of mankind.
Sub-family. *Anthropidae:* extinct races of mankind.
Family 2. *Simiadae:* the Monkeys.
Family 3. *Lemuridae:* the Lemurs.
Family 4. *Lemuroidea: Tarsiidae*, etc.

The anthropidae are clearly mapped off from man (*Homo sapiens*), not only by their skulls and bones, but, as Elliot Smith points out, by the absence of those portions of the brain which characterise all living men. They are links between man and the apes, being related to the former more closely than to the latter.

## 5. THE INCOMING OF THE ANTHROPIDAE (MISSING LINKS).

It was under the above geographical and climatic conditions that the human family first appeared in Europe, using rude implements of stone and living by the chase. These implements are assigned by the French archaeologists to three distinct ages according to the localities in which the different forms predominate, Chellean, found at Chelles, Acheulean at Saint Acheul, and

Mousterian in the cave of Moustier. I am, however, unable to give them anything but a local significance. In Britain the three are associated together in the river deposits and the caves and were used by the same hunters at the same approximate time. I therefore continue to group them under the name of River Drift implements.

The River-drift tribes are the first to appear. They belong to extinct species of mankind, incapable of standing upright and in the shape of the head, in the absence of a chin and in the structure of the brain, they differ from living man and are closely allied to the higher apes, Anthropus Neanderthalensis, Anthropus Heidelbergensis and Eo-anthropus Dawsoni. They are mapped off from the apes by their use of rough stone implements. In my opinion they came into Europe along with the southern group of animals such as the hyæna and hippopotamus, from the warmer regions of Africa, where implements of the same lower palaeolithic type occur in the superficial deposits, or from southern Asia where similar implements occur in the river gravels of India along with the pleistocene mammalia. They ranged over the whole of southern and middle Europe and as far north as the glaciers would allow in the British Isles and on the continent.

From fig. 2 it will be seen that they appear in the geological record, where they might naturally be expected according to the doctrine of evolution, after the apes in the meiocene age, and before living species of man in the pleistocene. The lemurs, the lowest of the *primates*, are also meiocene, and are represented by closely allied forms (lemuroids) in the eocene age. Thus all the families of the order *primates* appear in due succession, ending with man (*Homo sapiens*).

The anthropid (Pithecanthropus) in Java differs from those in Europe in the fact that it stands half-way between man and the ape, so that it is considered with equal justice the most ape-like of men or the most human of the apes. It is an intermediate form, living in the warm climate of southern Asia, from which the anthropids migrated into the colder regions of Europe.[1]

[1] Since this was written the discovery of another intermediate form (Australopithecus Africanus) in South Africa affords similar evidence that the warmer regions of Africa were also the original homes of the anthropoid sub-family.

The association of the anthropids with the river-drift implements in Europe is so well proved in the caves of Belgium by Fraipont and of France by Boule, in the river-gravel of Piltdown near Lewes by Dawson and Smith Woodward and in the sands of Mauer near Heidelberg by Schoetensack, that it is highly probable that all the rough implements of those types were made by one or other of the anthropids and not by *Homo sapiens*. Their implements occur in the lower strata of the caves and underlie the accumulation of refuse left by the late palaeolithic hunters, who were the first representatives of *Homo sapiens* in Europe. The difference between the lower and the upper strata in the caves is generally very marked and often separated by a layer of stalagmite, sometimes, as in Kent's Hole, of very great thickness, implying a considerable interval of time between the occupation of the caves by the anthropids and by *Homo sapiens*. There is no evidence to be found in the river deposits or in the caves that they were contemporaries.

### 5. THE RANGE IN TIME OF THE ANTHROPIDAE.

The extinct species of mankind linking man to the apes, as shown in fig. 2, are of pleistocene age and older than the appearance of man (*Homo sapiens*) on the pleistocene continent. They may be looked for in the earlier tertiary stages, in the pleiocene or meiocene ages in forms approximating more and more to the ancestors of the higher apes, and to them may be referred the chipped flints, eoliths and other palaeolithic forms of artefacts[1] met with in the earlier tertiary deposits, rather than to man (*Homo sapiens*), whose existence in the meiocene, oligocene and eocene periods is forbidden by the law of evolution.

### 6. THE INCOMING OF MAN (HOMO SAPIENS): THE ARTIST OF THE CAVES.

When we consider the results of the discoveries in the caves of France and in other parts of Europe, we find a

[1] It must, however, be noted that chipped flints identical in form with artefacts have been made by the movement of the strata in which they rest. On this point the observations of Cartailhac and Boule in France and of Hazzledine Warren and others in England leave no room for doubt.

strong contrast between the remains left by the cave artists, and the rude implements of the anthopid or river-drift tribes. The former not only used stone for their implements and weapons, but also bone and antler, and their whole equipment for hunting was higher and better. They were true artists who represented the animals that they saw, in modelling, in sculpture, in engraving and in colour, on their articles of daily use, and they have also left behind surprising frescoes in the caves in France and Spain. They had a sureness of touch and a sense of the beauty of form and of movement that have rarely been equalled by the artists of to-day. This is the more wonderful as they had no better tools than the points and edges of splintered flint, and their frescoes, mostly found in the dark recesses of the caves, far out of the reach of daylight, were painted from memory by the imperfect light of lamps of stone filled with fat. France was their headquarters in Europe for untold ages, but we find no trace of the gradual development of their art in that region. It is of equal merit in the earliest (Aurignacian) and in the latest (Magdalenian) of the periods into which it is divided by the French archaeologists. We may therefore infer that the cave-artists learned their art elsewhere and invaded, and ultimately took possession of, the hunting-grounds of the anthropids, introducing a higher and hitherto unknown hunting culture. The artistic tribes of the caves were not only immeasurably superior to their predecessors in their art and equipment generally for making good their place in nature, but they also present a sharp contrast in the loss of their simian characters and in having acquired a physique which is distinctly that of modern man. Those living in central France are proved by the skeletons buried in the cave of Cromagnon to belong to a tall well-built upright-standing race, with long heads, and faces without the prognathism or 'snoutiness' (as Huxley terms it) of their predecessors, and with a large frontal development of brain, implying a far higher mentality. According to Osborn they are to be grouped with the higher races of mankind, and according to Boule they do not differ in any important details from some of the inhabitants now living in the neighbourhood. The same type of modern man, though of smaller stature,

has been found in the caves of Mentone and in other caves of France, and a closely allied type, identified by Testut with the Eskimos, is represented by the human skull found in the rock-shelter of Chancillade in the south of France.[1] While this was the dominant type of man the two negroid skeletons in the late palaeolithic strata of the Grotte des Enfants at Mentone implies the presence of another race with negroid characters in the Mediterranean region. The discovery stands alone. It is possible that the skeletons are those of slaves who had no share in the late palaeolithic culture. Nevertheless they establish the fact that at this remote period man was differentiated into two groups, the one represented by the present dark-white dwellers in Europe and possibly in the arctic regions of the north, and the other by the dark negroids of Africa. It is probable that the artistic tribes entered Europe from Asia and took possession of the hunting grounds of the anthropids, and came into touch with the negroids of Africa, leaving behind their characteristic implements and weapons, in the caves of Belgium, Germany and Austria, to mark the line of their migration and possibly also the line of their return (if they did return), to Asia along with the wild animals that they hunted in Europe, at the close of the pleistocene age.

## 7. THE SINKING OF THE PLEISTOCENE CONTINENT.

We must now deal with the great geographical change at the close of the pleistocene age to which we owe the main outlines of Europe at the present time. In the Mediterranean the land barriers (fig. 1) connecting Africa with Europe gradually sank beneath the sea, and the coast-lines became approximately what they are now, the higher lands being represented by the islands. And this depression is proved to have been carried on through the prehistoric into the historic period on the shores of Africa by the submerged harbours of the Egyptians, Minoans and Phoenicians, as well as by the continuation of the present wadies or ravines below the existing sea level along the whole coast of northern Africa.

[1] L. Testut, *Bull. Soc. Anthrop. de Lyon*, vi, 1889.

On the Atlantic borders a similar depression took place to an extent of at least 600 feet, and as the land sank the sea covered the bottom of the valleys and gradually cut off Britain from the Continent. In consequence of these geographical changes the climate became almost what it is now in Europe, and insular instead of continental in Britain, without the extreme summer heat and winter cold of the great pleistocene continent extending from Africa into the arctic.

The migration also of animals from Africa to Europe and from the continent into Britain was cut off by the sea. It must be noted further that the characteristic pleistocene beasts, the mammoth and the woolly rhinoceros, became extinct. During these changes we lose all touch with the cave-man and his art, and also with many of the animals familiar to him, such as the cave-hyæna now living in Africa, the fox of the arctic regions and the saiga antelope of the steppes of Asia.

## 8. THE PREHISTORIC GEOGRAPHY OF BRITAIN.

The geography of Europe at the beginning of the prehistoric age was almost what it is now, but the sinking of the land was continued in the British area into the neolithic and bronze ages. This is proved by the submerged forests containing flint implements, and remains of red and roe deer, and *Bos longifrons*, a small breed of shorthorn introduced into Europe from the east by the neolithic tribes. These forests grew on the land that extended from the present coast-line to about the ten-fathom line, occupying the shallows, and linking the Isle of Wight with Hampshire, Anglesea with North Wales, and probably the Isle of Man with Lancashire and the Lake District.

## 9. THE MAGNITUDE OF THE INTERVAL BETWEEN THE PLEISTOCENE AND PREHISTORIC PERIODS.

This profound change in geography is merely the last of a long series which mark the intervals between one geological period and another and imply an interval of

enormous duration. It definitely maps off the pleistocene, when Britain was continental, from the prehistoric age, when it was a group of islands, but while this is fully recognised by the geologists, it is not generally taken

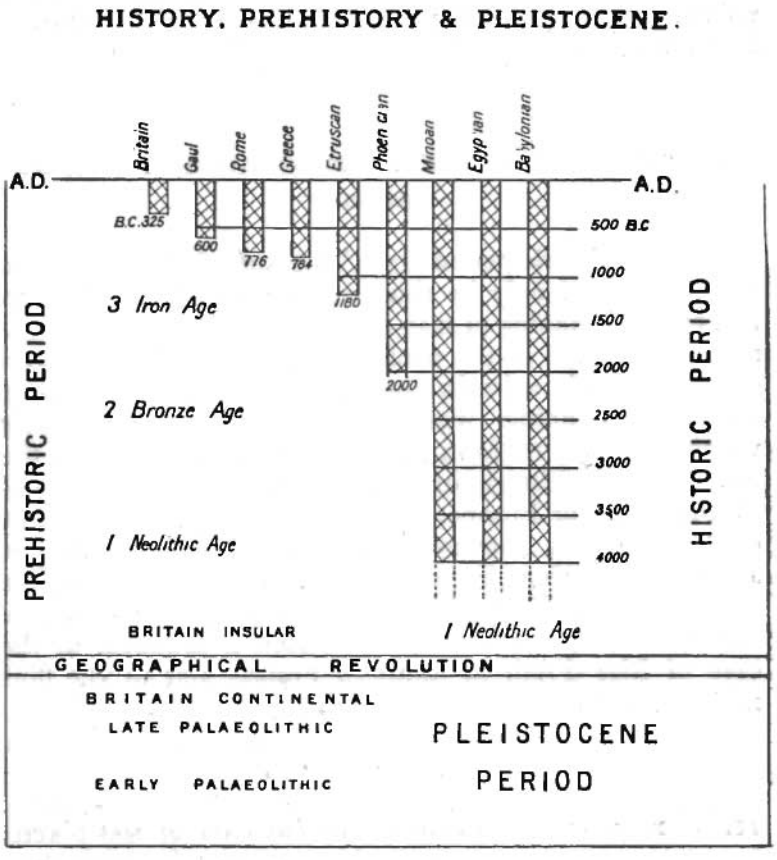


FIG. 3. RELATION OF PREHISTORIC TO HISTORIC AND PLEISTOCENE PERIODS.

into account in archaeology, and especially in the effort to fix the date in years of the antiquity of man. It is obvious that all chronologies that ignore this great gulf of time are worthless, and that man is of immeasurable antiquity because he lived on the great continent before the submergence.

There is ample time in this interval for the cave-man to have lost his art, and to have been absorbed into later invading tribes, adopting their culture, or to have been driven from his hunting grounds without mingling with the invaders at the beginning of the prehistoric age. There is in my opinion no satisfactory evidence on these points, and the problem must be left for solution to future discoveries.

## 10. THE RELATION OF THE PREHISTORIC TO THE PLEISTOCENE PERIOD.

The prehistoric period (fig. 3) is clearly defined from the pleistocene, not only by this great geographical revolution but by the incoming of man in the pastoral and agricultural stages of culture in the neolithic age, by the introduction of the domestic animals, and of the arts, pottery-making, carpentry, spinning, weaving, boat-building and others which combine to form the basis of the culture of the bronze and prehistoric iron ages, during which the civilisation not only of Europe, but of the whole world has been evolved. It is, however, maintained by competent archaeologists that there is a gradual passage from the pleistocene to the prehistoric culture. Let us examine the evidence on which this conclusion is founded, in the cave of Mas d'Azil in southern France, and in the flint mines of Britain and of the continent.

## 11. NO EVIDENCE OF TRANSITION IN THE CAVE OF MAS D'AZIL.

The cave of Mas d'Azil, explored by Piette in the last quarter of the nineteenth century presents the section printed on the opposite page.[1] According to M. Piette these strata are divided into three distinct groups.

(*a*) The lower or Magdalenian (nos. 1–5) with the round harpoons and other implements of the cave-artist tribes

[1] Déchelette, *Manual d'Archeologie*, i, pp. 314-320.

SECTION OF MAS D'AZIL CAVE (After Dechelette).

| AGE. (*W. B. Dawkins*) | SUCCESSION. (*Piette*) | THICKNESS (metres). |
|---|---|---|
| Iron | 9. Gallo-Roman layer, with iron nails and Gallic pottery | 0·20 to 0·40 |
| Bronze Neolithic | 8. Layer with neolithic chisels and pottery: hoard of a bronze-smith. | 0·30 to 1·20 |
| Neolithic. | 7. Layer with polished flint chisels and scrapers, worked flints, bone awls and burnishers, flat harpoons (rare), hearths with layers of snail-shells (*H. nemoralis*) and bones of horse, ox, red deer and wild boar. [Azilian]. | 0·10 to 0 60 |
| Neolithic. | 6. Red cave-earth (Azilian): flat harpoons abundant, coloured pebbles, flint flakes and scrapers, bone awls and burnishers, hearths with bones of red deer, roe, hog, beaver, brown bear, wild cat, and badger (no reindeer), barley, stones of plum, cherry and sloe, nuts, acorns, and fragments of human skeletons. | 0·15 to 0·50 |
| Period of submergence of pleistocene continent. | 5. Yellow loam from floods of r. Arise: no implements. | 1·24 |
| Late palaeolithic. | 4. Dark cave-earth with engraved bones and antlers, and round harpoons of reindeer antler: reindeer rare: red deer abundant: Magdalenian flint implements. | 0·30 |
| Late palaeolithic. | 3. Yellow loam from floods of r. Arise: no implements. | 1·50 |
| Late palaeolithic. | 2. Dark cave-earth with hearths and engraved bones and antlers of red deer and reindeer, arrow-points of reindeer antler, javelin-heads: Magdalenian flint implements. | 0·83 |
| Late palaeolithic. | 1. Gravelly cave-earth with hearths. | 1·46 |

and the reindeer, red deer, and other wild animals on which they lived.

(*b*) The Azilian (no. 6), characterised by the flat harpoons made of antlers of red deer, painted pebbles, debased Magdalenian implements, and by the remains of wild animals still living in France (no extant mammals).

(*c*) The upper (nos. 7–9) ranging from the neolithic age down to the Roman conquest of Gaul.

Piette misread the section when he grouped the Azilian stratum with the Magdalenian as the last stage (Azilian) in the late palaeolithic industry, and unfortunately his classification, although it has been shown by Boule to be untenable, is now generally adopted by archaeologists. The true place of the thin Azilian strata (nos. 6 and 7 in the foregoing section) nowhere thicker than half a metre, is clearly proved by their contents to belong to the prehistoric series. The flat harpoons occur in the lake-villages of Switzerland and in various other deposits in association with neolithic pottery and domestic animals. The coloured pebbles, plum-stones and grains of barley,[1] occur in the Swiss lake-dwellings. The flint implements, taken to be debased Magdalenian, are also met with in neolithic deposits elsewhere. In a word the whole evidence points to the conclusion that the Azilian strata, instead of being late palaeolithic, are the lowest of a series graduating upwards into the strata which are undoubtedly neolithic. It is clearly defined from the Magdalenian strata below 1, 2, 3, 4 by the barren layer no. 5, which in my opinion marks in this section the place, in the series, of the great geographical revolution at the close of the pleistocene age. It is marked elsewhere in most of the pleistocene caves, both in Britain and on the continent, by a similar barren deposit of cave-loam, or by stalagmite forming a clear line of division between the pleistocene strata below, and the prehistoric above. We may therefore conclude that the cave of Mas d'Azil, so far from affording evidence of a transition between the pleistocene and prehistoric periods, proves

[1] Professor Breuil suggests that the grains of barley and the plum-stones may have been introduced by rats, now haunting the cave, but I cannot accept this explanation with the evidence of the Swiss lakes before me.

that there is a break in the series. In this respect it falls into line with other European caves.

## 12. NO EVIDENCE OF TRANSITION IN THE NEOLITHIC MINES.

Nor is there evidence of transition in the refuse-heaps, shafts and galleries of neolithic flint-mines of Britain and the continent. At Grimes Graves, Cissbury, Stoke Down, etc. there are rudely-chipped forms resembling Chellean, Acheulean and Mousterian implements, but it does not follow that they are the work of the river-drift anthropid (I have found similar palaeolithic forms in the refuse-heaps of the Red Indians below the falls of Delaware near Trenton). In all they mark stages in the chipping by which the stone is worked, and largely consist of implements broken in the making, stone axes and the like. Nevertheless, they are referred by Mr. Reginald A. Smith and other competent archaeologists to the palaeolithic age and are generally so labelled in the public museums. They are further taken to prove the gradual transition of the implements of the extinct river-drift anthropid into those of the neolithic tribes, without reference to the cave-artists who inhabited the great continent after the disappearance of the river-drift anthropid, and before the neolithic age. It is therefore not a transition but a sequence after an interval of time that has not yet been measured.

I have repeatedly called attention during the last thirty years to this unfortunate error, and that it is an error is proved by recent discoveries[1] in the group of flint-mines at Grimes Graves, first explored by Canon Greenwell and assigned by him to the neolithic age. This conclusion is amply confirmed by the recent exploration by the Prehistoric Society of East Anglia. The pottery, the bones of domestic animals, and the picks of red-deer antler found in the two shafts, in the galleries and in the refuse-heaps, are neolithic or later, and the marks of polished stone axes on the chalk sides of the galleries prove beyond all doubt that neolithic axes were used

[1] *Report on Grimes Graves Excavations*, 1914, 8vo, London, 1915.

in the mining, while the more usual tool was the antler pick. The flint so mined was chipped on the working floors round the mouth of each shaft into the implements found in the refuse heaps and are obviously dated by the mining with neolithic axes. The implements were made on the spot, and distributed for use elsewhere. But the neolithic axes were merely roughly chipped into form on the ateliers, and the laborious task of grinding and polishing was left to be done by the people who used them.

The process of neolithic mining for the flint was the same on the continent as in Britain. The shaft was sunk to a suitable layer of flint and this was followed by an excavation round the bottom of the shaft as far as the roof would stand without props, so as to form a gallery. When the limit was reached another shaft was sunk, the chalk from the new being thrown into the old shaft. In this way the whole area was worked out. The flint was worked at the surface, forming spoil-banks round the depressions marking the sites of the filled-up shafts. The rude flint nodules were reduced to handier fragments, until they ultimately reached the desired form. Even the most delicate instrument began with a flint nodule and passed through coarsely-chipped stages more or less resembling palaeolithic types. These neolithic flint-mines occur in Britain only in the chalk districts, and chiefly in the south and east of England where the herdsmen would find plenty of grass for their sheep and cattle on the open downs, but the implements that were obtained from them are scattered over the whole of the British Isles. We may therefore look upon these mines not merely as centres of mining and manufacture but also of commerce by barter. There were other centres of industry where stone suitable for implements other than flint cropped out at the surface, in Wales, the Lake District and Scotland, and these implements are also found over the whole of the British Isles.

We may take as an example of one of these industrial centres the site explored by Mr. Hazzledine Warren at Craig Llwyd[1] close to the felsite quarries of Penmaenmawr, in which were numerous working floors of the same kind as those surrounding the flint-mines in the chalk, and the

[1] Hazzledine Warren, *Archaeol. Cambrensis*, lxvii (June, 1922); *Anthrop. Journal*, li (1921), p. 165.

same association of palaeolithic with neolithic forms as in the refuse-heaps of flint. There are also polished stone axes, but these were rare, and the grinding was done elsewhere, as in the case of the flint implements. This discovery confirms the conclusion that the so-called palaeolithic implements of the flint-mines belong to the neolithic age and present no transition between the pleistocene and the prehistoric periods. They do not prove that the extinct species of mankind, the anthropids of the river-drift, were capable of mining or pottery-making or agriculture, or of the other neolithic arts and crafts.

We may be certain that there was a transition somewhere outside Europe, probably in Asia, but the region in which it took place has not yet been discovered.

## 13. THE RELATION OF PREHISTORY TO HISTORY.

While the prehistoric age is clearly defined from the pleistocene by a great geographical revolution, it shades off (as shown in fig. 3), through ever-advancing stages of human culture, into history, the prehistory of one region coming within the history of another, only to be dated in years by the occurrence of ornaments and implements recorded in the history of some other region. For example the historic period begins in Britain with the voyage of Pythias in 325 B.C. through which the Greeks of Marseilles obtained an accurate knowledge of the Atlantic coast of the British Isles, of Scania and of the Amber coast, but it is followed by a blank in the record down to the time of Caesar's invasion in 55 B.C. At both those dates the Britons were in the stage of culture marked by the use of iron. We have also a date in the preceding age of bronze in Britain by the discovery of Egyptian beads of the time of Akhenaton in a burial-mound close to Stonehenge, proving that this, the noblest of our prehistoric temples, was in use in the fourteenth century B.C. When we compare Britain with Egypt, with Assyria, or with the great Minoan sea power in the Mediterranean, it will be seen that the British tribes remained probably

in the neolithic stage of culture from which Egypt had emerged more than 4,000 years B.C.

It is possible that there were great temples on the Nile, and on the Tigris and Euphrates, as well as a high culture and literature, while the British farmer and herdsman were still ignorant of the use of metals. Apart from these rays of light thrown on the prehistoric darkness of Europe, we have no basis for a chronology. We can only recognise a sequence of prehistoric events in time incapable of measurement in years by any physical changes, by the thickness of overlying deposits, by an appeal to glaciers or glacial periods, or to any other phenomena of nature. There are no natural chronometers to tell the time in terms of years, either in dealing with the antiquity of man or with the changes in life on the earth revealed by geology. We have therefore to realise that no dates are possible outside history, in which there is not only a record of the sequence but also of the length of the interval in time between any two events.

## 14. THE PREHISTORIC CIVILISATION OF EUROPE DERIVED FROM ASIA.

The civilisation of Europe in the ages of bronze and of iron was derived from the south and east, and gradually spread northwards from the Mediterranean, more or less modified by the culture of the various local tribes. The Minoans, and after them the Etruscan, the Phoenician and the early Greek traders, were the great agents in bringing the Egyptian and Asiatic civilisations into touch with the peoples of Europe. Neither Egypt nor Babylon had any influence except through foreign traders, and the suggestion of Dr. Elliot Smith that Egypt was the centre from which civilisation spread over Europe is negatived by the fact that Egypt was cut off from intercourse with Europe by the great Minoan sea-power in the Mediterranean. In Egypt and Babylon history begins with the art of writing, which has not yet been traced further back than about 3500 to 4000 B.C. It is probable that in both the civilisation was derived from one common

centre in their prehistory, and that that centre was in Asia.

One of the most important results of archaeological research is the fact that the ancient civilisations of Egypt, Babylonia, China and Japan, are based on a neolithic foundation, and that those of Mexico, Central America and Peru have a like origin. In other words the neolithic culture has spread over the whole world, and has since been differentiated by local conditions into the civilisations now characterising the various nationalities.

## 15. GENERAL CONCLUSIONS.

It now remains for us to sum up the general results of our enquiry.

1. Mankind is divided into two well-marked groups, the extinct anthropidae, or 'links' no longer 'missing' between man and ape, and the living *Homo sapiens*.

2. The former probably migrated into Europe in the early pleistocene or possibly in the pleiocene age from their original homes in the warmer regions of Africa and Asia, and have disappeared without leaving a trace of contact with their successors. They are amply represented by the rude implements found in many caves and in river deposits.

3. Then in due order of succession the artist hunters, the first representatives of living man, appear, coming probably from the temperate regions of Asia. With them are associated in the caves of Mentone two skeletons of a negroid type, that prove that two well-defined sections of the human race had been differentiated before the great geographical revolution in Europe.

4. This change occurred at the close of the pleistocene age. It implies an interval of time too great to be measured, and therefore makes all efforts to date the antiquity of man in terms of years impossible.

5. Nor is there evidence that this great interval between the pleistocene and the prehistoric period has been bridged over in Europe.

6. The prehistoric shaded off into the historic period without fixed boundary, and the neolithic stage of culture

was the foundation of all the present civilisations of the world.

The story of man (*Homo sapiens*) in Europe begins with his immigration from Central Asia along with the wild animals, and we must look to that region for evidence of the stages of evolution through which he became *Homo sapiens* from an anthropid ancestor.