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The Early History of Man

With Special Reference to the
Cap-Blanc Skeleton

BY

HENRY FIELD

ASSISTANT CURATOR OF PHYSICAL ANTHROPOLOGY

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CHICAGO

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THE CAP-BLANC SKELETON OF THE MAGDALENIAN PERIOD IN THE COLLECTIONS OF FIELD MUSEUM (p. 11).

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FIELD MUSEUM OF NATURAL HISTORY

DEPARTMENT OF ANTHROPOLOGY

CHICAGO, 1927

LEAFLET

NUMBER 26

The Early History of Man

With Special Reference to the Cap-Blanc Skeleton

Hundreds of millions of years passed before any animal that could be definitely recognized as human had evolved upon the earth. Long, long periods are represented by progress from the one-celled organisms to the many-celled, from fish to amphibians, from reptiles to birds and mammals, and so to the final evolutionary product—man. During this time the struggle for very existence, and more particularly for food, plays an all-important part.

In Leaflet No. 8, entitled "How Old Are Fossils?" and issued by the Department of Geology of Field Museum, are set forth the present scientific opinions regarding the time involved and the products of evolution from the beginnings of life up to the appearance of man.

Branching off from the anthropoid ape stem at least a million years ago, our ancestors had many more ape-like than human characters. As time passed, the gap between the two branches grew ever-widening.

The chain of evidence upon which the following observations are based may seem obscure to the layman, but the main facts become clearer as our knowledge increases, while details are always subject to revision. It is only by the joint cooperation of the geologist and palaeontologist, the archaeologist, and anthropologist that these tentative conclusions have been drawn during the past century.

Human remains are very fragile and, when buried, are soon subject to decay. Hence the chances of preser-

vation are very small, consequently the fossil remains of man are particularly rare. Implements of wood were presumably made, but these were soon subject to decay.

Implements or artifacts of flint are practically indestructible, and in western Europe form a very interesting and reliable series of types which now can be chronologically arranged.

For example, the beautiful flint work characteristic of the Solutrians is only found in the Solutrian period, though this type of work survived in Denmark, and was brought to perfection after bronze had been introduced along the southern trade-routes. Our earliest ancestors probably used any stone which seemed to fit the purpose on hand, after which it was discarded. Later, a particularly serviceable stone might be retained for future use, and at a still later stage the stone might be rendered still more useful by knocking off some flakes with a crude hammerstone. "Trial and error" must have been the method employed until a definite technique had been evolved. As can easily be surmised, thousands of flints which have been excavated are so crudely chipped that experts differ widely as to whether these are the result of human workmanship or natural agencies such as heat, pressure and friction, thermal action or grinding or crushing, etc., in the earth.

EARLIEST TYPES OF FLINT IMPLEMENTS

Among this large group are very roughly chipped flints called eoliths ("dawn stones") which have been collected in great numbers in England and Belgium from strata that belong to a relatively early geological date. Professor Breuil, the famous French prehistorian, accepts a very small proportion of these eoliths as artifacts.

Future work will throw additional light on this present complex and difficult problem.

VALLEY OF THE BEUNE SHOWING THE CAP-BLANC ROCK-SHELTER IN THE UPPER RIGHT CORNER (p. 12).
After L'Anthropologie, 1911.

METHODS OF EXCAVATION

Let us visit a cave in western Europe, where the work of excavation is in progress. Provided that there has been no disturbance of the layers or strata of the cave floor, the specimens of most recent date will lie nearest to the surface, while the deeper the excavations proceed, the older will be the objects unearthed. For example, all Aurignacian material will lie above everything belonging to the Mousterian period, and so on.

Each square yard of the cave floor will be pegged out and given a number. The earth will be removed over the entire floor to a depth of one foot. The greatest care will be used in removing this stratum of earth, which is passed through sieves of various sizes to ensure the finding of even the smallest objects. As each object is found, a mark is made on a map of squared paper in the corresponding square-yard number allotted to that part of the cave-floor. Trained scientists are in charge of the work, and take detailed notes which will be rewritten at night and filed for further reference.

From the animals and plants found buried in the deposit the excavator can determine whether the climate was cold, warm, or tropical. A comparison of the numerous caves and rock-shelters, particularly in France, has made it possible to form a definite chronological sequence of implements based on their types and layers of deposit. The further back in time, the less evidence is available, and therefore present theories concerning the dim, early history of man will be subject to modification as new facts come to light.

THE JAVA APE-MAN

The most primitive animal remains that may definitely be termed human as opposed to ape were unearthed in 1891 by Dr. Dubois at Trinil in Java.

The top of the skull, the left thigh-bone, and two molar teeth were all that came to light, and naturally

there has been much speculation over the restoration of *Pithecanthropus erectus*—the “ape-man-who-walked-erect” (see restoration in Case 3 of Stanley Field Hall). The fragment of the skull shows a very low, retreating forehead with huge brow-bridges. The estimated capacity of the complete skull is 900 cubic centimeters, while the cranial capacity of the gorilla never exceeds 600 cubic centimeters, and the lowest average of any modern race is never below 1225 cubic centimeters. The capacity of the brain and its convolutions indicate the potentiality for organized thought and reason. The Java skull is, therefore, intermediate in size between apes and man—a true “missing link,” but with a strong leaning toward man.

The thigh-bone is distinctly humanoid, and must have belonged to an animal which walked in a semi-erect position.

From geological evidence it is roughly estimated that this ape-man roamed over Java about 500,000 years ago.

THE CHELLEAN PERIOD

The earliest human remains found in Europe to-date belong to the Chellean period (so called from the type station at Chelles in northern France). This period began some 300,000 years ago with a mild and genial climate.

The elephant (*Elephas antiquus*), rhinoceros (*Rhinoceros merckii*), and the hippopotamus (*Hippopotamus amphibius*) were contemporaries of Chellean man.

He must have been rugged, powerful-jawed and, to our eyes, very ferocious in appearance. These conclusions are based upon long scientific study of part of a skull belonging to this geological time, which was dug up at Piltdown in England, and hence is called the “Piltdown man” (*Eoanthropus dawsoni*).

A very massive lower jaw was found in contemporaneous sands at Mauer near Heidelberg, Germany. This is the largest lower jaw ever found, and possesses many

EXCAVATION OF THE CAP-BLANC SKELETON. THE FRIEZE OF HORSES IS ON RIGHT-HAND WALL (p. 19)

unusual characteristics. It was lying in the Mauer sands over eighty feet below the surface, which will give some idea of its antiquity, judging from the immense time necessary for the deposition of these beds of sands.

Animals such as rhinoceros (*Rhinoceros merckii*) indicate warm climatic conditions at that time. With crude weapons Chellean man must have been more hunted than hunter. He almost certainly had the knowledge of fire, which would help to keep off marauding wild animals at night. His implements consisted of flint or quartzite hand-axes (*coups-de-poing*) which in some cases are beautifully finished, showing a remarkable skill and technique on the part of their makers. The butt end of the implement was left rough and unchipped to provide a gripping point for the hand. From the high quality of the workmanship it is certain that many earlier and crude types of implements existed, but the line dividing man's handiwork from the work of natural forces is very finely drawn.

THE ACHEULEAN PERIOD

Thousands of generations passed during which the improvement in flint-working became more and more marked until the Acheulean period was reached.

The outstanding difference between the Chellean hand-axe and that characteristic of Acheulean times is the small size, beautiful finish, and almond-shape of the latter. These are chipped around the entire edge, and presumably were hafted in some manner.

From palaeontological evidence the climate had now become much colder, because the mammoth and other fauna which are associated with cold conditions made their first appearance.

THE MOUSTERIAN PERIOD

Another big interval of time found Europe still under the effects of a cold climate at an approximate date of 40,000 years ago.

The mammoth (*Elephas primigenius*), the wild reindeer (*Rangifer tarandus*), and other cold-loving animals wandered over western Europe. The first human remains of this period were excavated at Neanderthal near Bonn in Germany in the year 1856 (see restoration in Case 3 of Stanley Field Hall). The huge brow-ridges and other anatomical peculiarities were first thought to be the result of some pathological condition. Since then a complete series of Neanderthaloid skeletons (that is, typologically similar to the original Neanderthal skeleton) have been found, which enable complete, but tentative reconstructions to be made.

The whole period is called after the typical rock-shelter at Le Moustier in southwestern France, where a practically complete skeleton was unearthed in 1908.

From a distance a Neanderthal man would immediately attract attention. His head was thrown slightly forward, and was carried in that position by very strong neck-muscles. His knees remained slightly bent owing to the curvature of the thigh-bones. His face had a fierce expression, emphasized by the enormous brow-ridges, his eyes were large and round, and his nose was broad and flat. The large canine teeth were another peculiar character. The low forehead reduced the space for the development of the frontal lobes of the brain; however, the back of the skull (occipital region) and its exceptional width in this region compensated for the small frontal region. However, cranial capacity is no criterion of intelligence, but merely suggests potentiality. Many factors seem to be at work and, within certain limits of size, quality, not necessarily quantity, seems to be the sponsor of genius. The size of man's brain and the corresponding power of reason have made him "lord of creation" at present.

As to the Neanderthal or Mousterian hunters, a cave with a fire at the entrance formed excellent protection from wild animals and the prevalent cold climatic conditions. Family life was the main feature of that period. The

LIFE-SIZE SCULPTURED HORSE AT CAP-BLANC (p. 12).
After L'Anthropologie, 1911.

implements show much less specialization, and many new types had come into use. The hand-axes belong to the two preceding periods. Flint knives, scrapers, and points of various kinds suggest many different uses, among others the scraping and dressing of skins for clothes. Beautiful examples of flint workmanship have been found lying beside a buried Neanderthal hunter, which would suggest a belief in the future life even at this early date.

The wide distribution of skeletons of this race over Europe and as far east as Palestine (the Galilee skull) is another interesting fact. This race, which was in all probability just off the main line of man's progressive evolution, seems to have left no direct modern descendants.

THE AURIGNACIAN PERIOD

The climate was still very cold, but less severe at the advent of the Aurignacian period (so called from the type station at Aurignac, France) some thousands of years later than the preceding period.

The Cro-Magnons, as people of this age are called, were tall, handsome, and well-built, and would attract attention to-day on account of their remarkable physique and resemblance to modern man (restoration in Case 3 of Stanley Field Hall).

The struggle for food was not so intense, and consequently more time was left for the development of a latent artistic sense. Here is the dawn of art. Several of the more typical Mousterian types of implements had disappeared, but new forms, such as graters, keeled scrapers, etc., took their place.

Natural resemblances to an animal upon the wall of a cave or shelter-rock were accentuated by a few scratches with a flint tool or by the application of some colored pigment such as red, yellow, black, or white. Animals were carved upon pieces of stone or ivory, because models would simplify the faithful reproduction of the animals on

the walls of the innermost recesses of the caves. Life-like representations of animals, and very occasionally human beings, were painted or sculptured on the walls or ceilings of caves in France and Spain. Small human figurines, emphasizing the female characteristics, have been unearthed in different parts of Europe. Each example is now called a "Venus" (compare "Venus of Laussel") which, with our modern conceptions of beauty, is indeed a misnomer.

The use of a new material, namely bone, appeared at this time; and bone needles, awls, lance-points, etc., played a very important part in the cultural development of the Cro-Magnon people.

Personal adornment was also a new development apparently introduced during that period. Necklaces of reindeer teeth, sea-shells, or fish vertebrae were worn by the women. Ivory beads probably corresponded in value to pearls.

In the caves of Grimaldi near Mentone a distinct race seems to have lived during that period. The Grimaldi race appears to have possessed some negroid characters such as long narrow heads, flat noses, protruding lower jaws, and long lower limbs, although it was not exceptionally tall.

The distribution of Aurignacian stations is again mainly concentrated in Europe, while cultural types occur in North Africa and eastward to the North Arabian desert.

THE SOLUTRIAN PERIOD

The climate was now becoming colder, and the horse and the reindeer were the chief sources of food supply.

The Solutrian race (type station Solutré, France) probably came across the central massif of Europe, bringing the most beautiful flint technique—almost unsurpassed to this day. The use of bone seems to be less characteristic than in the earlier period, although it was used to remove tiny flint flakes by "pressure flaking."

Fourteen skeletons have been excavated in the loess—a wind-blown deposit—near Predmost in Czecho-Slovakia, as well as mammoth bones representing a thousand individual animals. The physical characteristics of the skulls show that these people possessed long heads, small brow-ridges, and short narrow faces with a close resemblance to modern man. This period is relatively short compared with the duration of the periods preceding the Solutrian.

THE MAGDALENIAN PERIOD

The cold climate again settled over Europe. The new period was called the Magdalenian after the type station of La Madeleine in southwestern France. The people of that period were tall, of good physique, with a general modern appearance, although they lived some 25,000 years ago. In Case 3 of Stanley Field Hall there is the original skeleton of a young man of that period. As food was plentiful, more time could be given to the development of art, which reached its climax at that time. Flint still formed part of the material for implements, but bone superseded it in the majority of cases.

Among weapons there were spear-throwers and harpoons of various kinds, while bone needles, awls, etc., were the domestic equipment. In order to light the caves and caverns, animal fat was burnt in stone lamps.

Let us visit one of those caves in southwest France to examine some of the famous cave paintings. Cave equipment, such as matches, candles, acetylene lamps, ropes, and rope ladders, is carried to the mouth of the cave by several local guides. The lamps are lit, and in single file we leave the daylight and enter the dark mouth of the cave. The first hundred feet or so are relatively easy to cover on foot. The cave walls are damp, and there is a constant drip of water from the roof. The men in front are silhouetted against their swinging lamps, and their voices sound weird and eerie as each echo repeats them. Travelling becomes increasingly harder, and progress much slower as

we slip and slide on the sloping wet floor. There are places where a rope is necessary to enable us to descend to a steep, narrow part of the cave. The beautiful stalactite "curtains" appear very majestic by the light of our lanterns and candles. After some hours of perilous climbing, we reach a rock-gallery where, with the aid of our flickering lights, we see the impressive paintings of prehistoric man. The difficulty of access and the true realism of the pictures leave a lasting impression on our minds. There seems to be little doubt that the artist would not have chosen such an inaccessible place upon which to paint his pictures if it were merely art for art's sake.

It is generally conceded that these paintings were inspired by some magico-religious purpose. This may be illustrated by an example such as this: One of the hunters is going out to hunt reindeer to-morrow. Food has been scarce of late, and his family is hungry. This evening he goes to the medicine-man of his tribe, who conducts him after dark, into the cave, which is full of mystery and awe. After a long and perilous climb, during which the sound of running water and strange echoes have duly impressed the hunter of the sanctity of this cave and the fearlessness of his leader and master, they reach the innermost chamber. Here the medicine-man makes incantations before the picture of a reindeer, painted on the cave wall. After the proper ritual he tells the hunter that he will have good luck both in locating and killing a reindeer, because part of the reindeer spirit is in that painted example on the wall. The medicine-man therefore has power over the wild reindeer which he has given to the hunter. The next day the hunter goes out with renewed confidence, and is successful as the medicine-man has predicted. His success is entirely attributed to the magico-religious rites performed before the painted reindeer with the aid of the tribal medicine-man.

Original specimens belonging to those early periods are generally kept in the locality in which they have been found, and in many cases are considered national property.

Field Museum has been fortunate enough recently to obtain from M. Grimaud an original skeleton belonging to the Magdalenian period—the only palaeolithic skeleton in the United States at present (Plate I). This skeleton is that of a young man about twenty-five years of age, and is in a truly remarkable state of preservation, considering the fact that he was living in southwest France about 25,000 years ago.

The human form is rarely represented in prehistoric art, probably for the reason that the hunters were afraid that an enemy would have some supernatural power over them by their leaving an actual part of themselves upon a wall. If a man could drive an arrow into a picture on a wall, he would have additional power to perform the same act upon his enemy. Similarly, power over an animal could be obtained by incantations before a realistic representation of the animal carved or painted upon the cave wall. Animals which were hunted are therefore the commonest motifs. These are also engraved upon implements of the chase with great realism. For example, the subjects illustrated in Plates VII and VIII show this advanced stage of artistic development.

The "grazing reindeer" (Plate VII) carved upon the handle of an implement implies that the hunter would have more chances of finding the reindeer so occupied in grazing that he would not notice the stealthy approach of the hunter. The unsuspecting reindeer would thus fall an easy prey to this weapon, whereas with any other weapon not so engraved the hunter would not have had the same chance of success.

The climate of France during that period was very different from that of the present time. It was extremely cold, and the hunters must have been terrified by the large mammoths, woolly rhinoceroses, and other huge animals which then roamed over the country. The herds of reindeer must have been a very remarkable and impressive sight as they wandered over the frozen soil. Food was

plentiful, and various forms of traps were almost certainly used to capture these animals. When an animal had been caught in one of these traps, the women and children would be left in the family rock-shelter or cave in charge of the old men, while the young hunters, armed with their bone-tipped weapons, would go out to kill their prey. It must have been a great triumph for the man whose weapon pierced the vital part, and a great reception would be in store for him when they all returned home with their spoil in the evening.

At present African natives, when out lion-hunting, throw all their spears at the lion at the same moment, thus piercing him through and through. After the lion is pronounced dead, the spear which has reached a vital part is withdrawn. Its owner comes forward to receive the much-prized tail, which is cut off and given to him to wear, so that every one will recognize him thereafter as a lion-killer. Probably some such ceremony was also practised in Magdalenian times.

Practically all the caves containing famous examples of art and human remains of prehistoric man are located in France and northern Spain. The most striking example of Magdalenian sculpture as yet discovered was found in a small rock-shelter called Cap-Blanc, in the Dordogne region of France. In the strata of this cave a beautiful series of early Magdalenian implements were unearthed during the year 1910. Various types of flint scrapers and gravers were found, as well as numerous harpoons. The rock-shelter overlooks the beautiful valley of the River Beune, which is a tributary of the Vezère (Plate II). On the rock-shelter wall is carved a frieze of six horses following one another in line (Plate VI). One of these horses is seven feet in length, and is a beautiful work of sculpture (Plates IV and V). Any unusual prominences on the face of the rock-wall have been accentuated to emphasize the outlines of the horses.

This frieze was brought to light, and work was considered at an end in this rock-shelter when one of the work-

men accidentally drove his pickaxe into a skull lying some three feet below the nose of the largest sculptured horse. Work was resumed, and a complete skeleton unearthed (Plate III). There were three blocks of stone lying on his head, which unfortunately crushed the top jaw through the lower. He had been covered with small stones and debris, and, according to the scientists who were present, he was lying in a perfectly normal position. He was recumbent on his left side, the left arm flexed, the right elbow resting on the right knee, and his hand covering his face. The legs were drawn up and interlocked. His face was turned onto the left side, and was resting on his chest. In other words, he had died a natural death, and had been covered over exactly where he passed away and had definitely not been buried. The bones themselves show no signs of disease, and from the perfect condition of the teeth it is estimated that he was about twenty-five years of age, and consequently in the prime of life. He was about five feet, nine inches in height, and belonged to the late Cro-Magnon race. A reconstruction of one of these men by MacGregor is on exhibit in Case 3 in Stanley Field Hall.

A small ivory harpoon-point found lying just above the abdomen may give a possible clue to the cause of his death. This weapon may have caused blood-poisoning which resulted in death. It has been suggested tentatively, however, that the young man felt death approaching and returned to the rock-shelter, as he desired to die before the masterpiece he had helped to create. There are several indications supporting this assumption. First, the young man was found covered with stones and earth and not buried. Second, it is not plausible that some one who had nothing to do with the sculpture should have been allowed to desecrate the sanctuary unless he had assisted in the work or, at any rate, was directly connected with it. This, of course, must remain speculative, but, adding a romantic touch to the picture, it is of some interest.

THE AZILIAN-TARDENOISIAN PERIOD

During a long interval of time the climate of western Europe grew mild and genial. The cold condition passed, and the ice-sheet retreated northward, and with it the reindeer and other cold-loving fauna.

The Azilians (so called from the type station at Mas d'Azil, southwestern France) were the last of the prehistoric hunting peoples who wandered over Europe. The barren tundras and the wind-swept steppes had been replaced by richly forested landscapes; and horses, pigs, and cattle formed the chief food supply. These animals had not yet been domesticated, but it is probable that the dog had been trained, and was already assisting the hunters in their pursuit of game.

Art seems to have undergone a period of degeneration. The beautiful realistic work of the Magdalenians had been replaced by conventional signs. The work in flint is also poor, but several new types of implements were evolved.

THE NEOLITHIC PERIOD

The people of the neolithic period brought with them the new culture upon which our modern civilization rests. They introduced domesticated animals, the manufacture of pottery, and agriculture. The implements were for the most part polished and ground instead of being chipped or flaked. These are the main distinctions between palaeolithic or old stone age and the neolithic or new stone age. With the arrival of these people extensive development became rapid and almost universal. Subsequently implements were made of copper, and, still later, bronze, an alloy of copper and tin, was utilized.

The iron age was also a great period of development, but this in its turn was superseded by steel—the age in which we live at present.

SCULPTURED HORSE'S HEAD AT CAP-BLANC (p. 12).
After L'Anthropologie, 1911.

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CHRONOLOGY OF THE PREHISTORIC PERIOD OF WESTERN EUROPE

PERIOD	AGE	APPROXIMATE DATE	FAUNA	CLIMATE IN GENERAL
	Pre-Chellean	?	?	?
Lower PALAEOLITHIC	{ Chellean Acheulean	300,000 years ago	<i>Hippopotamus amphibius</i> , <i>Rhinoceros merckii</i> Mammoth (<i>Elephas primigenius</i>)	Warm
Middle PALAEOLITHIC	Mousterian	50,000-40,000 years ago	Mammoth (<i>Elephas primigenius</i>)	Cold
Upper PALAEOLITHIC	{ Aurignacian Solutrian MAGDALENIAN	25,000 years ago	Reindeer (<i>Rangifer tarandus</i>) Reindeer (<i>Rangifer tarandus</i>) Reindeer (<i>Rangifer tarandus</i>)	
TRANSITION STAGE	Azilian-Tardenoisian	12,000 years ago	Stag (<i>Cervus elephas</i>)	Warm
NEOLITHIC	Neolithic	10,000 years ago		
	Copper	5,000 years ago		
	Bronze			
	Iron	2,000 years ago		
	Steel	Present time		
			Existing forms	Temperate as at present

TWO OF THE HORSES FORMING THE FRIEZE IN THE CAP-BLANC ROCK-SHELTER (p. 12).
After L'Anthropologie, 1911.

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MAP OF FRANCE SHOWING TYPE STATIONS

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THE "GRAZING REINDEER" CARVED ON ANTLER, FROM THE KESSLERLOCH NEAR THAYNGEN, SWITZERLAND (p. 11).
After Merck.

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THREE MAMMOTHS CARVED ON WALL OF THE CAVE OF FONT-DE-GAUME IN
SOUTHWESTERN FRANCE (p. 11).

After Breuil.

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