Who Were Our Ancestors?

The Strange Tale of an Ancient Skull that Baffled a Committee of Experts Appointed to Investigate it

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THIS is an odd story. It is odd because it is an account of what paleontologists cannot do with a single bone—or even two. It is a striking refutation of the fallacious popular belief that an anatomist can always reconstruct an entire skeleton from a single fragment. Moreover, this is a mystery from far away and long ago. Two great glacial advances have flooded down over Europe and melted away through millenia of summers since the Swanscombe skull was carried on a body that walked upright and was alive in the England of the middle Ice Age. The ancient fragments portrayed upon these pages hold a mighty secret—but they hold it well indeed; so well, in fact, that learned and distinguished men meeting in solemn conclave over the remains have each time shaken their heads dubiously and emerged "by the same door wherein they went." Measurements have been taken. Anatomical points have been argued pro and con. But the mystery remains—and in that mystery lies shrouded the secret of our own antiquity as a species as well as the key to our evolutionary line of ascent.

The period immediately preceding the last decade had resulted in the development of two major theories in regard to human evolution, both based on the information accumulated up to that date. One regarded the line of ascent to ourselves as running more or less directly through a series of big-brow-ridged, massive-skulled types characterized by jaws lacking the chin eminence so typical of modern man. The face was large in proportion to the brain case, the nose was broad, and the teeth and dental arch larger than in *Homo sapiens.*

This type, whose earlier stage was regarded as represented by Pithecanthropus, the original Java Ape Man discovered by Dubois in 1891, was followed on the time scale by the classical Neanderthal type so long known from various sites in Europe.

Between the specimens, variations in the brow-ridge, the appearance of an incipient chin, and more elevated brow in some individuals, led to the suspicion that at some time during the middle third of the Würmian glaciation—the last glaciation to cover Europe—this type had evolved into our own progenitors on the European scene.

The second line of thought upon the subject of human evolution, a theory ardently supported by, among others, Sir Arthur Keith, the distinguished British anatomist, viewed this big-brow-ridged form of humanity quite differently. *Homo sapiens,* it was argued, was much too distinct in type to have been so rapidly derived from Neanderthal man in the closing Ice Age. Instead, supporters of this theory maintained that Neanderthal was already specialized away from the main line of human ascent to ourselves; that he was, in fact, a sort of collateral relative—human, of course, but not our immediate progenitor. This school expressed the view that our type was older in Europe than has been suspected and perhaps had followed a different line of development than the big, brow-ridged forms.

Giving weight to this view was the famous Piltdown skull, the vault of which was sapiens-like in structure, with reduced brow-ridges. It was accompanied by a very chimpanzee-like jaw, thus suggesting a more primitive lower face associated with a skull already essentially similar to our own. The marked dissimilarity of jaw and skull in this early Ice-Age fossil led to suspicions that the jaw and skull might have become associated through pure chance. (Some students regard the skull as an acceptable early fossil but would ignore the jaw.) Many arguments and much intensive research failed to quite clear away a pervading shadow of doubt which grew more intense as later finds, such as that at Peking, did not disclose any specimens similar to this strange and anomalous fossil. So dawned the last decade. What was it to reveal?

THE commercial gravel pits of England, unlike those of the United States, teem with the flint relics of man's Ice Age handiwork. As a result, they have been watched by collectors, amateur and professional alike, since the closing decades of the 19th Century. Unfortunately, however, although many thousands of implements had been collected, no authenticated discoveries of actual human remains, with the dubious exception of the Piltdown skull referred to above, had been found associated with the worked flints of the earlier Ice Age in Europe. It was obvious, of course, that man of some sort had existed, but what was he like? On this point knowledge failed us.

This is not to say that discoveries had not been made. They had. In fact, that is one reason why suspicions began to arise that there might be more than one possible line of evolutionary ascent to modern man. Curious stories could be told about some of these finds, most of them early and tainted with inevitable doubt as to the circumstances of discovery of the layers from which they may have been derived. There is the strange tale of the Foxhall jaw which was eventually brought to America, following which both owner and mandible disappeared. There is the story of the Galley Hill skull from the hundred-foot terrace of the Thames—a find to which Sir Arthur Keith, devoted some attention in later years.

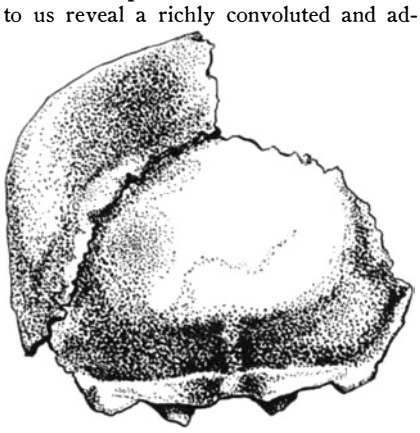
All of these peculiar and doubtful discoveries had one curious thing in common. They were purportedly derived from deposits representing, not the closing Ice Age when we know that our own species was already in existence, but those lower and more deeply buried horizons representing either the earlier ice advances or the long interglacials between them. They were thus old, which would not have been amazing in itself, but, paradoxically, save for minor hints of primitiveness such as unusual skull thickness, they were modern in type! Obviously such reversals of the "orthodox" line of human ascent would need strong confirmation from more scientifically authenticated sources before acceptance. Ironically, when it came, the evidence was to prove, in some degree at least, as capable of double interpretation as the cryptic prophecies of a Greek oracle.

MR. ALVAN MARSTON, dental surgeon and amateur archeologist, made the discovery of the first fragment of the Swanscombe skull in June of 1935. It was that rare and almost never attained combination: a significant discovery made by a man gifted enough to appreciate instantaneously the value of his discovery and to obtain immediate confirmation by witnesses of the location of the remains and all pertinent geological information relating to the site. The find was made in the Barnfield Pit at Swanscombe, near London, to a depth of 24 feet beneath the surface.

The bone, a complete human occipital, including the foramen magnum, or spinal opening, at the base of the skull, lay in a stratum which, geologically and in terms of the implements found there, is assignable to the Second, or Mindel-Riss, Interglacial Period. Within that period we know that some type of man chipped oval flints which were apparently unhafted, but instead held in the hand and used for cutting and chopping purposes. Possibly they may also have been utilized for digging up succulent roots and tubers. These implements can be roughly termed "hand axes." Various styles and refinement of workmanship permit their assignment to different periods and hence they are valuable for dating purposes. The Swanscombe skull is thus older than the known remains of Neanderthal man in Europe, being associated with that phase of the hand ax cultures of the Lower Stone Age known as Achuelian. It is, moreover, the first entirely authenticated example of human remains to be recovered from an Acheulian horizon. By the glacial time clock that human fragment lies two glaciations, one interglacial and a half away from us, a time, perhaps, no less than 400,000 years as the living measure such things.

By dint of tireless application and persistence, Mr. Marston made one additional discovery. Nine months later, in the same layer, but lying a little distance away, he located the left parietal bone of the same skull. Since that time nothing else has been reported. We are thus left with the cranium featured in the drawing: the base and back of the head and part of the side. The face is completely missing, along with the lower jaw. At this point we must turn to the anatomist for aid. It may be that he can tell us something as to the physical type of the early flint chippers who worked beside the Thames.

Without entering extensively into the tedious detail of anatomical analysis, the following facts may be noted: First of all, although lying, in point of time, very close to the period of the small-brained Peking and Java types, the skull under discussion possesses a cranial capacity around 1935 cubic centimeters. It thus falls well within the modern range of female brain capacity —and the Swanscombe skull is believed to be that of a female. Casts of the interior of that portion of the skull available to us reveal a richly convoluted and advanced type of brain. In the words of the British anatomist, Le Gros Clark: "the main point of interest of the cast is the indication it gives that in early Paleolithic times the human brain had already acquired a status typical of *Homo sapiens.*"

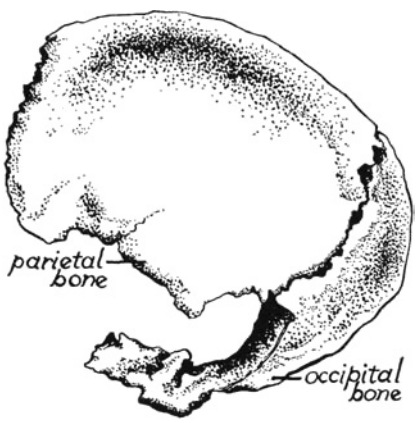


All drawings by Ann Murray
Rear view of Swanscombe skull

THE OCCIPITAL bone is broad and more massive than the average female skull of to-day. Its thickness is also exceptional and is shared by the accompanying parietal bone. Beyond this massive quality, however, (and we know from the Piltdown example that this need not imply heavy brow-ridges) there is nothing which will surely distinguish the cranium from that of existing man. In one or two measurements, such as involve the breadth at the back of the head, the skull is unusual. It does not lie far enough outside the modern individual range, however, to enable us, on that basis alone, to reject the likelihood that the Swanscombe individual was essentially a slightly more primitive replica of ourselves.

An extended analysis of the measurements of typical Neanderthal skulls by the English scientist, Morant, has shown that, so far as the big-brow-ridged, heavy skulled, "classic" Neanderthal type is concerned, the latter *can* be definitely distinguished from modern man—even when only such bones as confront us in the Swanscombe example are at hand. If it had not been for one peculiar discovery on the European continent, it is possible that the Royal Anthropological Institute committee which met to consider the Swanscombe skull might have been inclined to come out boldly and assign the Swanscombe fragments to our own species. Things in the earth, however, have a way of confounding us all. It was so in this case.

TWO years before the Swanscombe discovery a Neanderthal skull had been found in the gravels of the river Neckar, near Steinheim, Germany. The Steinheim cranium is much more complete than the Swanscombe skull. Strangely enough, since it is quite possibly as old as the third, or Riss, glaciation, this individual, in some characteristics, is more modern



A side view of the same skull

in type than the later Neanderthals, most of whose recovered remains date into the first phase of the last, or Würmian ice.

Though the brow ridges are still heavy and pronounced, the back of the Steinheim skull is nicely rounded and completely unexceptional. It lacks both the great breadth and the bony ridge for heavy muscular attachments so characteristic of the later Neanderthals. The skull, instead of being low and broad, carries its capacity on a more vertically arranged plan, as in modern man, though it must be noted that the Steinheim cranial capacity is considerably less than that of Swanscombe. In the words of Morant, however, the Steinheim skull, so far as its parietal and occipital bones are concerned, is "even less peculiar than the Swanscombe." This fact, of course, so long as the Swanscombe face is missing, must inevitably introduce the possibility that the fragments we have been considering may have belonged to a human type with a face more primitive than our own. For this there can be no answer until further discoveries are made.

Nevertheless, when all due allowance is made for this possibility, the Swanscombe skull seems clearly to suggest that our previously mentioned Acheulian hand-ax makers, in several major characters at least, were more closely related to modern man than the huge-browed anthropoidal Neanderthalers, whose bones rest in the European caves immediately below those

The Steinheim skull. Note the rounded and sapiens-like curve of the skull vault at the back of the head

of our own ancestors of the closing phases of the last glaciation.

The Swanscombe skull clearly demonstrates that a higher form of man than the small-brained Pithecanthropus type was in existence in Europe in times early enough to approach, if not to overlap completely, upon the antiquity of that extremely primitive Asiatic form. Our search for human origins is thus complicated by the possibility that a varied assemblage of human types simultaneously existed in the lower (earlier) Ice Age. Which of these types is truly ancestral to modern man? Or have several played their part and was *Homo sapiens* from the start something of a mongrel breed?

To none of these questions can science as yet provide an exact answer. But the bones from the Barnfield Pit at Swanscombe, if the rest are ever found, may indicate the solution to a major question in human prehistory: *Whether, that is, a form approximating our own species in appearance had attained such status far back in the dim vistas of the earlier Ice Age or whether, on the other hand, we, as individuals, derive from a big-browed human line, like Neanderthal, which remained primitive in all its major aspects down into the period of the last ice advance.*

Human vanity, of course, will always tug toward the former explanation—and of human vanity one must beware in science. Yet the Swanscombe skull does suggest, and other evidence accumulated from Palestine in recent years is not contradictory, that if the line leading to ourselves attaches at some point to a Neanderthaloid form, that point of transition lies at an earlier period than the time of the "classic" late Neanderthalers who hunted along the European ice-front in the last oncoming cold.

Suddenly the Neanderthalers vanish. And into their former domain a new, lithe figure enters—our tall forefathers of the period of the dying ice. Did they really spring in so short a time from those rugged, little, beetling-browed men of the long cave darkness? It now seems doubtful—at least in terms of so short a period as a single glacial advance. But after perusing all the literature, examining the whole extensive controversy, we can feel sure of just one thing—that somewhere among the English gravels the answer is still lying quietly in the earth. Until those missing bones, or others like them, are found, science may guess and grope, but science will not know.