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RECENT THEORIES OF THE ORIGIN OF MAN

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SYNOPSIS

The following theories are considered:—(1) Severtzoff's theory of "Aromorphosis", applied to man by F. E. Zeuner and F. Wood Jones; (2) G. G. Simpson's theory of "Quantum Evolution"; (3) A. Vandel's theory of "Progressive Evolution"; (4) G. Salet and L. Lafont's theory of "Regressive Evolution"; (5) F. Weidenreich's theory; (6) Ruggles Gates' theory; (7) H. V. Vallois' theory; (8) R. N. George's theory; (9) The theory of R. Dart, R. Broom and J. T. Robinson; (10) Sir A. Keith's "Group" theory; (11) H. Schepers' theory; (12) The theory of W. A. Straus, jr.

CONCLUSION. So far Science has thrown no light on the origin of man.

In the past ten years a dozen new theories of the origin of man have been formulated. Four of these are attempts to account for the lack of fossils intermediate between man and a four-legged ancestor, viz. the theories of aromorphosis, quantum evolution, progressive evolution and regressive evolution.

1. The Aromorphosis Theory

This theory, formulated by Severtzoff in *Morphologische Gesetzmässigkeiten der Evolution* (1931), is that there are two kinds of evolutionary changes, those which increase the energy or life activity of an animal and those which do not. The former are the ones that cause evolution. This kind of change Severtzoff calls aromorphosis and the result an aromorph. As an example he cites the supposed conversion of one of the gill arches of a primitive fish into the biting apparatus of most living fishes. As fishes possessing jaws are far less restricted than jawless fish such as lampreys and hagfishes in the selection of food, they are better nourished and their general energy of life is greater.

Although there is no experimental or other direct evidence that aromorphosis has ever occurred, the idea was welcomed by some evolutionists and has been applied to man. Thus F. Wood Jones writes: "Man's ancestors attained to uprightness by an aromorphosis that was completed as a functional entity" (*Hallmarks of Mankind*, 1948, p. 74). F. Zeuner writes: "The evolution of man may also be regarded as characterized by an aromorph, viz., erect posture" (*Dating the Past*, 1944, p. 381).

2. The Theory of Quantum Evolution

G. G. Simpson asserts (*Tempo and Mode in Evolution*, 1944, p. 207) that in addition to changes ordinarily undergone by animals, there are big ones involving the acquisition of a more or less radically distinct way of life resulting in what he calls Quantum Evolution. "Profound transformations", he writes (*Horses*, 1951, p. 208), "are relatively uncommon in evolution, but have great importance when they do occur. The change of a fish fin into a foot, and much later, the change of a reptile foot into a bird's wing, were transformations of the most far-reaching significance, so still later were the various transformations involved in our own history. Such a change arose when our four-footed ancestors reared up and became two-footed."

Simpson states his theory at great length in *The Meaning of Evolution* (1950). It is that there are four levels of Primate brain development: (1) Prosimians, (2) South American monkeys, (3) Old World monkeys, (4) Apes, Hominids and men. These do not represent four successive steps. The prosimians apparently gave rise separately to each of the other groups: "The four (main) types of apes and men are independent surviving lines, all deriving separately from the Miocene radiation" (p. 90). Simpson's quantum evolution is clearly special creation dressed up to look like evolution. Apparently in order to prevent readers seeing through the disguise, Simpson makes such statements as "There is no real evidence that evolution has a goal, and there is overwhelming evidence that it has not" (p. 304). "Man has risen, not fallen" (p. 310). "Man is the result of a purposeless and materialistic process that did not have him in mind" (p. 344).

3. The Theory of Progressive Evolution

This theory is expounded by A. Vandel, Professor of Zoology at Toulouse, in his *L'Homme et l'Évolution* (1949). It is that evolution is a cyclic phenomenon. Each cycle is made up of a creative period in which progressive evolution takes place and many species jump to a higher level of organization where they blossom into new species, varieties and families. This is followed by a period of regressive evolution, of stagnation, inertia and extinction. Then a new cycle begins in which the extinct types are replaced by new ones. He asserts (in italics): "*the principle of replacement is one of the most characteristic and fundamental aspects of evolution.*"

Vandel makes no attempt to draw up a pedigree of man, but he insists on what he calls the stratified structure of human organization. He writes (p. 156): "The body of man appears under the aspect of a complex mosaic of characters of different origin and age. It is to-day possible to establish with sufficient approximation the phyletic origin of his principal organs and to fix their dates. His hollow spinal cord goes back at least as far as the Cambrian. His pentadactyl limbs took form at the end of the

Devonian. His jaw dates from the Lower Devonian. His teeth acquired their histological structure at the same period; their differentiation into incisors, canines and molars dates from the Trias; the quadritubercularity of his molars goes back to the Jurassic. Finally his erect posture, projecting nose, prominent chin, high forehead, complex brain . . . date only from the quaternary." He adds: " when comparative psychology shall have emerged from its present infantile state, it will be possible to discover in the psychic structure of man an analogous stratification and to recognize the successive strata that constitute its substance." He asserts (p. 189): " Animality ceased to evolve from the instant at which it engendered the human stratum. . . . To-day man is the only being capable of progressive evolution. . . . But it would be a grave delusion to expect indefinite progress in man. The level of his intelligence and psychic faculties is determined by nervous organization. Geniuses, saints and heroes probably represent the highest summits mankind will ever reach." But evolution will resume its march one day in the future and " will seize on a being who will replace man as he himself has replaced the animal. Man is not a terminal, but a term of passage. . . . Even as Galileo proved that the earth is not the centre of the universe, so has the evolutionist revealed that humanity by no means represents its term."

Vandel frankly admits that his ideas are likely to shock " excellent minds " and do not accord with traditional scientific thought.

4. The Theory of Regressive Evolution

Vandel's theory, like the theories of Aromorphosis and of Quantum Evolution, is a theory of special creation, couched in terms of evolutionism. We have now to notice a theory enunciated by two creationists, Georges Salet and Louis Lafont, in their book *L'Évolution Regressive*, published in Paris in 1943.

According to this theory geological time should be divided into three sharply defined periods: (1) The period of creation and the formation of the world before the creation of man; (2) The period of the Golden Age in which man was created; and lastly (3) The period of Regressive Evolution which was initiated by the fall of man, as recorded in Genesis. In the first two of these periods no fossils were laid down because in them there was no death either among animals or mankind. In the third period, inaugurated by the sin of man, life became hard and death entered the world, many of the animals took to a carnivorous diet, developed weapons of offence and defence, and living organisms suffered increasing deterioration, and many kinds of organisms became extinct because they could not endure the rigours of their surroundings, as is shown by the great crops of fossils in various geological deposits. Man, like animals and plants, deteriorated, some men in consequence sank almost to the level of animals.

"It is not the animal that has become progressively human," write Salet and Dupoint (p. 66); "it is man who has deteriorated towards animality . . . in our conception, far from being the fruit of evolution, man is the cause of it."

Their book is full of shrewd criticism of the transformist theory.

In support of their contention that man has degenerated since his creation, they stress the fact, burked by most evolutionists, that some of the earliest known fossils of men are of modern type. They cite as examples the Foxhall jaw, Castenedolo and Olmo skulls, the Bury St. Edmunds fragment, Galley Hill and Swanscombe man. They also assert that there is the possibility that Ameghino may have been right in claiming that Diprothomo and Tetraprothomo lived in the Miocene and Pliocene periods. They also mention some finds recorded by Brion in *La Resurrection des Villes Mortes* (1938): viz. a fossil human tooth in an Eocene deposit, a human footprint in a Triassic rock and the drawings of Diplodocus and a Dinosaur of the Upper Jurassic period. According to Brion these discoveries are mentioned in *Discoveries relating to Prehistoric Man*, published in 1927 at San Francisco. They admit that further evidence is needed before these finds are accepted as authentic.

While not subscribing to this theory, we must admit that evidence of the great antiquity of man is accumulating. Two recent finds are the discovery in 1947 of the greater part of a skull by Mlle. Henri-Martin in a deposit laid down in the third interglacial period at Fontéchevade, France, and the discovery by Coon and Duprée in 1951 in a cave at Hotu by the Caspian Sea, of three human skeletons, which they deem to be 70,000 years old. An illustrated account of this find is in *Life* of May 21st, 1951.

5. Weidenreich's Theory

Franz Weidenreich states his theory in *Apes, Giants and Man* (1946). It is that the earliest men were giants and that there has been a continuous line of gigantic and nearly gigantic human forms characterized by a gradual reduction in size, this reduction going hand in hand with a progressive trend in other features. He does not suggest which Primate gave birth to man, but he asserts (p. 19): "The evolution of the Primate branch which we call 'man' must have begun much earlier than we ever dreamed." He also writes (p. 83): "It seems that there must have been, not one, but several centres where man has developed. But we should be completely at a loss if someone should ask on which special spot of the earth the decisive step was made that led from the simian creature to man. There was not just *one* evolutionary step. Evolution went on wherever man may have lived, and each place may have been a centre of both general development and special racial strains."

He drew up the following pedigree: Gigantopithecus—Meganthropus—Pithecanthropus robustus—Pithecanthropus erectus—Pithecanthropus (Homo) soloensis—Wadjak man—Australian bushman.

Of the above, all that is known of Gigantopithecus is three isolated molar teeth procured by Von Koenigswald over a period of six years in drug stores at Canton and Hongkong. These teeth are enormous, seven or eight times the size of modern human molars. Their possessor must have been twice the size of a gorilla. Von Koenigswald and most authorities consider that these are ape's teeth. Weidenreich deems them human and says they should be named Giganthropus. All that is known of the second of Weidenreich's line of ancestors, Meganthropus, is part of a jaw with two premolars and one molar tooth, found by Von Koenigswald at Sangiram in Java. These teeth, while not so large as those of Gigantopithecus, are twice the size of present day corresponding teeth.

Weidenreich derives the African races from Rhodesian man, white men from Skhul man in Palestine through Tabrun man and Cro-magnon man. He derived the Mongols from Sinanthropus, through the men whose fossils occur in the upper cave at Choukoutien. He asserts (p. 27) that " there is not the slightest doubt that Sinanthropus was a true man, although a very primitive type—in any case, more primitive than any of the long-known Neanderthalians ".

6. Ruggles Gates' Theory

R. Ruggles Gates expounds his theory in *Human Ancestry from a Genetical Point of View* (1948). It is that mankind has a multiple origin, and that the main human races are of five different species, each derived from a different ancestor, These are:

(1) Homo australicus (Australian aborigines), descended from Pithecanthropus through Palaeoanthropus (Javanthropus) soloensis, Homo Wadjakensis and Talgai man.

(2) Homo capensis (South African Bushmen), derived from Africanthropus njarensis through Rhodesian man, Florisbad man and Boskop man.

(3) Homo africanus (Negroes), also derived from Africanthropus njarensis, the present differences being the result of specialization and adaptation to tropical conditions of the Negro, the close connecting link being the similarity of the peppercorn hairs of bushmen and the kinky hair of the Negroes.

(4) Homo mongoloideus (Mongols and American Indians), derived from Sinanthropus.

(5) Homo caucasus (White men). As to their origin Gates writes: " in Europe the Pithecanthropus level has never been found, but the evident relation of Boskop man to the European Cro-magnons make Boskop man appear as ancestral to them, but unrelated to Neanderthal. . . . The dark

skin and peppercorn hair were probably shed in northern Africa before this species of Homo entered Europe " (p. 217).

As to the origin of Pithecanthropus, Gates thinks it might have been derived from one of the South African " Man-apes ". " But it is still possible that these man-apes terminated in a dead-end. If so Pithecanthropus may have arisen from some Asiatic derivative of the Dryopithecinae having more or less similar characters."

Gates also believes that there have been two main lines of human evolution, one of which (the gorilloid line) has great brow ridges, which the other line (the orangoid) lacks.

That all his species of men interbreed freely does not deter Gates from making separate species of them. He sets no store by the fertility test.

Nevertheless his book is valuable on account of its thirty pages of bibliography.

7. Vallois' Theory

Henri V. Vallois, like Ruggles Gates, believes in the polyphyletic origin of man, but does not assign any definite pre-human ancestor to any human race. He outlined his theory of the origin of man in a paper read in 1950 before an international gathering of zoologists at Paris and published in the volume *Paléontologie et Transformisme* (1950).

Vallois holds that man's nearest living relatives are the chimpanzee, gorilla and orang, and that from the beginning the hominidae were diversified, and at each stage of development they expanded in a series of branches. Many extinct types probably existed which perhaps future discoveries will reveal. He maintains that at no age has a fossil been found which is nearer to man than any of its contemporaries. Not one of them is more primitive or more evolved *en bloc* than the others, but each exhibits more primitive and more evolved features. For example, Pithecanthropus and Sinanthropus, which Vallois calls prehominids and which were contemporaries, are, in Vallois' opinion, equally far removed from modern man anatomically; Pithecanthropus is the more primitive in respect of brain capacity, great length of cranium and (in P. robustus) having a pre-canine diastema in the upper jaw. Sinanthropus is the more primitive in the supra-orbital torus, femur, and teeth. For these reasons Vallois asserts that the known fossils show that the general conception of a " missing link " between apes and man (if the unknown stage which preceded the hominids can be so called) is based on *a priori* ideas not supported by palaeontological documents.

8. T. Neville George's Theory

The first-known fossil of the Miocene ape Proconsul was found in Kenya in 1933 by Hopwood and is constituted of parts of the upper jaw and palate with some teeth and part of the upper jaw with teeth. Hopwood

deemed it ancestral to the chimpanzee. In 1942 MacInnes found in the Victoria Nyanza district a lower jaw and two ankle bones. He thinks that these show the ape to be near the line of human ancestry. In 1946 Leakey found in Rusinga Island another lower jaw, and in 1948 Mrs. Leakey found an almost complete skull. As this was the first fossil skull of a Miocene ape to be found, Mrs. Leakey flew her treasure to England! After its arrival in England Le Gros Clark examined the skull and stated in a broadcast (*Listener*, February 24th, 1949) that in some respects the skull resembles that of a monkey more than that of a living ape, but it shows some resemblances to man not found in living apes. For these reasons he regards Proconsul as " of a primitive and generalized type which by progressive modification along divergent lines of evolution might conceivably have provided the basis for a common ancestry of both man and the modern apes."

In contrast to this guarded statement, T. Neville George, Professor of Geology, University of Glasgow writes: " Man is a member of a comparatively insignificant and primitive group of animals, the Primates. . . . Anatomically man is a great ape, not differing in any notable features from the other apes. . . . Man shows evolutionary progress notably in two features, the structure of the head and his upright posture. . . . In these features he is progressive and offers the main contrast to the ' conservative ' gorilla and chimpanzee. A number of intermediate types linking man with typical apes are now fairly well known. He belongs to a divergent offshoot that stemmed from a form not unlike the mid-tertiary Proconsul, a ground dweller, standing, perhaps not too surely, on his hind legs " (*Evolution in Outline*, 1951, p. 112). George makes the following pronouncement on p. 116: " Monkeys and men happen at the moment to be successful or perhaps in the ascendant. . . . The rise and the diversification of the various groups took place by a happy but quite fortuitous association of the right genes and the appropriate environment."

9. The Theory that Man evolved from a South African Ape-Man

This theory is the outcome of the discovery in South Africa since 1924 of numerous fossils of a group of extinct apes, named the Australopithecinae. Some South African zoologists, notably Professor Raymond Dart, the late Dr. Robert Broom and Mr. J. T. Robinson call these creatures " ape-men ", and, being convinced that man evolved from one of this group, they have exercised their imagination and have sent to the press all over the world verbal and pictorial descriptions of what they imagine these creatures looked like when alive, together with descriptions of what they imagine the habits of these creatures were. As these apes have had even greater publicity than that given sixty years ago to the Java ape-man, Pithecanthropus, it seems desirable to set forth the data on which these descriptions are based, seeing that nothing approaching a

complete skeleton of any of them has been found. Apart from skull, jaws and teeth, very little is known of the skeleton; of the long bones only one complete thigh bone assigned to Plesianthropus has been found and this measures in length 12 inches as opposed to the 20 inches of an average human thigh bone. Three more-or-less complete pelvises have been found of these apes.

The fossil bones of these creatures that have been described are assigned to one or other of the following six species:

(1) Australopithecus africanus, found at Taungs, about 120 miles north of Kimberley.

(2) Australopithecus prometheus, found at Makapan, a few miles north of Pretoria.

(3) Plesianthropus transvaalensis. Most of the bones ascribed to this creature were found at Sterkfontein, about 25 miles from Johannesburg, and some at Bolt farm about a mile from Sterkfontein.

(4) Paranthropus robustus, found at Kromdraai, two miles from Sterkfontein.

(5) Paranthropus crassidens, found at Swartkranz, one mile from Sterkfontein.

(6) Telanthropus capensis, also found at Swartkranz.

The fossils of all the above species were found in unusual circumstances, in localities where the limestone of the hillsides is honeycombed with fissures, caves and holes made by underground streams, and for more than fifty years there has been extensive quarrying for limestone, and the removal of the lime has left exposed numbers of blocks of hard useless breccia in which bones, broken or unbroken, of many kinds of animals, living and extinct, are firmly embedded. Much of this has been piled in dumps near where the blocks of lime have been excavated. Thus a search at any of these dumps is likely to lead to the discovery of fossils. Dr. Camp mentions the boulder some four feet in diameter in which the only complete femur was found. In this block were seen the end of another femur, a rib, a skull with complete teeth and numerous fragments. Of course most of the bones embedded in this hard breccia are not those of Primates. All mixed together, whole or broken, are bones of antelopes, horses, hyenas, rodents and many other creatures. These seem to have been carried to the spot where they were found by predacious animals or swept there by torrents.

Most of the fossils of these Australopithecinae were found by those who are not biologists.

The fossil skull and jaw named Australopithecus africanus was blasted out of a limestone quarry at Taungs in Bechuanaland in 1924 by a quarryman, Mr. de Bruyn, who sent it to Professor Raymond Dart, who cleaned it, and reported the discovery in *Nature* in February, 1925. In his report he wrote: " unlike Pithecanthropus, it does not resemble an ape-like

man, a caricature of precocious prehominid failure, but a creature well-advanced beyond modern anthropoids in just those characters, facial and cerebral, which are to be anticipated in a link between man and his simian ancestor." The experts in England and America did not agree; they deemed the creature to be a young individual of a kind of chimpanzee. Dr. Robert Broom, however, sided with Dart, his fellow South African. He wrote: " The discovery of Australopithecus may have nearly as great an influence as the publication of Darwin's *Origin of Species* " (*Natural History*, 1925) and in his *The Coming of Man* (1933) he wrote (p. 79): " We can quite confidently say that all varieties of man and protoman have been evolved from one anthropoid ape which was nearly allied to if not of the same genus as Australopithecus africanus."

The fossil bones which Dart has named Australopithecus prometheus were picked up off a dump in 1947 and 1948 at the limeworks at Makapan, a few miles north of Pretoria. They consist of the back part of a skull of an adult and a broken jaw of a young ape of which the front teeth has been knocked out. As on this dump had been found broken bones and crushed skulls of numerous animals, including small extinct baboons, Dart concluded that A. prometheus preyed on these and killed them with some kind of weapon, and he contributed to *South African Science* (Feb. 1949) an article entitled " The Bone Bludgeon Hunting Technique of Australopithecus ", in which he wrote: " The matter of major importance is now not, ' Did Australopithecus wield weapons? ' but ' What weapons did he wield? ' Were they principally of bone or stone or wood? Did he fashion weapons or accept them as they came into his hands? "

He even went so far as to assume that this creature used fire because some carbon particles occur in the breccia at Makapan. Although the skull of this creature is not nearly complete, Dart believed it to be that of a female and estimates the brain capacity to be 650 cc. In justice to Broom it should be said that the notion that this ape knew the use of fire was more than he could swallow. In this connection it is well to bear in mind that in none of the places where the fossils of these apes have been found has anything like a human artefact been seen.

In consequence of Broom's conviction that Australopithecus was an ancestor of men, Smuts secured for him the post of Curator of the Transvaal Museum at Pretoria to enable him to look for the " missing link ".

At the suggestion of two of Professor Dart's students who had found fossils in the Sterkfontein caves near Krugersdorp, Broom asked Mr. G. W. Barlow, the curator of the caves and the manager of the quarrying operations there, to keep a lookout for anything like an ape's skull. Within a week Barlow blasted out about two-thirds of a skull which Broom named Plesianthropus transvaalensis, deeming it an " ape man ". Search in this cave yielded nothing of importance during the next two years. In

1938 the discovery of a skull at Kromdraai diverted Broom's attention and during the war the search for fossils stopped. In 1947 Broom resumed the search at Sterkfontein and on April 18, 1948, he blasted from this cave what he describes as " a perfect skull of an adult female . . . the finest fossil skull ever discovered . . . the skull of a being not yet man but nearly man . . . the skull is practically human in all respects, except that the brain is small—only 480 cc." (" The Ape-Men," *Scientific American*, November, 1949, p. 24.) In his many popular articles Broom refers to this skull as " Mrs. Ples ", and to the male skull as " Uncle Ples ". Unfortunately Broom, when blasting the skull out of the breccia, broke it, the top being left in one piece of the rock and the rest of the skull in another. Perturbed by this rough and ready method of extricating fossils, the South African Historical Monuments Commission ordered Broom to cease operations until the arrival of an expedition being sent by the University of California to explore for fossils.

Despite this, Broom continued his search and found, to use his own words, " an almost perfect male jaw, the most notable feature of which is that though the canine tooth is larger than in man, it has been ground down in line with the other teeth exactly as in man. This never happens in the males of the anthropoid apes. Then we made an even more important find—a nearly perfect pelvis. This structure, human in all essentials, proves that the ape-men walked on their hind legs."

At this juncture the American expedition arrived and it was agreed that Broom should transfer his attention to the cave at Swartkranz near by, while the Americans should explore the Bolt Farm quarry a little over a mile from Sterkfontein. Here Drs. Camp and Peabody extracted two thigh bones, one of them being the only complete long bone of these apes yet discovered. They say that these bones are in size and shape comparable to those of the chimpanzee, but their thickness and the large muscle impressions are human rather than anthropoid features, and the head of the bone shows that it comes from an erect walking creature. They think these thigh bones belong to Plesianthropus. Other bones seen by them had not been extracted from the breccia and so they refuse to make any pronouncement regarding them.

The skull named Paranthropus robustus by Broom was found in June, 1938 by a schoolboy named Gert Terblanche, who saw it embedded in an outcrop of bone breccia on the hillside at Kromdraai, two miles from Sterkfontein. The boy with a hammer hacked out the skull in pieces. He put four loose teeth in his pocket, took the palate, which still held a molar tooth, to Barlow and sold it to him. Barlow resold it to Broom for £2 and told Broom how he came by it. Broom at once interviewed the boy and, writes: " the boy drew from his trouser pocket four of the most beautiful fossil teeth ever found in the world's history. Two of the four fitted on the palate Barlow had given me. The other two had been

weathered off. I promptly bought the teeth from Gert and put them in my pocket. Gert told me he had another nice piece hidden away. . . . Then Gert took me up the hill and drew out from his hiding place a very fine jaw with some beautiful teeth. In the next few days we sifted all the ground in the close neighbourhood and recovered nearly every scrap of tooth or bone in the place. When all the bits were cleaned and joined, it was found that we had the greater part of the left side and of the right lower jaw of a very fine skull, with many of the teeth well preserved. The skull differed in a number of characters from that found at Sterkfontein, and it had a larger brain. In some respects it was more human; in a few less human. We described it as a new genus named Paranthropus robustus " (*Scientific American*, November, 1949, p. 22).

In 1942 the lower end of the upper arm bone and the upper end of the ulna (the larger of the fore-arm bones), a hand bone, two toe bones and an ankle bone were found at Kromdraai. Broom estimates that the brain capacity of this creature was about 650 c.c., and that it lived about 900,000 years ago, while the Sterkfontein " Ape Man " lived about 1,200,000 years ago.

The bones assigned to Paranthropus crassidens and to Telanthropus capensis were all found by Broom and Robinson in the cave at Swartkranz about one mile from the Sterkfontein cave.

Broom contributed to the *Illustrated London News* of August 19th, 1950, an article in which he gives pictures of skull, jaw and pelvis, also of the face, with flesh and hair, and in which he writes: " the jaw is really huge, the front teeth are typically human, and even the eye teeth are not larger than in man but the pre-molar and molar teeth, though human in type, are very much larger than in modern man. The face is large and very flat and there are prominent ridges over the eyes and above the nose. . . . We have four brain cases, but all a little crushed. Still these are quite sufficient to show that the brain was large. . . . Though in ' Mrs. Ples ' the brain was only about 500 c.c., the brain in the female Swartkranz ape-man is estimated to have been over 900 c.c. and thus human at least in size. The external ear region is typically human and so is the articulation of the lower jaw. The front of the lower jaw has in some female specimens quite a distinct human chin. It is held by some that this chin has developed with speech. If this is so, our ape-man must be practically human. There is, however, one character that is definitely prehuman. The jaws have been very massive, and the temporal muscles that closed the jaws were very powerful, and while in man they only pass up about half way on the side of the head, in our Swartkranz being they passed right up to the top of the skull, and between them at the top was a well-developed median bony crest, such as is usually seen in gorillas. . . . It had a pelvis that showed it walked more or less upright." These features clearly show that this ape cannot have evolved into a man. Nevertheless Broom wrote:

" we cannot yet say whether modern man evolved from small brained forms like the Sterkfontein being (Plesianthropus) or the bigger brained types like those of Swartkranz (Paranthropus) or Makapan (Australopithecus prometheus). But we can say with certainty that man evolved from a member of this ape-man family."

Broom's assistant and successor, J. T. Robinson, found the fossils which have been named Telanthropus capensis. These are an almost complete lower jaw, part of the snout and the palate, and a bit of a radius (the smaller of the two bones of the forearm). As this snout is rather less protruding than that of Plesianthropus or Paranthropus, Robinson lost no time in telling the world that he had found the " missing link ". He told the reporter of the *Sunday Express*: " Anti-evolutionists will soon have to eat their statements with tomato ketchup. The gaps in the chain of man's development are being filled up. Professor Smith's coelacanth is at the far end of the chain, Telanthropus at the other " (*Sunday Express*, January 4th, 1953).

To the reporter of the *Rand Daily Mail*, Robinson said: " The discovery at Swartkranz . . . of five fossilized remains of Telanthropus capensis—the missing link or transitional man bridging the gap between prehistoric ape-man and early primitive man—was unique and unparalleled in any other part of the world. . . . The finding of a creature combining the characteristics of the ape-man and early primitive man might be one of the most important finds of the century. . . . Most ape-men had become extinct, but at least one had developed into the Telanthropus, the missing link and almost certainly the ancestor of true man, although not necessarily of modern man—Homo sapiens. . . . If a Telanthropus were to walk along a street of a South African city clad in a lounge suit he would, except for his facial features, pass unnoticed in a modern crowd."

On the strength of this, the *Rand Daily Mail* published a big picture of Telanthropus sitting on a hillside.

I wrote to the editor saying that in fairness to the public a picture of the fossil bones of this creature ought to have been published. I also took exception to Robinson's use of the term " ape-man " which should mean either a hybrid between ape and man or an ape that had become almost human. Robinson in reply said he had not seen the picture of Telanthropus and that to him the term " ape-man " means simply " a man which in some ways resembles an ape ".

I submit that the resemblance of these Australopithecinae to man has been exaggerated, and their dissimilarities minimized. As Merson Davies showed at a meeting of the Royal Society of Edinburgh in May, 1949, at which Broom produced a cast of the skull of Plesianthropus, its eyes were specialized for frontal vision with correspondingly reduced olfactory area of the brain just as in apes, and not as in man, where the outer margins of the orbits are more curved than in any anthropoid ape. Broom, who

was at the meeting, made no attempt to controvert this, nor apparently did Robinson when at a subsequent meeting Davies pointed out that the above remarks apply to the Paranthropus.

As Wood Jones has demonstrated, the facial region of these Australopitheci is as in apes and never in man, in that the pre-maxillae form the outer wall of the sockets of their canine teeth, whereas in man it is the maxillae that do this. Also in man the maxillae form the margin of the bony framework of the nose; in the Australopithecinae this is done by the pre-maxillae. Further, the premolar teeth of these apes are three-rooted as are those of all apes. This is not the case in any known race of man. Normally the premolars are single-rooted in man.

As fossils of these apes seem to be numerous in Transvaal, there is every prospect of more fossils of their long bones being found. Meanwhile as nothing approaching an artefact has been found in association with any of these apes, it is premature to suggest that they may be ancestors of man.

10. Keith's Latest Theory

Sir Arthur Keith has formulated yet another theory of human evolution which he calls the " Group Theory of Human Evolution ". He sets this forth in a volume of 450 pages called *A New Theory of Human Evolution* (1949). He is impressed by Broom's South African " ape-men ", which he calls Dartians. He writes (p. 209): " The South African anthropoids seem to me to represent the stage reached by human ancestry in the Miocene period. That the representatives of this Miocene phase of man's evolution should have survived into the Pleistocene period does not seem to me an improbable assumption." What he calls his scheme " assumes that up to the end of the oligocene period the great anthropoids (the gorilla, chimpanzee and orang) and man were all represented in a common ancestry, all being strictly arboreal in habit . . . the limbs and bodies of the common ancestry were then undergoing postural modifications, the lower limbs of the pre-human group or groups becoming more and more the chief means of support in climbing and at the same time becoming better fitted to serve as organs of progression on the ground . . . before the end of the Miocene period the lower limbs of the pre-human groups had become completely adapted for a life on the ground." Having thus got early man firmly on his hind legs, Keith believes " there was first a long primal period when mankind was separated into small local groups or communities; this period is estimated to have lasted at least a million years. It was during this period that man made his major evolutionary advances. The post-primal period has endured for less than 10,000 years, it has led to a revolution in the mode of evolution ". Keith assures us that " in the clash and turmoil which disturbs the peace of the modern world we are hearing the creaking wheels of the machinery of evolution ". These evidently are in sore need of lubrication!

11. Schepers' Theory

W. C. H. Schepers, who collaborated with Broom in writing *The South African Fossil Ape-Man*, thinks that the Australopithecinae are man's nearest relatives, but not man's ancestors. Nevertheless he thinks that Plesianthropus may have had some kind of speech and that his brain shows clearly that the ape-man walked and ran on his hind legs and used his hands for the manipulation of tools. Schepers has his own theory of human evolution, which is that evolution consists of a " rhythm of change, a slowly progressive, vital, pulsating urge keeping time to a slow swinging of the pendulum between extremes of pedomorphism (immaturity) and gerontomorphism (senescence), and between microcephalism and macrocephalism. The pedomorphs can breed with the gerontomorphs. The pedomorphs have the advantage in that the plasticity and educability of the brain are retained for a comparatively long period, while the gerontomorph has more brain matter, so more meroblasts develop in it. Thus superimposed on this alternation of pedomorphism and gerontomorphism there is a steady and selective growth of the brain. But natural selection has weeded out the extreme pedomorphs and the extreme gerontomorphs. He considers that all the extinct higher primates of which fossils have been found are too specialized to be ancestors of man. He points out that the pre-bushmen of South Africa had bigger brains than any living men. He classes Homo sapiens as a macrocephalic pedomorph and the australopithecinae as microcephalic gerontomorphs. These he says have " crystallized for us a critical phase in the evolution of the pithecoid homunculi, where reversion to ape form no longer becomes possible ".

12. Straus's Theory

W. Straus Jr. is of opinion that none of man's ancestors were brachiators or anthropoid apes. In his view, in the light of available knowledge, the most reasonable theory derives the hominid line of descent from some sort of catarhine primate rather than from an anthropoid ape of any sort. He writes (" The Riddle of Man's Ancestry," *Quarterly Review of Biology*, 1949, p. 216): " That man is a member of the catarhine group of primates admits of no reasonable doubt. But that the hominids are descended from animals that could be classified as anthropoid apes, on the other hand, has in no wise been established, the categorical assertions of some writers notwithstanding. Indeed the large number of basal primate characters which man possesses challenges the rationality of such a conception. Rather they suggest that the phylogenetic line leading to man had become independent of the catarhine stock before there were actual anthropoid apes, not only at a pre-dryopithecine stage, but even before the Hylobatidae-Gibbons."

Straus suggests that this independence of the hominid line may date from the Oligocene period. He bases this opinion on the fact that man

both living and fossil, exhibits features more primitive than those of the anthropoid. He lists no fewer than twenty-two such characters.

Unlike many formulators of theories of the origin of man, Straus is not dogmatic. He closes his statement of his theory by writing: "I wish to emphasize that I am under no illusion that the theory of man's ancestry which I favour at the present time, can in any way be regarded as proven. It is, at the best, merely a working hypothesis whose final evaluation must be left to the future.... What I wish specially to stress is that the problem of man's ancestry is still a decidedly open one, in truth a riddle. Hence it ill behoves us to accept any premature verdict as final, and so to prejudice analysis and interpretation of whatever Palaeontological finds may come to light as the orthodox theory (i.e. that man is derived from an anthropoid ape) has so often done and is still doing. One cannot assume that man is a made-over anthropoid of any sort, for much of the available evidence is against that assumption."

Conclusion

The fact that more than thirty theories (all but one of which at best must be wrong) have been put forward relating to the origin of man is a sign of the baleful influence of the transformist doctrine on zoology.

In the synopsis printed by the University of Edinburgh of a course of lectures on "The Palaeontology of the Primates and the Problem of Human Ancestry" that were delivered in April and May, 1953, by W. E. Le Gros Clark, Professor of Human Anatomy, University of Oxford, the following passages occur: "Since one of the principal aims of taxonomy is to reflect evolutionary relationships, it must take account of palaeontological data," and "The study of Palaeontology, by the nature of the material, is concerned with the evolutionary development of anatomical structure only (and of such indirect inferences as may be drawn therefrom)."

Is it too much to hope that before long biologists will dispense with the transformist spectacles through which they look at nature, and try to see and describe natural objects as they are and not as they ought to be according to the theory of evolution?

Over fifty years ago Reinke declared: "The only statement consistent with her dignity that Science can make, is to say that she knows nothing about the origin of man."

This assertion is as irrefutable to-day as it was in 1902 when it was made.

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