

## PREHISTORIC TYPES OF MAN

SO little is known of the archaeology of the Pacific regions that it still is uncertain whether any of the early types of prehistoric man migrated east of Java. The ancestors of the living or historic inhabitants of the islands apparently did not occupy the closely spaced islands until near the end of the Pleistocene Period, about twenty thousand years ago, or reach the oceanic islands until about the time of the Christian Era; and in neither area, excepting Java, is there as yet any evidence of predecessors. It is clear for cultural reasons that early man could not have crossed the Pacific Moat and it is quite likely that the various early migrants, if they attempted to move eastward in the area of closely spaced islands, were similarly barred from time to time by one or another of the water gaps which successively set off the Sunda Islands, the western Moluccas, the eastern Moluccas and New Guinea, the Solomons, Australia and Tasmania. It seems probable, however, that once a water gap was crossed, all the islands between it and the next important strait would have been occupied. Thus if evidence of any type of early man can be discovered it will be possible to presume with good reason that this type migrated at least as far as the next important water barrier, but not necessarily further, and that it had occupied previously the islands to the west.

So far, skeletal remains from Pleistocene deposits have been discovered only in Java. Not only have representatives of the earliest and most primitive types of prehistoric man been found, but the time span extends from the Lower Pleistocene to modern times, possibly three-quarters of a million years.

The most primitive type of man so far discovered in Java has been named *Meganthropus palaeojavanicus* on the basis of a fragment of a huge jaw containing three human-like teeth found in Lower Pleistocene levels. Although the size of the jaw and the teeth suggest that *Meganthropus* may have attained the size of a modern gorilla, their form and character indicate affinity with man. Great as was the size of *Meganthropus*, he nevertheless was dwarfed by the tremendous structure of a

probable relative and contemporary who lived in China. This creature known as *Gigantopithecus blacki* or *Gigantanthropus blacki*, whichever finally becomes accepted, is represented at present by three colossal molar teeth with human-like characteristics. The importance of these two types of ape-man to the whole history of mankind is obvious, but little more can be said about either until additional evidence is forthcoming.

The classic find in Java is the well known *Pithecanthropus erectus*, whose discovery in 1891-92, in a level since confirmed as Lower Pleistocene, caused such a sensation a half century ago. Until that time no prehistoric types of man with such primitive features, or from such an early age, had been found in any part of the world. This discovery proved very upsetting to some laymen and many insisted that *Pithecanthropus* must have been an ape, not a man; but if really a man, then a deformed one with an undeveloped and misshaped head. Anthropologists, however, recognized that the odds were many to one against finding other than a normal individual of his type. Furthermore, the primitive features were consistent with what would be expected in early man of such antiquity. The cranial capacity of 950 c.c. indicated that the *Pithecanthropoids* as a group varied between 750 and 1175 c.c., or well above the range of 370-650 c.c. in the gorilla, but definitely overlapping the 950-1950 c.c. range of modern Europeans, whose lowest as well as highest capacities embrace the limits among other living peoples. In addition, the development of the speech center in the brain, as shown by endocranial casts, follows the same pattern as in all subsequent humans, prehistoric or modern, although the full significance of this development has been demonstrated only recently. The finding in 1937 of another skull dispelled any lingering doubts about the first specimen. This new find, apparently female, was just like the original, but had a cranial capacity of only 750 c.c., thus indicating that some *Pithecanthropoid* ladies probably had cranial capacities as low as 600 c.c., or less than the upper range of male gorillas. *Pithecanthropus*, with a total range of 600-1175 c.c., thus became the missing link in so far as popular interest is concerned, for his type closed the gap between man and ape, although his affinities are preponderantly on the human side. Indeed, it now seems likely that *Pithecanthropus* was a tool user, which would be consistent with his ability to talk, for stone artefacts of a simple nature have been found in deposits which suggest a corresponding antiquity in Java, although such a correlation has not been proved.

Still other Pithecanthropoid remains include teeth, part of a jaw and a fragment of a youthful cranium. Probably also belonging to this group is the skull of an infant, from deposits even older than those of the first discovery, which in lacking the distinguishing structural features of an adult skull, is difficult to classify without more comparative evidence. For the present, the name of *Homo modjokertensis* has been assigned. The most recent discovery, a slightly variant specimen consisting of a large portion of a skull and parts of both upper and lower jaws, with several teeth intact, came to light in 1939. The general features are the same as in the other skulls, but there are certain characteristics of massiveness which suggest an evolutionary position between Meganthropus and Pithecanthropus erectus. This type therefore has been classified as *Pithecanthropus robustus*.

The growing evidence of the distinctly human morphological and cultural qualities of Pithecanthropus suggest that his type should be honored by a more appropriate classification and *Homo erectus javanicus* has been recommended. At one time it was convenient to use the term Java man but too many types now qualify for this title.

How long the Pithecanthropoids occupied Java has not been determined. Their somewhat more advanced relative in China, *Sinanthropus pekinensis*, who may be renamed *Homo erectus pekinensis*, lived somewhat later, during the Second Glacial Period, and it may be found that Pithecanthropus continued in Java for a long time before he was replaced by a different type of man.

The next type of man in Java of whom we have record is *Homo neanderthalensis soloensis*, who derives his name from his habitat along the Solo River and his affinities with the great Neanderthal division of mankind, so widely distributed in former times in Europe, Africa and Asia. Solo man, as indicated by the partial remains of eleven individuals, shows closer relationship to the African Neanderthaler, Rhodesian man, than to his European cousins. The cranial capacities of the two are 1200 and 1300 c.c. respectively, far less than the 1450 c.c. average of the European Neanderthals. The significance of these differences is not yet clear, for the Neanderthal group as a whole shows considerable variation in several respects.

Associated with Solo man are stone and bone tools which reveal a technological improvement over Lower Palaeolithic industries. The deposits in which Solo man was found belong to the Third Interglacial



Period, but it is possible that he arrived in Java somewhat earlier. Whether he was the immediate or only the eventual successor of *Pithecanthropus* remains to be determined.

The original habitats of *Meganthropus*, *Pithecanthropus* and Solo man undoubtedly were in Asia, whence they could have walked to Java via Sumatra during various periods of lower sea level. Presumably all three occupied Bali, now separated from Java by three miles of strait only thirty-six feet deep. But to have reached Lombok it would have been necessary even in the Glacial Period to swim or float about twelve miles to Noesa Besar and from there ten miles to Lombok. In view of the few successful crossings of the English Channel by well-trained swimmers accompanied by boats to rescue the exhausted, we cannot assume that primitive man would have succeeded in swimming twelve miles of shark-infested waters nor, in view of the lack of interest among Australian aborigines in reaching Rottneest Island, that he would have attempted to cross even with the assistance of logs or floats if such devices had come to mind. That Solo man, *Pithecanthropus* or even *Meganthropus* may have migrated east of Wallace's Line is of course quite possible; but we should await proof and not assume that such has been the case. General considerations from other parts of the world suggest that all early types of man were essentially simple hunters of land animals and collectors of wild foods who, for lack of equipment and knowledge, did not regard the sea as an important source of food. However, if any of these primitives had crossed the water barriers to reach New Guinea and Australia, they undoubtedly would have been very pleased with their discoveries and should have prospered, for in these lands were abundant game and no natural enemies other than snakes, insects and, in their time, the giant marsupial *Diprotodon*. Neither skeletal remains nor stone artefacts to indicate their presence have yet been found, but the islands to the east of Java still await investigation and even Australia is very poorly known.