

Chinese and Occidentals Agree on Skull

Anthropology

Peking Man is Pronounced Advanced Human Type

THE skull of *Sinanthropus pekinensis*, or "Peking Man," which was found early in December in a cave 40 miles from Peiping, represents a considerably more advanced type of human being than *Pithecanthropus erectus*, the so-called ape-man of Java. On this point all the scientists, both Chinese and Occidental, who gathered at Peiping recently to discuss the much-controverted cra-

nium, found themselves in substantial agreement.

Prof. Davidson Black, who has been slowly disengaging the skull from the matrix of travertine in which it was embedded when found, stated that it is of about the same length as the Javanese skull, but that its eminences, or bulges, on both front and sides, indicate both a larger and a more highly developed

brain than *Pithecanthropus* could have possessed. He estimated the difference in cranial capacity to be about 25 per cent. in favor of Peking Man.

In other respects, the skull is still of a primitive character, in Prof. Black's opinion. The very pronounced eyebrow ridges are shared with *Pithecanthropus* and also with Neanderthal Man. The lower jaw of the particular skull discovered in December is missing; but two fragmentary jaws found in 1928 are of a massive, primitive type.

W. C. Pei, the young Chinese geologist who carried on the excavations and actually discovered the skull on the last day planned for excavation in 1929, told of the toil of himself and his large crew of Chinese helpers in the cave, or more properly the fissure, of Chou Kou Tien. The skull was found in a side pocket opening out of a shaft that was dug down through a mass of fossil-filled debris that choked up this deep vertical fissure in a limestone formation. Previous excavations, followed by Mr. Pei's own diggings during the season, have turned out fossil bones of a great variety of animals, including insectivora, bats, dogs, bears, hyenas, rodents, horses, elephants, rhinoceroses, deer, beaver and a saber-tooth tiger. One notable find of the present season was the complete skull of a rhinoceros, with the lower jaw still in place.

Père Teilhard de Chardin, S.J., one of the discoverers of Piltdown Man in England twenty years ago, has gone over the geological evidence and is convinced that the skull belongs to the Pleistocene, or Ice Age, probably early Pleistocene.

"In Chou Kou Tien," he said, "stratigraphical and paleontological evidences suggest that the deposits of the cave are much older than the time during which the Neanderthal man was living in Belgium, France and Spain. When the cave was inhabited and gradually filling, the hyena, rhinoceros and horse which were still alive were distinctly connected with the Tertiary fauna of China: *Machairodus* (the saber-tooth tiger) a characteristic Quaternary animal spread world-wide, was still wandering in the western hills."

Basins of the Atlantic—Continued

fathoms by the mean temperature curve of the South Atlantic, and at 1,950 fathoms by that of the North Atlantic. This shows that the ridge separating the western North Atlantic basin from the South cannot exceed the depth of 2,000 fathoms, and that from that depth to the bottom the temperatures in this basin are uniform. . . .

As salt water at its temperature of congelation is denser than at any higher temperature; its temperature of maximum density being about 2° lower than its temperature of congelation, the water just before it congeals being heavier than the water at any higher temperature would sink, and would in time (did no other cause intervene) occupy the whole of the space in the ocean not influenced by the sun's heat. That is that the whole volume of the ocean, excepting a wedge of the maximum depth of 100 fathoms, would be at about the temperature of the freezing point of salt water. But in considering the effect of the heat imparted to the surface we have also to consider the effects of evaporation and precipitation. Where the heat is greatest, there evaporation takes place quickest, and consequently although the surface water may be warmer, yet by reason of its increased salinity it may be also denser than the water beneath, so that it would sink and impart its heat by convection to the subjacent layers. But all the water evaporated from the surface is also precipitated again, not necessarily in those parts from which the greatest portion has been evaporated, consequently it appears that the salinity and denseness of the surface water depends on at least three factors: its temperature, the amount evaporated, and the amount of rain precipitated. Where the amount evaporated greatly ex-

ceeds the amount precipitated, there the surface film constantly descending imparts its heat to the water beneath, but where the precipitation is nearly equal to or exceeds the evaporation there we might expect the warm water to remain on the surface and the isotherms to occupy but a small space in depth.

In the equatorial regions it appears that although the evaporation is very great still the precipitation is also, as a rule, more than in any other part of the world, so that, although it may not be equal to the amount evaporated, it is still sufficient, in conjunction with the temperature, to prevent the surface film becoming denser than that below, so that the heated water remains on the surface. Were this water to remain in the same position an excess of evaporation over precipitation would doubtless in time render its salinity sufficient to cause it to sink, but this water is, from the friction of the trade winds, aided by the earth's motion, constantly being propelled to the westward, and meeting on the western side of the Atlantic with an obstructing point of the South American continent is deviated to the northward, so that the greater part of this heated surface film is forced into the North Atlantic with sufficient violence to cause a rapid current to issue from the Strait of Florida, which current is familiarly known by the name of the Gulf Stream, and the impetus thus given to these equatorially heated waters appears to be, not only sufficient to supply that stream, but to cause a slower movement to the northwestward outside the islands of the Caribbean sea, which water eventually joins the southern side of the rapidly moving Gulf Stream.

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