

Assam Origins in Relation to Oceania

DR. J. H. HUTTON in his presidential address to Section H (Anthropology) deals with certain aspects of the culture of the Assam hills which suggest a close association in origin with those of Oceania, and which may therefore throw some light on the general problem of the succession of cultures in the Indonesian archipelago.

The link between the cultures of the Naga Hills and of Melanesia has been brought into prominence by recent work of Prof. Henry Balfour, while the work of Dr. A. C. Haddon and others in Borneo and New Guinea affords instances enough to show a line of related cultures connecting Assam with the islands of the Pacific. To determine, however, the nature of that relation, it is advisable to concentrate on particular areas, and for this purpose the Fiji Islands, the Marquesas and Madagascar are chosen as being three widely separated points with inhabitants of varied race and culture in the Oceanic area.

In the case of the Fiji Islands, parallels with Assam are indicated in practices connected with war, head-hunting and human sacrifice, with the cult of the dead, and with beliefs in regard to the soul, and in items of material culture, in particular in regard to the Fijian national game of *veitingga*, and in some psychological aspects. In the Marquesas Islands a similar series of parallel customs is found, particularly in the practices associated with head-hunting; for example, in the separate disposal of the mandible and in the use of stone. In Madagascar a rather different parallel complex is found, though here again there is much similarity in the use of stone and in the treatment of the dead.

An important feature of Naga culture is the use by certain tribes of slit wooden gongs or xylophones. The cult associated with these gongs is in many ways closely parallel to canoe cults of Melanesia, and it is suggested that the Naga "canoe-gong" is a dug-out canoe by origin which has survived, as a musical instrument and a fertility fetish, a change of environment which inhibited its use as a canoe. The intimate association of the canoe-gong with head-hunting is particularly noticeable, as the ceremonial is very similar to that associated with the canoe in Melanesia, the main difference being that in the latter case the association is natural, since the canoe is the means of obtaining the victim, whereas in the Naga Hills there seems no direct reason for associating the "canoe-gong" so closely with the taking of heads. Further, the canoe can be, and is, used as a gong for certain purposes in the Pacific, where it is sounded by means of the

handles of the crew's paddles. A somewhat similar practice is found in Manipur, and it is suggested that the dumbbell-like implement used for pounding on the sides of a canoe-gong is a degenerate form of a paddle formerly used for propelling it as well.

The general conclusion is that not only has the culture of Assam been influenced by a stream of migration from Indonesia north-westwards, but also that in both areas, as in Oceania, a series of corresponding and related cultural strata are to be found in an amalgamated form, even if the actual site of amalgamation was elsewhere. It is suggested that such a site is to be sought for in or near the Indian archipelago.

Heat Production, Nutrition and Growth in Man

IT is almost a truism to say that the amount of money spent on medical research has greatly increased of recent years; but, as Dr. E. P. Poulton shows in his presidential address to Section I (Physiology), the application of research to medical practice has lagged behind, especially where newer and expensive apparatus is concerned, largely because of the straitened circumstances of the voluntary hospitals. A pious benefactor could accomplish much with a comparatively small sum of money if he helped the voluntary teaching hospitals in this respect, as when once the medical student—the future doctor—has become accustomed to a new method or new apparatus its spread through the country cannot be so long delayed.

Direct calorimetry means the determination of the heat in a calorimeter. Indirect calorimetry means its calculation from the oxygen absorbed and the carbon dioxide given out. At present indirect calorimetry is based on the theory that the respiratory quotient (volume of carbon dioxide given out divided by volume of oxygen absorbed) indicates the proportion of fat and carbohydrates being burnt in the organism. A comparison of the figures for heat, oxygen and carbon dioxide obtained by Benedict and Carpenter and Du Bois and his colleagues, shows that there is a fundamental error in the present method of indirect calorimetry.

The theory which best explains the facts is that carbohydrate and fat are always burnt in a fixed proportion in the organism, and that when the respiratory quotient rises there is simultaneous conversion of carbohydrate into fat,