

discusses some of the advances made since 1959. These could with advantage, though doubtless with a good deal of extra trouble, have been incorporated earlier, where they belong, and what is coming in the final section should surely be referred to in the original chapters. In "Commentary" he explains in more detail how common chromosomal abnormalities, such as those causing mongolism and intersexes, are produced; mentions theories dealing with the possibility of inherited cancer; touches on pharmacogenetics; and outlines the vast amount of genetic variability which is being shown up by the complicated polymorphisms of the blood proteins. Finally, he makes the very good point that while geneticists are continually worrying about the quality of the human race we shall have doubled our numbers in the next 50 years and that birth control is far more important than the fruitless task of planning the superman.

There is no doubt that readers of *Nature* will find the book lucid, wholly understandable and interesting, for it is written (in beautiful English) by one of themselves. The query is whether he will cast a spell on intelligent non-scientists (particularly the young) who have had no previous knowledge of the subject.

C. A. CLARKE

CHANGED APPROACH TO RACE STUDIES

Races of Man

By Sonia Cole. Pp. 131+12 plates. (London: British Museum (Natural History), 1963.) 11s. 6d.

BY contrast with the transatlantic situation where several race classifications have emerged in the post-war years and where discussion of the number of races to be identified, if any, is as vigorous as ever¹, the present generation of physical anthropologists in Britain has tended to leave severely alone questions of race classification. Taking a more biological view of race than their predecessors, they have thought it less important to spend time and energy over what can only be arbitrary, the number of races and which human groups they include, and more important to enquire more deeply into the characters in which human populations differ, the ways in which they are affected by heredity and influenced by environment during development, the biological significance of race differences². Thus it is that to-day the frontiers of knowledge in race matters are explored, and the most significant advances made, in departments of biology—biochemistry, genetics, serology, physiology, nutrition, growth, etc. Formerly, however, they lay in the museums, to which there was a continual inflow of skulls, photographs, measurements, etc.; material which had to be maintained in some sort of order, so that there was practical reason for concentration on classification.

That the needs of the museums may latterly have been overlooked is suggested by the emergence from the British Museum (Natural History) of this small hand-book *Races of Man*. It was written to complement the exhibit illustrating the races of man, in which the arrangement of the materials was based on Boyd's³ original six-fold classification by blood group frequencies. The idea—an attempt at classification based on both genetic and morphological criteria—then was good. But its implementation is unfortunate. Lip service is paid to the genetic approach to race, but little besides. Indeed, were it not for the date on the title-page and some half-dozen pages in Chapters 3 and 4, one might think it had been written in the pre-war decades, so discreet is the acknowledgement of post-war thought.

It would be unfair to compare it with the authoritative introductions to physical anthropology that the British Museum has previously published—Oakley's *Man the Toolmaker* and Le Gros Clark's *History of the Primates*.

Its treatment and level of presentation are much more elementary, aimed at schoolchildren and the lay public, as indeed they should be in a companion to an exhibit; but that is why especial care should have been taken in order not to give wrong impressions. It is disturbing, for example, to find so little attention to variability, both in the text and in the sketches and diagrams; so much concentration on 'types', with nowhere a discussion of the validity of that concept; so little note of the continuity of the processes of race formation. One can only hope that those who read this book will also read, say, *Human Races* by S. M. Garn, by way of an antidote.

D. F. ROBERTS

¹ *Curr. Anthropol.*, 3, No. 3 (1962); 4, No. 2 (1963).

² Roberts, D. F., and Weiner, J. S., "The Scope of Physical Anthropology and its Place in Academic Studies", *Symp. Soc. Study Human Biol.*, 1 (1958).

³ Boyd, W. C., *Genetics and the Races of Man* (1950).

FISH AS FOOD

Fish as Food

Edited by Georg Borgstrom. Vol. 2: Nutrition, Sanitation, and Utilization. Pp. xvii+777. (New York and London: Academic Press, 1962.) 178s. 6d.

THE effects of food depend on the amount consumed, the concentration of nutrients in meals, and the physical state of the person eating it. Recent developments lay emphasis on the central role of protein in determining the nutritional value of foods and on the importance of the proportion of the total caloric value of a diet accounted for by protein. Making allowance for biological value, protein concentration must reach certain minimal levels for the maintenance of health and even of life. For the young child protein of ideal biological value must provide about 8 per cent of the total calories of the diet. Diets of lesser protein content will lead to protein-calorie deficiency disease.

It is generally acknowledged that this manifestation of ill-health is the most important form of malnutrition throughout the world and accounts for enormous amounts of sickness and mortality, especially among children. Prevention of such malnutrition lies to some extent in making available larger amounts of food, but especially in raising the concentration of protein of satisfactory biological value in the diet. Much work is being done in nutrition research laboratories to discover special preparations which could be used as food to prevent protein-calorie malnutrition. There are many problems involved not the least of which are in connexion with costs and distribution on a national scale, and satisfactory results of laboratory tests cannot readily be assumed to ensure success in the field. There is a danger that occupation with the elaboration and use of special foods of high protein content may detract from interest in natural foods which people have used throughout many generations. One difficulty associated with the use of these products, however, is in preserving them so as to allow their wide distribution; another is the relatively high physical and monetary costs in obtaining them.

In this context fish is of special value—it can be procured without using up limited land resources, it is widely acceptable as a food, means of preserving it have been known for hundreds of years; but, above all, many kinds of fish have a very high concentration of protein. For example, 95 per cent of the caloric value of the edible part of cod comes from protein, and many fish have protein-calorie concentrations higher than pork, beef, chicken, eggs, and other foods of high nutritional value. Not only does fish contain much protein, but fish proteins are of high biological value; mackerel promotes more growth in rats than does casein. It is clear that addition of sufficient fish to even the poorest of diets would prevent protein-calorie deficiency disease.