

mathematics. It has certain distinctive features of its own and is very useful to Intermediate students of our Universities and forms a good addition to college libraries.

K. V. I.

Fighting for What? By Sir John Orr, D.S.O., M.C., F.R.S. (Macmillan & Co., London), 1942. Pp. 89. 2sh. 6d. net.

Sir John Orr in this book faces the problem of post-war reconstruction with abundant hope and enthusiasm. He would not indeed accept the word "reconstruction", with its suggestion of a return to pre-war conditions. "The old order", he says, "is passing away. . . . The world is in the throes of a new birth." The political system has collapsed, witness the occurrence of two world wars within twenty-five years. So has the economic system or lack of system, which underlies the political catastrophe. The advance of science makes it possible to produce more and more wealth with less labour, but in pre-war days the results were less evident in increasing prosperity than in restriction of output and widespread unemployment.

"The primary material essentials of life are (1) food and (2) shelter which includes a house, furniture, clothing and warmth. To these must be added (3) a job, which is a psychological necessity. . . . If we are planning for human welfare we must put first things first and concentrate on food, houses and a job. Whatever obstacles prevent us from providing these necessities must be ruthlessly removed."

It is about first of these that Orr, as a distinguished worker in the field of nutrition, speaks with greatest assurance and authority. As a result of scientific research carried out during recent years, "optimum" dietary standards have been established, i.e., the type of diet which is needed to produce good physical development and health in human beings is known. Statements of food requirements have been issued by various authoritative bodies, including the Technical Commission on Nutrition of the League of Nations, and all are in general agreement. These standards provide us with "a yardstick by which we can measure the extent to which diets in common use are adequate for health and estimate the amounts of a given foodstuff needed to bring the diet of a given population up to the standard for health". When the diets which population groups actually consume are investigated, it is found that only a proportion of the world's population consumes a diet which conforms with the ideal standard. This is true even in the United States and England in peace-time. In such countries as India under-nutrition and malnutrition are widespread. Orr quotes a recent dietary survey in Ceylon which showed that a third of the population does not get *enough* to eat. The proportion in India is about the same.

So far, so good. We may accept Orr's analysis of the situation as substantially correct. What is to be done about it? Orr outlines a

post-war food policy for Great Britain, based on a National Food Board which in turn will control various Commodity Boards. "The National Board should be responsible for bringing up the national supplies of the main foodstuffs up to the level needed to provide sufficient for everybody and for arranging that sufficient would be available within the purchasing power of everybody. The Board should be voted the necessary funds to carry out these functions and the annual report of the Board would be discussed in Parliament at the time when the funds were voted." Increased demand for food will mean prosperity for the farmer. A world food policy must be drawn up by a supreme economic council, with an international financial organisation to control international trade in food. "Each nation will need to estimate the amount of each of the staple foodstuffs needed to feed its population, keeping in view the dietary habits of the people, and then decide which can be most profitably produced at home and which most profitably imported in exchange for exports which it can produce more easily than the food it needs to import."

Orr's statement of the need to face post-war problems boldly on an international scale and with the full resources of science is admirable, but in so short a book he has been able to sketch his constructive proposals only in outline. The science of nutrition deals with uncontroversial facts, drawn from scientific observation and experiment. It is far otherwise with economics. All suggestions for the reform of existing economic and political systems are of their very nature bitterly controversial. An author who enters this field has no body of ordered facts on which to draw. In any "History of Human Error" a prominent position would have to be given to ideas about political economy which have been accepted as axiomatic by intelligent and instructed men. "The marginal propensity to consume", "the principle of effective demand"—these and numerous other concepts of the economists doubtless mean something, but they do not seem of great help in constructing a better world. The ordinary man—and in this particular context Orr is an ordinary man—has reacted against the complicated arguments of the professors by getting hold of one simple idea. It is that the application of scientific methods in agriculture and industry now makes it possible for the world to produce an abundance of the necessities of life for all mankind. The necessary wealth can be produced, provided an efficient and equitable system of distribution can be evolved. While this idea is no doubt in many respects naive and—to use an overworked word—utopian, it has a great appeal to scientific workers who are impatient to close the gap between scientific knowledge and its application. But score of thorny and tortuous obstacles—financial, social and psychological—lie between the goal and the grim realities of the existing world. How can the economics of abundance be reconciled with human nature, with national boundaries and tariffs, with legitimate profits with the vast differences in industrial and

educational development which exist in the different countries of the world? One could readily add twenty more such questions.

Orr's book is in many respects stimulating and inspiring, particularly in its insistence that when the war has been won a great opportunity awaits mankind to plan its economic and political life on a sounder basis. It is by pointing out the absurdities and failures of the present systems and by clearly describing the ideal which scientific development makes theoretically possible rather than by elaborating concrete constructive proposals, that such minds as his can make their most useful contribution to post-war development.

W. R. A.

Report on the Fish and Fisheries of Lake Nyasa. By C. K. Ricardo Bertram, H. J. H. Borley and Ethelwyun Trevavas. (The Crown Agents for the Colonies, 4, Millbank, London), 1942. Pp. 181. Price 12/6.

This paper is the report of a Fishery Survey that was conducted on Lake Nyasa during 1939 in conjunction with the Nyasaland Nutrition Survey. The three authors of the report formed the members of the Survey. Lake Nyasa is the third largest of the African lakes and is 350 miles long and about 50 miles wide at its widest part. It occupies about a third of the whole of Nyasaland. During the Nutrition Survey by Dr. B. S. Platt it was realised that no economic or dietetic improvement for the people of Nyasaland could be planned without a programme for the rational exploitation of the natural resources of the Nyasa lake. As a result of this the fishery survey was undertaken.

The report embodies a detailed account of the fishes of the lake, their description, economic importance, distribution, methods of capture, size and feeding and breeding habits.

Among important food fishes are the species of *Tilapia*, *Labeo*, *Barbus*, *Bagrus* and *Clarias*. A list of all the species with local names has been given in the order of economic importance. The condition of the various fisheries of the lake has been discussed. There are two European fishing stations working on the lake. A large portion of the fish from these fisheries is exported. At present fish in fresh condition is not available for the local population living more than about three miles away from the lake shore. According to the report, just a fraction of the local population living near about the shores of the lake, is engaged in fishing. Organised fishing throughout the year is not done. The existing methods of fishing and fish curing have been described. The appendices at the end of the report contain data regarding hydrographical readings, geographical distribution of fishes, catches from nets and traps, fishing in different seasons and localities, results of curing experiments, fishery regulations, etc. The report is well illustrated with figures and photographs of important fishes and fishing methods of the lake. Recommendations have been given for the enlargement and rational exploitation of the fisheries. Though valuable information about fishes, fishing methods and the fisheries of the lake has been recorded in the report, the survey cannot be regarded as complete since it had to be abruptly terminated on account of the commencement of war.

It is clear from the report that lake Nyasa is a vast and productive fishery resource. There is immense scope for its development. It may be suggested that the Government of Nyasaland would do very well to appoint a whole-time officer, well trained in fisheries work, to carry out the suggestions made in the survey report and to organise the development of the fisheries of the lake on sound scientific and technological basis.

B. S. B.

CENTENARIES

Robison, John (1778-1843)

JOHN ROBISON, a Scottish inventor, was born at Edinburgh, 11 June 1778. After leaving the University, he worked for a short time at cotton mills at Manchester and in 1802 he was appointed to a business house at Madras. From there, he entered the Nizam's Services and was chiefly employed in the furnishing of guns ammunition. He also laid out grounds for the Nizam on the English model. Having acquired a considerable fortune, he left India in 1815 and spent his later life in inventions and other scientific activities such as the secretaryship of the Royal Society of Edinburgh and the founding of Scottish Society of Arts.

He contributed more than seventy papers to scientific periodicals. His inventions were numerous and ingenious. From boring a canon to drilling a needle's eye, nothing was strange to him. He made a marble pendulum for the

clock of the Royal Society of Edinburgh, as being less subject to variations due to temperature than metal. He was knighted in 1838. He was always enthusiastic in making known merit among talented artificers.

Robison died, 7 March 1843.

McCoy, Elijah (1843-1929)

ELIJAH MCCOY, a Negro inventor, was born in Canada, 27 March 1843. He specialised in the automatic lubrication of machinery. He took more than forty patents, the first of which dates from 1872.

He was a pioneer in devising means for steadily supplying oil to machinery in intermittent drops from a cup, without the need for stopping a machine to oil it. His lubricating cup was in use for many years in the engines of railways and steamships and in factories.

McCoy died in an infirmary, 10 October 1929.