

concerning the cause and the diagnosis of megaloblastic anaemia in pregnancy; somebody familiar with this problem can follow the text, but to the uninitiated the presentation might seem contradictory and the argument circular. These points are minor, as are also the extremely few bibliographic errors. The general format and printing are of the usual high Blackwell standard and the price is reasonable.

There is much here for the biochemist, biologist and nutritionist, but the chief appeal of this major work of reference is to the medical profession, in the clinic as well as the laboratory. Anybody doing research on megaloblastic anaemia or studying for a higher qualification in haematology will find this book essential reading and it should be in every department of haematology.

H. B. GOODALL

DEFENSIVE NETWORKS

The Reticulo-endothelial System

By A. E. Stuart. Pp. xi + 255. (Livingstone: Edinburgh and London, 1970.) 120s.

THIS book is the first general account in the English language of the system of cells throughout the body which plays an important part in defence. It is written by a pathologist who has made important contributions to knowledge of this system, known as the reticulo-endothelial system (RES).

The author starts by describing in some detail the anatomy of the RES; the section on pulmonary macrophages is particularly good. Next, there is a brief but intelligible account of the handling of antigens and iron, followed by an outstanding review of work on stimulation and depression of the RES, which gives special attention to the effects of lipids, and then there is a brief note on the induction of vascular disease. The chapter on cellular immunity in bacterial infections is of an equally high standard.

There follow adequate descriptions of intracellular killing of bacteria, and of the reaction of the system to virus infection. In his account of the macrophage in culture, the author has chosen to be rather selective; much of the work described is his own. This is perhaps the only way of producing a readable account of such a diffuse field. The apparent equation of the extended macrophage in tissue culture with the dendritic macrophage *in vivo* is at present an assumption.

Next there is a slightly scrappy summary of a very scrappy subject—the response of the RES to cancer and grafting. The last chapter is a concise account of the comparative anatomy of the RES, with a memorable picture of a contemplative octopus. This chapter also includes a short consideration of discrimination by macrophages.

In a day when savants spend their days counting the number of pico-devils dancing on the end of a microvillus, the catholicity of Dr Stuart's learning is impressive. It is a considerable achievement to have written a book which passes from the post-mortem room, by way of carbon clearance tests and some ultrastructure, to the octopus and the crayfish, and yet which remains a cohesive whole. A single-author book covering such an extent must, as here, vary in depth of treatment. The style is clear and readable, sometimes picturesque. Cilia "beat with purposeful strokes"—of course they do. The pictures are numerous, mostly good and often coloured, and the bibliography is extensive. The production is good and the price is probably fair.

I enjoyed reading this excellent and authoritative text, and can recommend it warmly to honours students in the medical and biological sciences, to postgraduate students, and to pathologists.

IAN CARE

PHYSIOLOGY OF FISHES

Fish Physiology

Edited by W. S. Hoar and D. J. Randall. Vol. 1: Excretion, Ionic Regulation and Metabolism. Pp. xiv + 465. Vol. 2: The Endocrine System. Pp. xiv + 446. (Academic Press, New York and London, November and December, 1969.) 215s each.

FOR one whose first ideas about comparative physiology were stimulated by Hogben's book of that title during the twenties, it is both amazing and delightful to see, reviewed in these books, something of what has been achieved during forty years, just within one group, even one as diverse as the fishes. It is almost equally amazing to see what has been done in the much shorter time since Dr Margaret Varley edited *The Physiology of Fishes*.

Some of the more recent work will have been stimulated by Dr Varley's book, as a convenient reference and review, just as this new series will stimulate students and more senior workers during the next ten years. The subject is, however, intrinsically fascinating, if only because of the diversification of fish species over almost the whole range of aquatic habitats, and the interest of biologists of many kinds seems assured. More specific will be the debt of fisheries research workers, although one would like to think that to some extent this has been paid in advance by that same process of stimulation, and it is good to see among the list of authors already identified several who have worked or still work in recognized marine and fisheries research laboratories, or who have had definitive connexions with them. Fisheries research has achieved more than is often realized, perhaps, but it is necessarily a slow business, and it was perhaps especially slow in realizing the necessity for understanding fish behaviour and its physiological basis. Recently, some useful advances have been made by fisheries scientists in both, but there is far to go and progress must depend greatly on the work of academic colleagues. It is good that this series of volumes, practically all of which promise to be relevant in fisheries terms, is intended to include a section on behaviour itself.

The first volume is devoted to aspects of metabolism: ionic regulation and osmosis, excretion, intermediary metabolism, nutrition and energy requirements, and the like. There is a full account of the physiology of the lower vertebrate kidney, with an introductory chapter on the body compartments and the distribution of electrolytes, and smaller sections on the effects of salinity and on salt secretion. The second volume is devoted to endocrinology although, in spite of the reasoned apology, it will surprise many that the endocrinology of the gonad has been deferred for volume three (and of the pineal gland for volume four) if only because of the known interrelations of the endocrine system. There is a major section on the pituitary, including a separate chapter on the neurohypophysis, with smaller sections on prolactin, the endocrine pancreas, the caudal neurosecretory system and the ultimo-branchial glands, together with thyroid control and the adrenal cortex (although not the medulla). While noting the author's view that an exhaustive review of thyroid function was neither possible nor desirable, it is also noteworthy that reference is made here (and elsewhere) to early literature on chemical identification of hormones with little or no evaluation of the earlier test procedures adopted, although there is at least an acknowledgment in the chapter on the adrenal cortex of the considerable analytical developments of the past decade.

As a whole, however, these first two volumes are admirable, and promise greatly for the remainder, as one would expect of the editors. They have set out their hope that this series of six volumes "will prove as valuable in fisheries research laboratories as in university reference libraries and that it will be a rich source of detailed information for the comparative physiologist and the