Keeping healthy . . .

Viral Immunodiagnosis. Edited by Eduard Kurstak and Richard Morisset. Pp. xiv+334. (Academic: New York and London, October 1974.) $39.50; £18.95.

THE current lack of specific treatment for most viruses has discouraged the demand for rapid and accurate diagnosis of viral infections. Although precise diagnosis is essential from the epidemiological point of view, the results are generally obtained too late to be of practical value for the immediate care of the patient. Nevertheless, the rapid identification of viruses is yielding important information on the role of viruses in infections of the foetus and the newborn; on the prevention of transmission of hepatitis B by blood transfusion and the spread of this infection by other routes; for the diagnosis of acute and chronic infections of the nervous system; and on respiratory infections, rabies, the herpes group of viruses and others. Similarly, the availability of rapid, specific diagnostic methods is playing a major role in the experimental investigation of a variety of viruses, including the tumour viruses.

The labelling of antibodies with enzymes offers a new technique for application in diagnostic virology. The immunoperoxidase method is a specific, rapid and relatively simple technical procedure which allows the localisation by light microscopy and by electron microscopy of viral antigens present in specimens collected directly from a lesion or from infected tissue cultures. Immunofluorescence and immunoferritin are other methods which provide rapid and specific diagnosis. The identification of viral antigens and antibodies by immune electron microscopy has been used successfully not only for the investigation of immune complex formation and the serotyping of viruses but also for the detection of viral agents which cannot be easily cultured and for determining antigenic relationships of newly discovered viruses.

The practical procedures for the preparation of enzyme labelled antibodies, for the conjugation of fluorescein, ferritin and cytochrome *c* and the application of these techniques are described in detail in this book in a series of authoritative articles by a number of distinguished contributors. Immunodiagnostic techniques offer new methods for the rapid identification of many viruses and these techniques can be readily applied in hospital laboratories as well as in research laboratories. This book thus fulfills an important need by providing a lucid and a reasonably comprehensive guide, drawing attention to current findings and pointing to new directions of research for the clinical diagnosis of viral infections. An example of future prospects is the technique of cytohybridisation which, although not immunological in nature, offers the advantages of relative rapidity and ease and the reliability with which viral genome can be detected whether or not infectious virus is present. The preparation of specific probes requires a relatively sophisticated laboratory but no doubt such reagents will become available commercially in due course.

The book is well written, with a text that is lavishly illustrated and practical instructions that are explicit and complete, and I therefore wholeheartedly recommend it as essential reading for microbiologists and immunologists. It is a pity that in these days of economic stringency the high price may well keep this useful and stimulating volume away from the bench of many laboratories, where it should clearly be readily available.

Arie J. Zuckerman

Ultrasonic Imaging and Holography Medical, Sonar and Optical Applications. Edited by G. W. Stroke, W. E. Kock, Y. Kikuchi, J. Tsujiuchi. Pp. xi+642. (Plenum: New York and London, 1974.) n.p.

THIS is a fascinating book for all who are interested in remote sensing with non-optical waves. A distinguished group of authors, including Denis Gabor, have contributed to this volume. It comprises a complete set of papers on the subject of holographic imaging and information processing, which were presented at the United States–Japan Science Cooperation Seminar in Hawaii, in January 1973. Most of the 20 papers are concerned with the imaging of human tissue, using ultrasound. The remaining papers report recent developments in acoustic microscopy and optical signal processing of acoustic images. It is clear from this book that ultrasonic imaging is emerging as a particularly useful technique for application in the medical field, as it is a powerful aid to non-invasive early diagnosis of cancer. The book is therefore to be especially recommended to medical physicists, radiographers and clinicians who wish to be aware of the recent developments in this field.

The diagrams and photographs, so essential to the presentation of this subject, are generally quite good although they have not been standardised by the editors. But that is to be expected in what are really conference proceedings.

A. P. Anderson

Parasites in the Immunized Host: Ciba Foundation Symposium. Pp. viii+280. (Elsevier/Excerpta Medical: London, Amsterdam, New York, 1974.) $16.20.

UNLIKE the majority of bacterial and viral infections, parasites are rarely eliminated totally from their hosts by the action of immunity. Chronic parasitic infections are the outcome of a delicate balance between the immunological forces of the host on the one hand and the circumvention of these forces by the parasite on the other. The purpose of the Ciba Symposium held at the Ciba Foundation in London from November 13 to 15, 1973 was to discuss the various mechanisms by which parasites are able to evade the immune responses of the host; twenty six eminent specialists in the fields of immunology, parasitology and tropical medicine took part.

There are probably several distinctive ways in which parasites survive in the immunised host. Five mechanisms were examined in detail by experts in those particular areas of research. Antigenic variation, which is thought to be a major factor in the survival of parasitic protozoa, was discussed, particularly in plasmodia and trypanosomes. From the analogy provided by the extensive studies on *Paramecium* it seems likely that a switch in gene activity is the mechanism. A form of variation has been described in *Nippostrongylus* but the mechanism in helminths may be different from that in protozoa.

Certain parasites seem to survive by modifying the immunological responsiveness of their hosts; there are several ways in which this could happen. For example, T-cell responsiveness is dampened in lepromatous leprosy and diffuse cutaneous leishmaniasis and antigenic competition is a possible reason for the poor immunological responses in patients with malaria. Antigens of the host-type, which are related to the blood group substances and appear on the surface of schistosomes are thought to protect this particular parasite from the action of antibodies. Many parasites release soluble antigens and it is possible that these substances facilitate the survival of the parasite by such means as inducing tolerance, stimulating suppressor T cells or blocking cytotoxic mechanisms. The ability of certain parasites to survive within macrophages is, perhaps, the most remarkable example of immune evasion. In some cases this may be because the lysosomes are prevented from fusing with the phagosomes containing the organism, but that is not always the explanation.

Each paper presents an excellent review of up to date knowledge of one aspect of this subject and is followed by a full transcript of the discussion it