

explains some of them. Bartoshik gives a highly readable summary of the little that is known about taste mechanisms and Riggs gives an elementary but readable introduction to some of the more peripheral aspects of vision.

This book will still be read in fifty years' time—but only by those who are interested in the dying kick of a narrowly based behaviourism.

N. S. SUTHERLAND

Fleas

An Illustrated Catalogue of the Rothschild Collection of Fleas (Siphonaptera) in the British Museum of Natural History. By J. H. E. Hopkins and Miriam Rothschild. Pp. 350+842 text figs. and 30 plates (6 colour). (British Museum: London, 1972.) £25.

THE trustees of the British Museum (Natural History) are to be congratulated on their enterprise and perspicacity in producing the first monograph of an order of insects as extensive as fleas. The fifth volume maintains the excellence of the earlier ones. It deals with one large and taxonomically difficult family, the Leptopsyllidae, and one very small one, the Ancistropsyllidae. The illustrations in this volume bring the total now published in the series to well over 4,000, all of them of high quality. The keys to genera and species are simple and clear and designed for the medical entomologist rather than for the specialist.

An outstanding feature of volume V is the glossary of terms and the morphological studies upon which the definitions and descriptions of the organs are based, a part that seems to owe much to Robert Traub. A number of points of more general interest are discussed. The position of the pleural arch on top of the pleural ridge suggests that it is homologous with the wing-hinge ligament of flying insects, which is further supported by the presence of resilin in the pleural arch. Sections of the pharate adult stage show that the combs of pronotal spines are modified setae. Their work on the histology and morphology of the female reproductive system confirms Jordan's view that the family Hystichopsyllidae was evolved before other recent families of fleas.

It is a pity that the monograph is called an illustrated catalogue, which not only conjures up quite the wrong impression of its contents but successfully conceals its monographic nature and must discourage the purchase of an important addition to every medical and entomological library. The next volume on the Cerophyllidae will be eagerly awaited by epidemiologists and specialists on fleas.

H. E. HINTON

Nuclear Common Sense

Economic and Social Consequences of Nuclear Energy. Edited by Lord Sherfield. Pp. v+91. (Oxford University: London, March 1972.) £1.

THIS little book is, according to the blurb on its cover, part of a series "intended to provide a medium for the discussion of various aspects of the impact of scientific discovery and technological development on society". It consists of six independent chapters, each written by a person who has long been identified with the nuclear speciality he is describing. Professor Robert Spence writes on the science of fission and fusion; Air Chief Marshal Sir Denis Barnett on the technology of nuclear explosives; Sir Stanley Brown on the economics of nuclear power; the late Dr Hans Kronberger on non-power and non-military uses of nuclear energy; the Right Reverend Robert C. Mortimer on the moral aspects; and Lord Ritchie-Calder on the sociological consequences of nuclear energy. Lord Sherfield, who as Roger Makin served as Chairman of the UKAEA, provides a short summary for the volume.

The science and technology in this volume cannot be faulted: the writers are experts. That they are all British means that the viewpoint is British: the reactors are gas-cooled graphite reactors rather than American water reactors; the wartime experience is that of the Maud Committee rather than the Manhattan Project.

Only the moral and sociological chapters can be considered controversial. To an American nuclear technologist who has grown weary over the past years responding to the increasingly shrill attacks of the anti-nuclear activists, these chapters are welcome examples of low-key British commonsense. The good Bishop of Exeter calls for a peace of repentance but accepts the *de facto* peace of mutual terror. Lord Ritchie-Calder speaks of nuclear energy as a relatively "clean" and "safe" source of electricity. These are unusually reasonable positions to be espoused in this day of harsh acrimony and strident accusation.

Only with respect to the disposal of radioactive wastes would I quarrel with Lord Ritchie-Calder. He sees their disposal as the biggest problem of nuclear energy. This may be so, but it is in a sense more of a social than a technological problem. Nuclear wastes can be disposed of in a variety of ways—particularly in surface vaults or in salt mines—that technically are essentially foolproof. But because their radioactivity lingers for such a long time, the wastes do impose on our society a social commitment: an assurance that from now to perpetuity our social institutions retain sufficient stability to

guarantee the continued existence of a cadre that will take care of the wastes. This is one of the heaviest social consequences of nuclear technology. I was disappointed not to find it stated explicitly in the *Economic and Social Consequences of Nuclear Energy*.

ALVIN M. WEINBERG

Colour Blindness

Acquired Colour Vision Deficiencies: First Symposium of the International Research Group on Colour Vision Deficiencies. Ghent, June 1971. Edited by G. Verriest. Pp. iii+230. (Karger: Basle, London and New York, 1972.) £8.15; \$20.75; 74 Sw. francs.

THIS book is a collection of thirty-five papers contributed to the symposium by distinguished authors who, for the most part, are busy clinicians, concerned to detect early, and classify pathologically, conditions in their patients that are associated with acquired colour abnormalities. The tests used must be quick, and simple enough to give definite answers with quite unskilled observers. Like the rashes of measles and scarlatina, such direct observations may be of great diagnostic importance, but they give little information about the underlying physiology—of skin vascularity in the one case, or of colour perception in the other.

Eleven papers are devoted to methods of examination, starting with W. D. Wright, author of the classic *Researches on Normal and Defective Colour Vision*. Most contributors recommend a combination of tests usually including the anomaloscope, the Farnsworth 100-hue test and the Ishihara (or similar) cards for macular investigation, and various forms of perimetry in the periphery. Many modifications of standard equipment are described and recommended.

Seventeen papers describe the results of these tests in a great variety of acquired deficiencies. An initial review of this very complex subject is set out with masterly clarity by Dubois Poulsen. But after reading the next sixteen papers, one cannot but agree with his opening sentence, "In spite of the numerous works which have been devoted to them, acquired dyschromatopsias are still very mysterious." This section is written by clinicians for clinicians, and their careful observations with a battery of tests will go far to enable a very large variety of diseased conditions to be diagnosed early and correctly.

Seven authors contribute to the final section, "The mechanisms of acquired defectiveness of colour vision, and its study by means of special methods."