

whether relevant to the general theme or not, and most are well written. One or two could have done with a little tighter editing and sometimes one gets the feeling that the selectors were trying to be a little too "with it" whereas the Institute of Biology has proved again and again that it can put together a fascinating assembly of people and views that are pertinent to our times.

ARTHUR BOURNE

Muscle

Muscle Biology: a Series of Advances. Edited by R. G. Cassens. Volume I. Pp. x+299. (Marcel Dekker: New York, August 1972.) \$17.50.

THIS, the first volume of a series, is based upon lectures delivered at the Institute for Muscle Biology, Madison, Wisconsin, in the spring of 1971. The respective chapters deal with the energetics of muscle contraction (Mommaerts), muscle regeneration (Carlson), enzyme kinetics (Taylor and Lynn), force-velocity relationships in heart muscle (Brady), muscle growth and atrophy (Goldberg), the effect of adrenergic neurotransmitters on the uterus (Marshall), spindle structure and function (Smith and Ovalle), muscle changes resulting from motoneurone dysfunction (Engel and Warmolts), the histopathology of human and chicken muscular dystrophy (Shafiq, Askanas, Asiedu and Milhorat) and oxygen uptake by striated muscle (Stainsby and Barclay). Each chapter gives a well-referenced review of current knowledge, and even though the book has been produced by a photo-offset method of reproducing typed manuscripts, the illustrations, which include a number of electron micrographs, are in general clear and of good quality. As is inevitable in any such multi-author work, the individual chapters vary considerably in scope but all contain material of considerable interest to biologists and to all who are interested in disease and dysfunction of cardiac and skeletal muscle. That by Smith and Ovalle, which occupies some eighty pages, is a particularly comprehensive survey of the structure and function of intrafusal muscle fibres. The appearance of subsequent volumes in this series will be awaited with interest; it is unfortunate that a book produced by a method designed to ensure rapid publication has taken so long to appear; one hopes that the editor and publisher will try to see that succeeding volumes are published more rapidly, as this is a field in which knowledge is advancing rapidly.

JOHN N. WALTON

Drug Problems

Dealing with Drug Abuse: a Report to the Ford Foundation. Pp. x+396. (Macmillan: London and Basingstoke, June 1972.) £3.95.

It would seem quite difficult, given what is known about drug-taking in America, to prepare a concise and reasonably objective description of the priorities for further research into treatment of drug users, public education in the field, and other relevant aspects of government policy. The *Summary of Findings, Conclusions, and Recommendations* (of the Drug Abuse Survey Project, financed by the Ford Foundation) provides just such a description. The present volume contains the Summary by Patricia M. Wald and Peter Barton Hutt) and seven staff reports.

The large existing literature notwithstanding, relatively little is known about how the various psychoactive drugs work nor about their long-term psychological and physiological effects. There is a particularly great need for interdisciplinary research (for example, relating the pharmacological and other effects to various social environments), study of the interaction of different drugs taken in combination, and experimentation with heroin use and maintenance.

The pharmacological literature on psychoactive drugs is summarized in a paper by James V. DeLong.

The second staff paper is a descriptive listing of drug education programmes, compiled by Patricia M. Wald and Annette Abrams. The main reported difficulty is a failure to evaluate suitably—or even to develop adequate criteria for evaluating—the very large number of efforts.

A paper by DeLong on treatment and rehabilitation is devoted largely to programmes for heroin users. Of various alternatives (for example, civil commitment, therapeutic communities, opiate antagonists), methadone maintenance programmes appear to be having the greatest overall "success".

"The Economics of Heroin" (by John F. Holahan) includes a description of international sources of supply and the likely effects in America of various alternative policy decisions.

A straightforward account of federal expenditures on drug-abuse control is provided in a staff paper by Peter Goldberg and DeLong.

Probably the most important and innovative paper is by Andrew T. Weil, "Altered States of Consciousness". The investigator begins with a clear summary of the relationship (or lack thereof) between the pharmacological and social/psychological effects of various classes of drugs. He then points out that drug experience can best be understood in terms of altered states of con-

sciousness, and he lists four proposals "to be kept in mind as the direction to move toward": recognition of the importance of altered states of consciousness and the existence of a normal drive to experience them; provision for the experience of altered states of consciousness in growing children; incorporation of the experience into society for positive ends; and encouragement of individuals to satisfy their needs for altered consciousness by means that do not require external tools.

The final staff paper, by Edgar May, provides a description and tentative evaluation of the British "system" of opiate-prescribing clinics. The treatment of addiction by medical rather than law enforcement procedures is speculatively regarded as having prevented a problem such as is seen in the United States.

HERBERT H. BLUMBERG

Origin of Spectral Lines

Radiation Transport in Spectral Lines. By G. Athay. Pp. xiii+263. (D. Reidel: Dordrecht, 1972.) 41 florins.

THIS book is one in a series of monographs which will each cover "a well defined and limited area of geophysics or astrophysics". Appropriately, this first volume is concerned with the fundamentally important area of energy transport processes and physical phenomena giving rise to spectral lines, and with methods used for extracting information concerning the medium in which the lines are formed.

In the introductory chapter the author suggests that spectral line studies in astrophysics may be divided into three phases. In the present phase, which resorts largely to numerical techniques for solving the radiative transfer equation, it is no longer necessary to suppress some of the physics of line formation in the interests of simplicity as is characterized by the earlier algebraic approach. Thus the detailed interplay of the different physical mechanisms involved in line formation is emerging and the information derived from spectral line studies is becoming more meaningful.

Much of the material presented is the result of computational work, a great deal of which has been done by the author and his colleagues. The book is to be regarded as a state-of-the-art progress report which, the author hopes, will be superseded by a treatise providing a more acceptable level in the ratio of physical insight to numerical results. The usefulness of the monograph is that it provides a valuable summary of some recent accomplishments in radiative transport problems and a guide to the directions for further research.

B. BATES