mental intramural aerobiology: the stirred settling chamber, the rotating drum (with the first satisfactory account of its theory), and variations on the theme of the wind tunnel. The section ends with a chapter on contamination control which is concerned, not with the familiar problem of excluding contaminants from cultures, but with how to prevent dangerous airborne pathogens leaking out from experimental chambers. To many workers, part two, with its practical advice from users thoroughly familiar with their equipment and aware of its limitations, will be the most useful part of an entirely valuable monograph.

The third part deals with some results and applications of aerobiology, shows how being airborne affects microbial survival, and contains a critical philosophical chapter on interpreting death curves. A later chapter discusses the newer techniques for immunizing people by inhaling aerosols in contrast to conventional methods of vaccination. This leads on to an account of the part played by microbial aerosols in respiratory infections in man, in veterinary pathology, and (perhaps rather unexpectedly) in dentistry. Surprisingly, continuous monitoring of microbial concentration of natural outdoor air is scarcely mentioned. The book ends with a useful glossary to aerobiological jargon.

P. H. GREGORY

MIND DISTORTING COMPOUNDS

Psychotomimetic Drugs

Proceedings of a Workshop organized by the Pharmacology Section, Psychopharmacology Research Branch, National Institute of Mental Health, held at the University of California, Irvine, on January 25-26, 1969. Edited by Daniel H. Efron. (Workshop Series of Pharmacology Section, National Institute of Mental Health, No. 4.) Pp. 365. (Raven Press: New York; North-Holland: Amsterdam, 1970.) Hfl. 63; 147*s*; $17.70.

THIS book contains the formal contributions and discussions from an interdisciplinary meeting on psychotomimetic drugs. As a fairly comprehensive and up to date review of many aspects of the problem, the book has something to commend it, though the standard of the contributions is uneven and there have been similar volumes in recent years.

Two-thirds of the book consists of formal contributions from chemists, pharmacologists and physiologists, with discussions; the remainder contains reports and discussions on the human pharmacology and the clinical uses of various mind distorting compounds including DOET, DOM, DMT, DET, DPT, LSD, methysergide and cannabis. Amphetamine in particular is well covered in terms of its chemistry, mechanisms of action, induction of psychosis in human volunteers and therapeutic uses in hyperkinetic children.

Shulgin describes the general chemistry and structural characteristics of the different groups of psychotomimetic drugs. Snyder and Richardson describe the optimal steric features for psychotomimetic activity in terms of simulation of the A and C rings of LSD and the possible predicative value of calculation of molecular orbital energetics within groups of psychotomimetics.

Aboud then describes the anticholinergic glycolate esters which induce toxic confusion in man. Rather curiously, he rejects the possibility that they act by antagonizing some of the central effects of acetylcholine, and stresses the possibility that their central nervous system effects are caused by a general effect on excitable membranes in brain—glycolate esters substituting and interfering with the regulatory effect of calcium on membranes.

Aghajanian and his colleagues present their now classical experiments showing that the 5-HT containing neurones of the midbrain raphé are highly susceptible to and apparently specifically depressed by LSD and mescaline administered systemically to anaesthetized animals.

Stein and Wise present experiments showing that amphetamine facilitates self stimulation in rats with electrodes in the medical forebrain bundle (MFB). It is unfortunate that their experiments, showing that MFB stimulation in animals with high rates of self stimulation causes the release of labelled noradrenaline from the amygdala, are not controlled for non-specific release.

Dr West's thoughtful contribution on marihuana and the psychobiological risks which may be involved in its use and abuse, should be read by all interested in the social use, legal implications and pharmacology of marihuana.

Perhaps the best feature of the book is the discussions on the formal papers. The discussions seem to have been reproduced almost verbatim, and there is a mine of incidental information in them. The discussions illuminate some of the areas of disagreement and many of the shortcomings in this field, particularly with respect to unproved unitary theories either of the structure and mode of action of hallucinogens or behavioural tests. The urgent need for clear thinking on modes of actions is apparent, particularly in terms of trying to relate behavioural, autonomic changes or hyperthermia in experimental animals to psychotomimesis in man. The difficulties in establishing drug effects on behaviour in man by quantitative and objective techniques would justify a symposium.

D. W. STRAUGHAN

MARCH OF THE BIOCRATS

The Biocrats

By Gerald Leach. Pp. 317. (London: Cape, April 1970.) 35*s*.

MEDICAL and scientific advances are entering realms previously the province of the novelist. Spare-part surgery, test-tube fertilization and life on the machine are here to stay; nothing is more certain than that we must come to terms with the practical and ethical aspects of these issues. Sane examination of the emerging problems, the number of people likely to be affected, and the economic cost is clearly needed; in this book Gerald Leach rationalizes and discusses many of the biomedical problems facing us now and in the next decade.

He writes primarily for the general public, but his observations will also concern the specialist. The book is packed with detail. Inevitably much educational matter is included for the general reader to give factual accounts of the different areas of biomedical activity; facts which are also needed to provide objective arguments for or against particular courses of action. Leach simplifies vast areas of embryology, immunology and molecular biology. Keeping up this hard pace throughout the book hardly makes for easy reading, even for the specialist involved in these issues. I wonder how far the "general public" will be able to cope with all this information. In parts, the detail provided could serve as a reference book for students, for it is clearly and concisely written and certainly reaches this standard.

Throughout most of the book, Leach displays sound common sense, and uses direct and simple language in the rational discussion of the sociological impact of biomedical advances. We are presented with information and comment, and not, mercifully, with high-flown ethical theory. Some facts are highly revealing: patient survival after heart transplants is currently more prolonged than it was after an equivalent stage in the development of kidney transplants. Kidney transplantation is now almost routine, yet heart transplants are widely criticized. The facts of particular issues are often left to speak for themselves, Leach's opinions being withheld. Nevertheless, the opinions of "experts" are liberally supplied to provide judgments. Leach's pragmatic attitude is most welcome;