

temperature measurement, calorimetry, determinations of melting and boiling points, of vapour pressure, solubility, viscosity, surface tension, osmotic pressure and with work on mono-layers. Part 2 contains one new chapter. This deals with X-ray microscopy, which, as the writer admits, has not yet much applicability to chemistry. The others deal with diffusivity, the use of the ultracentrifuge, with refractometry, with crystal measurement, with microscopy (in great detail), with X-ray crystallography (far too briefly) and with both electron and neutron diffraction. Few of these have been changed significantly in this edition, and indeed there is little of new import to be said about several of these techniques. However, it is rational to survey established experimental methods before dealing with others of more recent origin. Furthermore it is to be hoped that the forthcoming Parts 3 and 4, which are to deal, *inter alia*, with spectroscopy and both nuclear and paramagnetic resonance, will show that the overall expansion of the treatise is fully justified.

Too much of these first two volumes has evidently been written by physicists for chemists, and a common attitude seems to have been "here is what can be done with this type of measurement; why you should wish to use it is not my concern". So much is the chemical approach missing that I noted quite a few instances in which no mention had been made of novel, yet significant, applications of old techniques, as, for example, uses of calorimetry and of interference refractometry in studying rapid chemical reactions, or of solubility and vapour pressure measurements in determining the purity of optically active compounds.

Many users may find the chapters too theoretical for their liking, but in this respect they would do well to note the dictum of one contributor that "the experimenter should know more of his subject than he needs to apply in attaining the particular accuracy of his present measurements". This caution was rightly followed by notes on the theoretical and experimental limitations of commercial instruments. Such sections throughout the book are well worth reading.

Every specialist who consults this book may find gaps in the treatment of his own topic, but one should be circumspect in not demanding too much of any treatise.

W. A. WATERS

HUMAN GROWTH

Human Growth

Edited by J. M. Tanner. (Symposia of the Society for the Study of Human Biology, Vol. 3.) Pp. vii + 120. (London and New York: Pergamon Press, 1960.) 30s. net.

THIS, the third volume published on behalf of the Society for the Study of Human Biology, is a record of the proceedings of one of the symposia which the Society convenes periodically (see *Nature*, 186, 19; 1960). The topics are many and varied and range from age-changes in primates and their modification in man, contributed by Prof. Adolph Schultz of the University of Zurich, to the effects of race and climate on human growth as exemplified by studies on African children. The latter studies were initiated by D. F. Roberts, University of Oxford, and are of particular significance because the samples were

taken not from dwellers in the vicinity of administrative and urban centres, but from remote peoples in tribal and rural areas. They corroborate previous findings showing that African children differ from European children by a tendency towards lower weight for a given height.

Two contributions to the symposium should commend this book to all educationists. The first, by Dr. Roy M. Acheson, examines the effects of nutrition and disease on human growth, and brings ample experimental evidence to show that even a very brief insult can greatly retard the growth of a child. The other, by Dr. D. W. Boyne, is concerned with secular changes in the stature of adults and the growth of children, especially relating to changes in the intelligence of 11-year olds. Besides confirming that the intelligence of boys and girls varies with respect to one another at different ages, the author produces additional evidence to confirm that the intelligence of girls over the age of eleven has been improving relative to that of boys since before 1939. Whether this is due to real change in the innate intelligence or to change in the nature of the tests is not known. It is certain, however, that great progress in our knowledge of human growth has been made since Sir D'Arcy Thompson concerned himself with biological gradients and that, besides educationists, this book has much to interest anatomists, zoologists, anthropologists and medical practitioners.

DECISIONS, VALUES AND GROUPS

Decisions, Values and Groups

Vol. 1: Reports from the First Interdisciplinary Conference in the Behavioral Science Division, held at the University of New Mexico. Edited by Dorothy Willner. (Sponsored by the Air Force Office of Scientific Research.) Pp. xxix + 348. (London and New York: Pergamon Press, 1960.) 80s. net.

THE foreword of this book is by Dr. Charles E. Hutchinson, chief of the Behavioral Science Division of the Air Force Office of Scientific Research in Washington; the introduction is by Dr. Anatol Rapoport; and the preface is by the editor. It is divided into five parts: (1) Mathematical Models in Decision Processes; (2) Conceptualizations and Designs for Research in Values; (3) Theoretical Contributions to Small Group Research; (4) Psychodynamic Patterns of Behaviour; (5) Special Military Problems.

There are twenty-three independent papers, too many even to list. Only one paper necessitates an acquaintance with higher mathematics. It is entitled "Stochastic Choice and Subjective Probability". But the experiment conducted would be regarded as somewhat simple by a student of Prof. M. S. Bartlett's *Stochastic Processes*.

The significant characteristics of the book seem to be that decision processes and evaluative processes are regarded as essential scientific concepts. That is, science can proceed without a system of values. But here lie the most difficult problems of human endeavour and "no quick-fixes or break-throughs" are claimed. Perhaps progress will be reported in Vol. 2.