

volume dealing with biochemical applications have been greatly extended. The third edition also contains a series of very useful appendixes, the one on chromatography being particularly noteworthy in its detailed description of the use of autoradiographic techniques as a means of augmenting the information that can be obtained from the original paper chromatogram.

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Report of the Conference on Recent Developments in Cloud-Chamber and Associated Techniques. Comprising collected papers of the conference held under the joint auspices of the Physical Society of London and University College, London, March 1955. N. Morris and M. J. B. Duff, Eds. University College, London, 1956. 227 pp. Illus. 30s.

This volume is composed of the papers presented at the Conference on Recent Developments in Cloud-Chamber and Associated Techniques, held in London in 1955. There are 46 papers, plus reports of six discussion sessions. The reports cover the following variations of cloud chambers: diffusion, multiple plate, high pressure, fast cycling, and pure vapor. Problems of measurement and interpretation of tracks and apparatus for reprojection and measurement were discussed in one of the sessions (five papers). Circuits, counters and apparatus used for counter-controlled operation, and other peripheral matters are taken up in a number of papers. The bubble chamber, which was quite new on the scene at the time the conference was organized, was accorded a short presentation. However, because of the rapidity with which the development of this device has proceeded in the last few years, the material given in the report can now be considered to be only an introduction to the subject. Most of the authors are from laboratories in England, but there is a good representation from the United States and other countries.

It would be pretentious to try to rate the contents of the volume—its contributors constitute a large fraction of all the practicing experts in the cloud-chamber business, and it is therefore authoritative by definition. As in any report of a conference, the value of the written version depends on the care with which the manuscripts were prepared and assembled—the standard set by the editors. In the preparation of this volume, the editors are to be commended. They have been thorough in gathering the pertinent written material, references, and discus-

sion. What is even more commendable in a work of this kind, they have made sure that the graphs and pictures are accompanied by full captions.

In the volume at hand we have without doubt the most complete statement existing on the art of cloud chambers. It is so complete, in fact, that one cannot help wondering, with a little nostalgia, if this will be the treatise to end treatises on the subject. In the past decade or more we have seen large sections of the area of usefulness of the cloud chamber taken over by the counter, the photographic emulsion, and the bubble chamber. It is easy to extrapolate and think that possibly before very long the displacement will be complete. There are, however, at least two areas which come to mind in which the cloud chamber still holds its position: (i) counter-controlled operation (preexpansion tracks), especially as applied to the study of cosmic rays, and (ii) the study of low-energy particles, particularly where it is desired that the tracks be long enough so that their curvatures in a magnetic field can be measured. Bubble chambers at present cannot be counter-controlled because no way has been found to produce expansion within the lifetime of the activation produced by the moving particle, and they are not suited to the study of low-energy particles because of the high stopping power of the liquid. Photographic emulsions obviously cannot be counter-controlled, and they have limitations similar to those of the bubble chamber where low-energy particles are concerned. These examples are enough to show that, in spite of a narrowing of the field, there do remain applications for the cloud chamber which are not challenged by the other techniques. Perhaps, therefore, the present excellent volume of reports does not have to be considered a swan song.

Everyone working with cloud chambers or concerned with the interpretation of cloud-chamber results will find the volume very interesting and valuable.

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Psychological Aspects of Aging. Proceedings of a Conference on Planning Research, Bethesda, Md., April 24–27, 1955. John E. Anderson, Ed. American Psychological Association, Washington, D.C., 1956. 323 pp. \$2.

This is a significant book which can be read with profit not only by those specifically interested in problems of aging but also by graduate students and others entering research in any field of scientific psychology or the social sciences. The conference which it reports was held

under the auspices of the American Psychological Association and was financed by the National Institute of Mental Health. Its purpose was to survey the field of possible research on aging that might be made by different branches of psychology.

The book begins with the text of the opening address by J. H. Sheldon, who was at the time president of the International Congress of Gerontology and to whose untiring efforts to foster international cooperation in this field, the invitation to give this address was a fitting tribute. The papers which follow are divided into five sections. The first deals with personality changes during the adult years and their relation to social adjustment. The second considers the nature of, and means of assessing, age changes, mainly from a psychophysiological standpoint. The third section outlines the more strictly psychological studies of changing ability, measured in the main by so-called "mental" tests. The fourth section discusses problems of training and education in the light of changes, with age, in the capacity to learn and of shifts in the pattern of motives brought by older people to their tasks. The fifth section is a consideration of age changes as they affect employability. There follows a masterly summary and ordering, by the editor, of proposals for future research raised by the other contributors.

As is evident from the scope of the various sections, the papers are representative of many different branches of psychology, and their scientific quality varies with that of the branch from which they have come. Almost all are, however, of high standard within their own fields.

The book as a whole would seem to be important for four reasons. First, it makes clear that psychological studies of aging during the adult years are now developed to a point at which they merit serious attention, both from psychology generally and from other branches of science.

Second, the papers as a whole provide an accurate view in research terms, without sentimental distortions, of the field as it must be considered by psychologists intending to enter it. Anyone who has attempted the difficult task of doing research on aging will know that a man often takes 2 or 3 years to become oriented and to begin making his own contribution. The present book should enable him to form a quick appraisal of the kind of work that has been done and of the areas in which contributions are now required, and thus it should give him a flying start and a better perspective than his predecessors have enjoyed.

Third, there is a repeated insistence on the need to view aging as a continuous process over the whole life-span. Most discussion in the past has been con-

cerned with the limited problems of old people past retirement age. The contributors here give reasons for emphasizing that this period of life is but one part of a continuous development and that studies are therefore needed throughout the adult years as a complement to the extensive knowledge we already possess of childhood and adolescence.

Fourth, and perhaps most important, the outlook of the contributions makes them a concise example of a tendency in psychological thought which is returning to prominence after some years of relative disfavor. The statements have a certain refreshing directness and "elegance" in their approach to the study of human behavior. The sterile arguments of so-called "learning theory," the doctrinaire half-truths of the "schools," the panacea treatments of "systems," and the high-sounding, empty technical terms often found in psychological writings are conspicuous by their absence.

The book is essentially a guide to future work rather than a record of past findings. It is like a stiff *aperitif* which promises a fine meal to follow. How far this will be realized depends, as more than one contributor pointed out, on the provision of research support. I venture to disagree with the editor when he suggests that this can well be given in the form of short-term grants. Research on aging will attain the standards and the quality of mind displayed by the contributions to the present symposium only if substantial permanent opportunities are accorded for work in this field.

A. T. WELFORD

Cambridge University

Ageing in Industry. An Inquiry, Based on Figures Derived from Census Reports, into the Problem of Ageing under the Conditions of Modern Industry. F. Le Gros Clark and Agnes C. Dunne. Philosophical Library, New York, 1956. 150 pp. \$7.50.

As stated in the subtitle of the book, this is "an inquiry into the problems of ageing under the conditions of modern industry" in Great Britain. The purpose of the study is to determine, as far as possible, the number of workers physically able to continue in their various occupations beyond their middle 60's. Tables on age and occupation published in the *Census Reports* for 1921, 1931, and 1951 are the basis for the study.

Thirty-two occupations were selected for analysis. These included about 25 percent of the male workers in 1951. Most of the report is devoted to a detailed study, from the viewpoint of the older worker, of the occupations and of a representative number of modern industries.

The concluding chapter groups the occupations according to percentage of "survival rates." These represent the percentage of men considered to be physically capable of remaining at their accustomed occupations into their late 60's and beyond. These findings are qualified on the basis of conditions prevailing in modern industry and do not presume to reflect new methods which could make a profound difference.

The report has been written on a practical level and provides an interesting comparison of a wide variety of occupations, conditions of work, and opportunities for modifying the work process and the retirement practices. While few positive conclusions are drawn, challenging possibilities have been revealed which can lead to a growing appreciation of the capabilities of the older worker.

WILLIAM C. FITCH

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Limited War. The Challenge to American Strategy. Robert Endicott Osgood. University of Chicago Press, 1957. xi + 315 pp. \$5.

Robert E. Osgood, in *Limited War*, undertakes to cast some light on the problem which currently confronts American leadership—namely, if the present nuclear stalemate has made total war less likely, how does one limit and fight the wars which may still occur? He attempts to do this primarily by the use of historical material, some old and some very recent. While maintaining that Americans traditionally have been pacific yet pugnacious, he states that we have never understood the proper relationship of power to policy or, in Clausewitzian language, how to use the military as an instrument of national policy. The Communists, on the other hand, have an excellent understanding of the relationship of means to end, or of force to policy. The theme of this book is the power-policy relationship, an understanding of which Osgood considers essential to a solution of our current problems.

In a section entitled "The Lessons of History," he attempts, on the basis of the very scanty historical research in this field, to show the factors which have limited wars in the past. He argues that political, social, and moral restraints accounted for the limited wars of the 18th and 19th centuries, the French revolutionary era excepted. Statesmen sought to attain only limited objectives, while social, economic, and technological considerations limited the capabilities of nations for waging war. Furthermore, no ideological conflicts raged, and this made possible a calmer approach to interna-

tional conflicts. The 20th century saw an end to these old restraints and an improvement in the national capacity to wage war. From Osgood's account, it is not entirely clear to what extent the limitation lay in the nature of society and to what extent it was wilfully imposed by enlightened statesmen.

This book is primarily concerned with events that occurred and problems that arose after World War II. The author accepts the containment of communism as a valid national objective but states that more than the concept of massive retaliation is necessary for its achievement. The Indo-China crisis is cited to show the shortcomings of this concept as an instrument of policy as well as to reveal the difficulties of waging limited war in that area. The Korean war—an agonizing experience in limited war for the United States—is discussed at some length, but the analysis of the reasons for its limitation is superficial and disappointing.

While the book provides many helpful insights and asks pertinent questions, it leaves the reader feeling a bit frustrated. The questions do not probe as deeply as they might, and there is too much superficial treatment of important aspects of the problem. The notes reveal that the author might well have read more than he did of the appropriate civilian and military periodical literature on the subject. However, this is a courageous and useful work on a very complex subject.

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Rand Corporation

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, but to the publisher or agency sponsoring the publication.)

Beach Erosion Board, Bulletin. vol. 11, No. 1. 62 pp. *Effect of Bottom Roughness on Wind Tide in Shallow Water.* Tech. Memorandum No. 95. 31 pp. *Factors Affecting Durability of Concrete in Coastal Structures.* Tech. Memorandum No. 96. 50 pp. *Hurricane Wave Statistics for the Gulf of Mexico.* Tech. Memorandum No. 98. 95 pp. *Laboratory Study of the Effect of an Uncontrolled Inlet on the Adjacent Beaches.* Tech. Memorandum No. 94. 19 pp. Beach Erosion Board, Corps of Engineers, Washington 25, 1957.

Bibliography of Medical Reviews. vol. 2. National Library of Medicine. Public Health Service, Washington, 1957 (order from Supt. of Documents, GPO, Washington 25). 111 pp. \$0.60.

A Review of the Rockfishes of California (family Scorpaenidae). State of California, Fish Bull. No. 104. Julius B. Phillips. Department of Fish and Game, Marine Fisheries Branch, 1957. 158 pp.

Specific and Intraspecific Delimitation. C. G. J. Van Steenis. Botanic Garden of Indonesia; Foundation Flora Maleisiana, c/o Rijksherbarium, Leyden, Holland, 1957. \$2.50.