

an outmoded concept, and may even be of value at the human level. In so doing they have confirmed, as well as improved upon, the pre-1920 work of Lloyd Morgan, McDougall and Drever.

Dr. Fletcher has given a general account of the whole cycle, with particular reference to the systematic importance of the biological approach to the sociologist. The treatment is discursive but readable. It suffers from a lack of first-hand experimental or clinical experience and from a rather amorphous theoretical background. On the other hand, it is important that social scientists should have brought to their notice once again evidence from animal behaviour which they might tend to neglect. It is also of value to have put into historical perspective for the first time our recent thinking on some aspects of motivation.

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their like in the field. Mike Banks's remark "on rough going give me my flat feet" is a modernized version of McClintock's fiat that set the pattern of sledging technique for the Scott and Shackleton expeditions. One thing very different from their regime is the much more lavish use of alcohol nowadays, which perhaps reflects the Service habits of a more indulgent and less disciplined age than those of Victoria and Edward VII. It is arguable that, in this particular respect, the old practice had more to recommend it both from the physical and psychological points of view. There is some piquant phraseology here and there, of which as examples I would choose two references to the "white-out" which has become so important since aircraft are used: Angus Erskine's description "like the inside of a ping-pong ball" and that of the observer who looked out of a tent and could see "two-fifths of one-third of dam-all".

RAYMOND PRIESTLEY

SIDELIGHT ON A MODERN ARCTIC EXPEDITION

High Arctic

The Story of the British North Greenland Expedition. By Mike Banks. With four chapters by Angus Erskine. Pp. xii+276+17 plates. (London: J. M. Dent and Sons, Ltd., 1957.) 25s. net.

THIS book is good evidence of the truth that, if we are to get something approaching the whole story of a major expedition, it is necessary that several of its members should contribute individually to the written record. To a reviewer, himself a survivor from Antarctic exploration half a century ago, this has been a fascinating book to read, far more so than could be any carefully edited official narrative. Its interest is much enhanced because it is, in effect, the work of two authors, differing in temperament and experience and both conveying their experiences in an uninhibited manner. To one who has himself written in an amateur way on psychological aspects of polar exploration, it is particularly intriguing to be given a glimpse of the old pattern repeated under such very different conditions: alternations of exhilaration and depression; the formation of cliques; the deepening of loyalties and prejudices—all the kaleidoscopic responses to team life in a harsh environment can be detected, substantially unchanged in spite of the impact of radio and the application to polar exploration of mechanical aids and air support.

The more isolated Antarctic sojourners even of to-day will envy the variety provided by the more prolific Arctic flora and fauna; the contact with trappers and the men of the Danish patrol (even at the expense of an occasional parking fee) and American airmen dropping, among other things, condemned pork and hamburgers for under-privileged dogs. Survivors from a past less-sophisticated age will be impressed by the increased fire risk caused by the introduction of petrol as an essential of polar travel, especially when combined with the intervention of the 'Commando' type who is trained to live dangerously as a matter of course.

To the non-mechanical mind one of the most amazing and creditable facets of modern exploration is the thousand and one improvisations successfully carried through in the maintenance of 'weasels' and

CHEMISTRY OF SIGHT

The Visual Pigments

By Dr. H. J. A. Dartnall. Pp. vii+216. (London: Methuen and Co., Ltd.; New York: John Wiley and Sons, Inc., 1957.) 30s. net.

IN 1878 Kühne published his classic treatise on visual pigments. The same year, it appeared in England in a translation by Michael Foster entitled "On the Photochemistry of the Retina and on Visual Purple". Kühne's book laid the foundation for much that has since been learned about visual pigments. The intervening years have, however, brought many new discoveries—the elucidation of the role of vitamin A in vision, and hence nightblindness; the discoveries of retinene, and of vitamin A₂ and retinene₂; the characterization of several new visual pigments; and many others. Dr. Dartnall has successfully met the challenge of writing the first book on visual pigments since Kühne. He is an authority on the chemistry of visual pigments, and his book fills a need which has long been felt by teachers, students and research workers in the field of visual physiology.

The book starts with a description of methods of preparing visual pigments and of measuring their absorption properties. It goes on to a classification of visual pigments and a discussion of their chemical reactions, particularly the intermediates and end-products of bleaching. Dartnall next discusses the physical chemistry and photochemistry of rhodopsin, and reviews critically proposed structures for the rhodopsin chromophore. A chapter is devoted to the *cis-trans* isomerism of the retinenes and vitamins A in relation to the chemistry of the visual pigments, and another to methods which test the homogeneity of various preparations of visual pigments. A final chapter summarizes the interesting results obtained recently from the study of visual pigments in visual cells *in vitro* and in the living eye. Each chapter ends with a list of references. The book can therefore be read as an integrated introduction to the field, or as a series of semi-independent reviews. It will be useful to the general reader as well as to the person interested in some specific aspect of the field.

A number of minor errors have inevitably crept into the condensation of such a wide range of information into about two hundred pages. Thus the discussion of resonance (p. 101) reveals a misunder-