

### Behaviorists: Watsonian Connotations

A number of general criticisms could be made of this book. Lorenz is undoubtedly unfair in calling all American psychologists "behaviorists," especially as he appears to use the term with purely Watsonian connotations. And yet this does the book no harm, for he attacks neither the men nor their work, but only some arguments that they have raised against his work. Similarly, it is doubtful that all "modern, English-speaking ethologists" form a cohesive group, even with respect to the attitude to instinct theory he ascribes to them, yet he successfully deals with the inadequacies of this attitude (while ignoring the better results of their examination of the abundance of unlike phenomena sheltered under the term "instinct"). A prolonged attack on a paper exploring the concept of operationism with respect to differences between behavior patterns makes its point, but ignores the virtues of being able to deal with *differences* that are attributable to neither learning nor evolution *per se*, but to different experimental manipulations. Here he unfortunately skirts an important problem in casually dismissing the effects of pathology on behavior. This is not because he does not realize the potential magnitude of such effects, but because he believes (and with considerable reason) that he is capable of avoiding or recognizing pathology. Yet in many ways pathological and other changes can be extremely instructive and their intentional induction is a powerful technique (as it has been in some of his own imprinting studies). There are in addition a number of lesser cases in which his treatment of some terms and concepts is unnecessarily vague—for example, "information" (see especially p. 26).

What should be kept in mind is that Lorenz is arguing a very specific point, and the weaknesses of the book are all tangential to that point. We should possibly get a very different view of these issues if he chose to turn his attention their way. It is in fact enormously pleasing that he has produced such a clear statement of his views on the concept of the innate, and that he has largely eschewed the aggressive polemics which have occasionally marred discussion of this central topic in ethology.

A few minor criticisms are appropriate. In some late stage of editing it seems that frequently the written numeral "1" was transposed to the

printed "7," and that many (but not all) page references which appear with the numeral "7" need interpretation (for example, "77" should be "11"). Also mildly annoying is an asterisk on page 12 which tantalizes but does not fulfill, and the use at times of the word chapter instead of section in reference to a preceding part of the same chapter. But such irregularities are few, and praise is due the publisher for producing an attractive format for this important little book. I strongly recommend the book to ethologists and comparative psychologists alike, as a lucid statement of the importance of phylogenetic adaptation in behavior.

### Polar Cap Experiments

**High Latitude Particles and the Ionosphere** (Logos Press, London; Academic Press, New York, 1965. 328 pp., \$16), edited by B. Maehlum, contains the proceedings of the symposium organized by the COSPAR Panel on Polar Cap Experiments and held in March 1964. Books of this type could be particularly useful to those who are unable to attend meetings but would like to keep in touch with their own fields of work. The inclusion of summaries of the discussion and the informal style of many of the contributions will be particularly helpful in this respect. The usefulness of such volumes as permanent records could be greatly enhanced by more rapid publication. Although the editor and the publisher have made this volume available with only a comparatively short delay, certain parts of the proceedings have already been published, and in a more detailed form, in recent issues of scientific journals.

The book will undoubtedly serve as useful source of references to the many new observations of particles and their ionospheric effects described in it; it also contains several good review articles.

The revolution in polar physics caused by the advent of rockets and satellites is discussed by R. L. F. Boyd, whose introductory lecture precedes several papers on ionospheric exploration by probe and propagation experiments from satellites and rockets.

Most readers will enjoy the stimulating discussion of particles and fields (including electric fields) by C. G. Fälthammer. Several other authors also

stress the importance of electric fields and the difficulties of measuring them. Fälthammer's discussion precedes several descriptions of the methods used and the results obtained with particle detectors on the Injun I and III and the Alouette satellites and on rockets launched from Norway.

Observations of indirect effects of particles such as radio wave absorption and scattering, and changes in the phase of very low-frequency radio waves, form the subject of most of the remaining contributions.

I noted relatively few errors and misprints. One minor misprint, which could cause difficulties, is the reference to "injected positions," instead of "injected positrons" (p. 77). The book can be recommended as a source of references to recent observational results and as a review of research on high latitude particles.

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### Optical Mineralogy

**Microscopic Identification of Minerals** (McGraw-Hill, New York, 1965. 427 pp., \$10.50), by E. Wm. Heinrich, is intended as an elementary introduction to optical mineralogy, but the scope is more limited than is implied by the title. A brief introduction to the methods of studying minerals by the microscope (12 pp.) precedes a brief description of optical properties of minerals (15 pp.). The bulk of the book (337 pp.) is devoted to the description of 180 minerals, in detail, under the headings composition, indices, color, form, orientation, and diagnostic features; partial descriptions or tabulated data are included for 116 additional mineral species. The book differs from many textbooks in optical mineralogy in that special emphasis is placed on the characteristics of crushed fragments in immersion mediums; additional brief reference is made to the characteristics of selected minerals in thin section, or their appearance as detrital grains. Separate tables (27 pp.) give ranges of indices of refraction, colors of minerals by optical groups, twinning of minerals, birefringence, and relief in thin section. The tables are limited in the number of minerals for which data are given, and most of the tabulated data are organized to indicate rather broad ranges: