elsewhere, but no article on photoelectron spectroscopy.

This monograph then looks something like the "Advances" and "Progress" series that we have seen so much of lately (though it appears that these volumes are not planned as such a continuing series), with the primary restriction of spectroscopic application. Most of the articles will also be of interest to people outside of inorganic chemistry.

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Selective Attention and Learning

Mechanisms of Animal Discrimination Learning. N. S. SUTHERLAND and N. J. MACKINTOSH. Academic Press, New York, 1971. xiv, 560 pp., illus. $18.50.

This is a thoughtful book that is abreast of current experimental and theoretical activity. Probably not since Hull wrote *Principles of Behavior* (1943) has a book in the field of animal learning appeared with the breadth and depth of analysis that this one has. Although the authors introduce special terms when conceptualizing their particular theory of selective attention as it applies to discrimination learning, the bulk of their theoretical interpretation is relatively independent of this bias. And even when the interpretation is directly related to their theory, this does not necessarily get in the way of a more traditional stimulus-response analysis; for a great number of interrelated facts have been pulled together in a thorough fashion. Thus the book constitutes an important contribution to the field regardless of the reader's orientation.

But, of course, one can also be critical. For example, one can question the value of the authors' special terminology, which, though used by them for several years, represents a definite departure from the mainstream of the conceptualization of discrimination learning. Such terms as "analyzers," "strengthening and extinguishing analyzers," and "switching in and out" of analyzers are prime examples, and no clear independent or operational definition of these concepts is presented in the book. From the authors' discussion, it appears impossible to differentiate the concept of analyzer from the concept of perceptual response ("analyzer" represents an animal's "paying attention" to some particular aspect or dimension of the stimulus situation). In the reviewer's opinion a careful look at the Sutherland-Mackintosh theory indicates that traditional terms much in use, namely, "relevant and irrelevant cues" and "salience of cues," nicely substitute for their various uses of "analyzer." In fact the authors, who are quite at home in the use of current S-R terminology, frequently slip into the terminology of salience and relevance of cues, bypassing their own terminology. To put it bluntly, how many different ways do we need to say the same thing?

None of the above is intended to challenge the authors' basic point about selective attention. All cues present in a discrimination learning situation are *not* equally effective: the cues differ in salience innately and as a result of learning, and this point must be fully considered in a discussion of discrimination learning. But is it useful to introduce terms that reify the concept of attention?

The coverage of topics is primarily in the tradition of non-Skinnerian approaches to discrimination learning, as exemplified in two-choice learning situations and the "go—no-go" procedure of the straight runway. The topics include formal models, the continuity-noncontinuity controversy, blocking and overshadowing, additivity of cues, transfer along a continuum, stimulus generalization, reversal learning and the overlearning reversal effect, reversal and nonreversal shifts, partial reinforcement and extinction, and probability learning—all topped off by a comparative-psychology approach in which species differences are exploited. Several rather successful attempts show that performance differences and similarities are consonant with the authors' two-stage model of discrimination learning when appropriate parameters are selected for the species involved.

With reference to partial reinforcement effects in extinction, the authors make the needed admonition that very probably several different variables and thus several different explanations apply (the phenomenon, as they put it, is "overdetermined"). It might be argued that the large amount of space devoted to the many aspects and subtleties of reversal learning is slightly disproportionate to their theoretical importance; and the authors' interpretation of the overlearning reversal effect is not quite as convincing as they seem to claim. Also, the broad coverage skimps in one main respect—the role of nonreinforcement in discrimination learning is treated inadequately.

A number of experimental psychologists reading this book may have some uneasy moments as they repeatedly encounter the word "prove" instead of "demonstrate" when reference is being made to induction from experimental evidence rather than to logical deduction. The same is true for the authors' strong statements for or against a proposition when the data are really not that clear.

The writing is clear except in a few isolated instances, and the book is remarkably free of errors. The book is primarily for courses at the graduate level and for research workers in the field, but many could benefit from reading it. Such a good book should adorn the bookshelf of every psychology graduate student and most psychologists.

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Books Received

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