cial techniques, including differential and derivative polarography, oscillographic polarography, and the use of electrodes other than the dropping electrode. The succeeding chapter considers some of the methods of standardizing the dropping electrode in practical analysis and indicates some practical applications. The final chapter, "Suggestions for Practical Polarography," is devoted chiefly to the characterization and selection of capillaries for the dropping electrode according to the "capillary constant" method developed by the author.

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Physiological Mechanisms in Animal Behaviour. Symposia of the Society for Experimental Biology, No. IV. New York: Academic Press, 1950. 482 pp. $6.00.

This symposium is an excellent survey of the theoretical views and recent findings of British and continental students of animal behavior. The primary aim of the symposium was to elucidate the physiological mechanisms that underlie behavior, but the conference was just as much a discussion of comparative psychology. In addition, considerable attention was given to problems of terminology, methodology, and the definition of theoretical aims.

American students of behavior should find this collection of papers refreshing reading, for it affords data on a much wider variety of species than have been studied in this country and presents a good summary of the much-overlooked European theories of behavior. Furthermore, the excellent bibliographies at the end of each contribution make the book a valuable reference work.

It is impossible to summarize the wealth of material the symposium presents. But a number of the more important ideas that came out of the conference can be listed briefly. In the section on the senses, it is pointed out that many invertebrates and lower vertebrates hear, see color, and communicate much more like mammals than has heretofore been suspected.

In the second section, it is shown that there may be far less stimulus control of behavior than prevalent theory assumes. In amphibia, once a stimulus elicits walking, central mechanisms can maintain the response pattern without any further stimulation. And in the case of polychaete worms it was shown that activity cycles are determined by central neural pacemakers in the absence of stimulation.

Many of Lorenz' and Tinbergen's concepts of innate behavior are discussed in the third section. Evidence is brought forward to support the view that specific internal states can lower the threshold of instinctive reactions even to the point where they go off "spontaneously." Typically, however, instinctive patterns are "released" by specific kinds of stimuli. The theory is that animals have evolved special organs and patterns of behavior that provide the releasing stimuli or, in the case of defense against predators, provide stimuli that inhibit the release of instincts.

In the final section on learning it is argued that the same types of learning occur among the lower forms as among the higher: habituation, classical conditioning, trial-and-error learning, insight learning, and imprinting. Imprinting is one-trial learning that can occur only very early in life—e.g., the newly hatched duckling learns to follow the first object it sees, human or inanimate, just as it normally follows its parent. Konorski summarizes in his contribution a theory of the mechanism of learning much like Pavlov's, but perhaps more inclusive. Finally, Lashley points out, on the basis of extensive evidence, that there is no ground for believing that specific memory traces are "stored" in particular neurons in any part of the nervous system. Rather, he believes, we must think of memory as a pattern of excitability imposed on large numbers of neurons by experience or training. Presumably the "memory" is elicited whenever all or some portion of these neurons is induced to produce the pattern. The crucial thing is that the pattern be elicited and not that particular neurons be aroused.

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Scientific Book Register

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Methods in Medical Research, Vol. 4. Maurice B. Visscher, Ed. Chicago: Year Book Pub., 1951. 306 pp. $7.00.

Collected Papers of the Mayo Clinic and The Mayo Foundation, Vol. XLII. Richard M. Hewitt *et al.*, Eds. Philadelphia: Saunders, 1951. 812 pp. $11.50.

Analysis of the Four-Bar Linkage: Its Application to the Synthesis of Mechanisms. John A. Hrones and George L. Nelson. Cambridge, Mass.: Technology Press; New York: Wiley, 1951. 730 pp. $15.00.

Körpergrösse und Organzahl der Organismen. Hallische Monographien 18. F. A. Schilder. Halle (Saale), Germany: Max Niemeyer, Verlag, 1950. 58 pp. DM 6.80.

The Dinosaur Book: The Ruling Reptiles and Their Relatives. 2nd ed. Edwin H. Colbert; illus. by John C. Germann. New York–London: McGraw-Hill, 1951. Published for The American Museum of Natural History. 156 pp. $4.00.

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The Invertebrates: The Pseudocoelomate Bilateria: Acanthocephala, Aschelminthes, and Entoprocta, Vol. III. Libbie Henrietta Hyman. New York–London: McGraw-Hill, 1951. 572 pp. $9.00.

Quantum Mechanics of Particles and Wave Fields. Arthur March. New York: Wiley; London: Chapman & Hall, 1951. 292 pp. $5.50.