

## A Comprehensive Reference Source

**Avian Physiology.** Paul D. Sturkie. Cornell University Press, Ithaca, N.Y., ed. 2, 1965. xxx + 766 pp. Illus. \$15.

The first edition of Sturkie's *Avian Physiology* (1954) was well received, and it has served as a reliable reference work in a field with a widely scattered literature and few comprehensive indices. That a revised and much enlarged version has been published is an indication of its usefulness and of the increasing dependence inevitably placed on such a work.

In this edition emphasis is again on discussion of the domestic chicken and other barnyard birds, ducks, geese, and pigeons. This is not a criticism, but a sad reality brought about by our still very fragmentary knowledge of the physiology of wild species of birds. The available data on wild birds have been introduced and properly correlated with the more exhaustive knowledge of their domestic relatives. Each of the 22 chapters has its own bibliography, and a number of new contributors have added their information and reflections to the contents of the volume—D. J. Bell on blood chemistry; R. L. Hazelwood on car-

bohydrate metabolism; M. R. Kare on special senses; R. K. Ringer on thyroids; D. M. Stringer and T. G. Taylor on egg shell formation; and J. Ten Cate on the nervous system. Ten Cate has contributed an entirely new chapter; some of the others, like the main contributor, Paul Sturkie, have amplified and brought into current focus the information on other aspects of avian physiology.

In a short review it is not possible to pick out individual items or to look for shortcomings. Inevitably some omissions make the coverage less complete than it might have been. Thus, Stager's work on olfaction in carrion-eating vultures probably appeared too late to be included here, but this was not the case with my studies of cerophagy in the honey-guides. On the other hand, it is gratifying to find a good summation of recent work by Schmidt-Nielsen and others on extrarenal salt excretion.

This well-printed and carefully proof-read book can be recommended highly; it is certain to be a useful addition to the laboratory library.

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## Gila Pueblo and the Hohokam Culture

**Excavations at Snaketown: Material Culture.** Harold S. Gladwin, Emil W. Haury, E. B. Sayles, and Nora Gladwin. Reprinted for the Arizona State Museum by the University of Arizona Press, Tucson, 1965. xviii + 305 pp. Illus. Plates. \$7.

Although archeological sites are continually being looted by collectors, or by their agents, for whom mere possession crowds out any concern about the context or significance of specimens, the science of archeology has repeatedly been advanced by the dedicated, skillful work of amateurs. Harold S. Gladwin, whose enthusiasm for Southwestern archeology led him to found Gila Pueblo as a private research center in Globe, Arizona, accomplished, from the 1920's on, a series of fundamentally important studies of the prehistoric cultures of the region from Texas to California. None of these surveys or excavations was more significant than the excava-

tion of Snaketown, in the southern Arizona desert. It provided a wealth of details for a major prehistoric culture, the Hohokam, which previously had been scarcely recognized. It dislodged many long-held dogmas of Southwestern archeology and provided the basis for a major reorientation in thinking about the nature of the prehistoric occupations of Arizona and adjacent states. Although the comprehensive descriptive publication on Snaketown [*Medallion Paper No. 25* (1937)] was distributed to many scholars and museums, it has long been out-of-print and virtually unobtainable. In spite of new interpretations based on its data, and serious disagreements about its chronology, it has remained indispensable for its detailed reporting of house remains, ball courts, canals, cremations, pottery, carved stone, and other artifacts. Its reprinting is therefore a significant boon to scholars everywhere. It is particularly timely because Emil Haury,

who played a major part in the 1934 and 1935 excavation and its reporting, has just completed extensive additional digging at the site to verify and expand the earlier work. Preliminary reports indicate that the sequence of phases will stand essentially as originally defined, that irrigation was practiced on a large scale many centuries earlier than previously believed, and that the new data will vindicate the much-disputed chronological estimates. This original report will be the cornerstone on which the new data and interpretations will rest, and its reappearance is extremely welcome.

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## Genetics

**The Theory of Inbreeding.** Sir Ronald A. Fisher. Academic Press, New York, ed. 2, 1965. viii + 150 pp. Illus. \$6.

When I was a student a story current among undergraduates was that every year when George Kistiakowski taught physical chemistry he thought that finally he really understood entropy, only to discover that it still evaded him.

The theory of inbreeding is like that. Notions of inbreeding lie at the very heart of genetics of sexual organisms, and every discovery in classical and population genetics has depended on some sort of inbreeding experiment. But a full understanding of the theory and ramifications of inbreeding always seems to evade us, just.

The theory of inbreeding can be divided into three parts, dealing with three quite different problems; and the methods used to study one of these aspects are not always appropriate to the others. First, there is the evaluation of the degree of homozygosity resulting from some irregular pedigree with inbred and outbred components. These problems are of interest to anthropologists and to some extent to animal breeders. Second, there is the question of inbreeding resulting from finite population size and its implication for evolution and also for population genetic experimentation and closed population breeding. Finally, there is the theory of regular inbreeding systems such as long-repeated uncle-niece or cross-cousin mating. This set of