discussed occur just as well at low frequencies as at high. The qualifying adjective needed is one indicating sound whose *amplitude* is high. Pending standardization of such an adjective (*hypersonic* and *macrosonic* have been suggested), it appears necessary to refer to an agent identified somewhat prosaically as "high-amplitude sound."

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The Myology of the Whooping Crane, Grus americana. Illinois Biological Monographs, vol. XXIV, No. 2. Harvey I. Fisher and Donald C. Goodman. University of Illinois Press, Urbana, 1955. 127 pp. Illus. Cloth, $3.50; paper, $2.50.

It is curious indeed that, although birds are probably better known taxonomically than any other group of animals, and although descriptive and comparative anatomy are among the oldest of the zoological sciences, the anatomy of birds is poorly known. It has been generally assumed more or less tacitly that all birds are essentially alike under the skin. As a matter of fact, as the authors of the present book observed, the musculature of only one bird, the raven, is known with any degree of completeness, and this description dates back to 1890. The lack of anatomical information about birds is all the more extraordinary because detailed studies about other kinds of vertebrates have proved invaluable in unraveling fundamental relationships. In view of the scarcity of bird fossils, such an approach would seem especially fruitful for students of avian phylogeny. It is thus gratifying that two competent investigators undertook a study of the myology of the whooping crane. Because the whooping crane seems destined for extinction in the near future, the work of Fisher and Goodman is timely, to say the least.

The Myology of the Whooping Crane, Grus americana is based on the dissection of three specimens, none of which was killed specifically for anatomical study. The bulk of the book is devoted to the detailed description of the crane's musculature. There follows a short "Discussion." The discussion, however, consists primarily of a summarization of the salient details of the text proper. The lack of a definitive interpretation of the findings is regrettable, but certainly understandable since this is virtually a pioneer study. Happily it sets a high standard for others to follow.

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The Biology of Senescence. Alex Comfort. Rinehart, New York, 1956. xiii + 257 pp. $4.

This book is a greatly expanded form of Alex Comfort's article, "Biological aspects of senescence" [*Biol. Revs. Cambridge Phil. Soc.* **29**, 284 (1954)]. In my opinion Comfort has made the first partial success in bringing together in a very readable and logical form the mass of biologic research in aging. The author acknowledges the fact that the book is incomplete; even so, the collating and attempts at evaluation of a large number of papers have presented to the investigator several problems that must be solved in order to get a proper picture of biologic aging.

A discussion of the attempts to measure senescence arrives at the conclusion that, at present, no method is satisfactory. The discussion concerning the distribution of senescence is very well developed, and most of the known information on various life-forms has been included. However, I have some doubt as to the value of this type of work in research in aging—but I keep asking myself this question: "Let us assume that we know the normal life-span of every life-form, its maximum found in nature per se, and the average under natural and laboratory conditions. How does this aid us in studying the processes of aging?" The treatment of senescence in protozoans has always been fascinating, and the effects of genetics on life-span certainly point to possible human application and interpretation of work in this field.

In the latter half of the book, Comfort gets down to our primary interests in discussing the work on growth and senescence and, the most interesting of all to me, the various mechanisms of senescence. The general conclusion may be that we must know a lot more before we can say "this is how an animal grows old." The problem of *why* is intimately bound up in the bioenergetic relationships of cells, tissues, and organs. The animal ages as a whole, but it is possible that the real mechanisms may lie in cellular aging.

Comfort is reserved in most of his conclusions, and his book is a must for any investigator in the fields of biologic aging. Comfort suggests that if nothing else of value comes from the book, the references will be useful. I am willing to go further and state that a careful reading of his book will help in organizing one's own knowledge and viewpoints in aging—not that I agree with him all the time, for this is asking too much of any book or any investigator.

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Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, *but to the publisher or agency sponsoring the publication.)*

Research at Cornell. Annual report of the vice president for research 1955–56. Cornell University, Ithaca, N.Y., 1956. 48 pp.

Twentieth Semiannual Report of the Atomic Energy Commission, July 1956. U.S. Atomic Energy Commission, Washington, D.C., 1956. 260 pp.

The Concept of Entropy in Communication, Living Organisms, and Thermodynamics. Research Ser. No. 130. Y. S. Touloukian. Purdue University Engineering Experiment Station, Lafayette, Ind., 1956. 66 pp. $1.

Fossil Mammals of Africa. No. 9. *A Miocene Lemuroid Skull from East Africa.* Wilfrid Le Gros Clark. British Museum (Natural History), London, 1956. 6 pp. 5s.

Atomic Energy of Canada Limited, Annual Report, 1955–56. Atomic Energy of Canada, Ltd., Ottawa, 1956. 20 pp.

Reproduction and Infertility. Physiology, anatomy, pathology, biochemistry. 27–29 June 1955, Michigan State University Centennial Symposium, sponsored by the College of Veterinary Medicine Agricultural Experiment Station, Michigan State University, East Lansing, 1956. 112 pp. $3.

Scientific Research Progress in Mellon Institute 1955–56. Annual Rept. Ser. No. 43. Annual report of the president, Edward R. Weidlein, to the board of trustees of the institute, for the fiscal year ended 29 Feb. 1956. Mellon Institute, Pittsburgh, Pa., 1956. 54 pp.

A Study of the Distribution and Taxonomy of the Percid Fish Percina Nigrofasciata (Agassiz) Tulane Studies in Zoology, vol. 4, No. 1. Tulane University, New Orleans, La., 1956. 55 pp. $0.75.

The Upper Paleocene Mammalia from the Almy Formation in Western Wyoming. Smithsonian Misc. Coll., vol. 131, No. 7. C. Lewis Gazin. Smithsonian Institution, Washington, D.C., 1956. 18 pp.

Grain Research Laboratory, 1955 Report, J. Ansel Anderson. Board of Grain Commissioners for Canada, Winnipeg, Manitoba, 1956. 77 pp.

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Observations on the Autecology of Heliotropium Europaeum L. in New South Wales and Victoria. Div. of Plant Industry Tech. Paper No. 7. C. W. E. Moore. Commonwealth Scientific and Industrial Research Organization, Melbourne, Australia, 1956. 12 pp.