

*Nature*, 2; *Tuatara* (Biological Society of Victoria University of Wellington), 2; *Ardea*, 1; *Journal of Natural History*, 1; and so on. Not only does this Bibliography bring together the publications of some (e.g. Ian Spellerberg) who have spread their papers, often on a single species (e.g. MacCormick's Skua), over many journals (e.g. Spellerberg in *Antarctic*, *Ardea*, *Condor*, *Emu*, *Ibis*, *Notornis* and *American Veterinary Medicine Association*), but it also draws attention to some obscurely published papers, e.g. "Observations at an Adelie Penguin rookery" by R. H. Taylor in *Zool. Rev. Przegl. Zool.* 4: 303-6, 1961, written in Polish! Others, such as that entitled "Terrestrial Biology" by C. J. R. Robertson in *Antarctic* 4: 76-7, 1965, and dealing with birds and mammals seen during the Ross Sea-Balleny Islands Expedition of 1965, might otherwise be difficult to find because of their generalised titles. Similarly "The Long Hot Summer" (*Antarctic* 4: 440-3, 1967) and "Strange doings at Cape Bird" (*Antarctic* 5: 456-8, 1970) might not suggest any relevance to ornithology. On the other hand, Mr F. C. Kinsky's contribution on birds seen on the Balleny Islands during the 1964 Reconnaissance Expedition, published under the general name of the expedition with two other authors (T. Hatherton and E. W. Dawson) in *N.Z. Journal of Geology and Geophysics* 3: 164-79, 1965) is not listed under "Biology" but under "Expeditions" (entry 361) and there are probably quite a number of similar instances.

Nonetheless, this is a useful compilation and a credit to the Antarctic Division of the D.S.I.R. if only that it shows the taxpayer what he has been getting for his money. Even the most parochial of us could not fail to be impressed by the Antarctic as a field of interest: 796 publications from the N.Z. Antarctic Research Programme of 1956 to 1972, is a good effort by anyone's standards!

E. W. D.



*Avian Anatomy — Integument.* By Alfred M. Lucas and Peter R. Stettenheim. U.S. Department of Agriculture. Agriculture Handbook 362. Two vols. 750 pp., 422 illus. Washington, D.C. 1972. US\$16.25.

Some 30 years ago the late Professor Edward Percival made pioneer studies on the feathers of New Zealand birds ("The juvenile plumage of some birds and an interpretation of its nature." *Trans. Roy. Soc. N.Z.* 72 (1): 6-20, 1942) but, despite the interest of his work and his continued stress on feather study in his own teaching, this field has been neglected locally until the very welcome examination of the filloplumes of seabirds by M. J. Imber (*N.Z. J. mar. freshwat. Res.* 5 (3 & 4): 396-403, 1971). With the increasing introduction of ornithological topics into graduate research in New Zealand universities, attention ought to be drawn to feathers and feathering of birds as a field of study which could be developed particularly well under New Zealand conditions. With the quite necessary restrictions on collecting of live specimens and the controlled retention of Beach Patrol remains, feathers form a distinctive and peculiar material for study.

This monumental, two-volume work, expensively produced but made available at cost by the U.S. Government, may not become as well known as it deserves to be simply because it appears as one of those drab covered North American government serials often relegated

to library stack rooms. However, it will serve as a basic and well illustrated reference for all who want to know what is known about the external covering of birds. The volumes on "Integument" are but the first of a massive, ambitiously-planned series designed to encompass the following organ systems: integumentary, skeletal, muscular, vascular, nervous, respiratory, digestive, excretory, reproductive and endocrine. The project is being undertaken by the Avian Anatomy Project, Poultry Research Branch, Animal Science Research Division, Agricultural Research Service, of the United States Department of Agriculture in collaboration with the Department of Poultry Science, Michigan Agricultural Experiment Station, College of Agriculture and Natural Resources, of the University of Michigan. The size and complexity of the whole projected work is, indeed, only matched by the titles of its sponsors. The user is assured from the start that the coverage and significance of the treatise extends far beyond poultry science, although, basically, the volumes of the series will be centred on the chicken and other domestic birds. We recall the words of W. K. Parker some 80 years ago — "The Common Fowl will always be a convenient and useful bird to the biologist . . . he who knows the Fowl well is ready-prepared to interpret the structure of all kinds of birds."

The chapters of "Integument" include, in Vol. 1: 1. Topographic Anatomy; 2. Principles of Pterylosis [the arrangement of feathers in definite areas of growth]; 3. Pterylosis and Ptilosis [= plumage irrespective of pterylosis] of Domestic Birds; 4. Moults and Plumages of Domestic Chickens; 5. Structure of Feathers; 6. Shape, Structure, and Feathers of Domestic Birds. In Vol. 2 the chapters are: 7. Growth of Follicles and Feathers. Colour of Feathers and Skin; 8. Feather and Apterid Muscles; 9. Microscopic Structure of Skin Derivatives. (This is the first study that includes not only the skin but all its derivatives such as the comb, wattles, earlobe, cere, beak, sternal bursa, scales, spur, oil gland, caruncle, etc.); and 10. Techniques. (This is a particularly useful section giving the techniques developed in these studies and including anaesthesia of birds, pterylosis plotting methods, collection of data on moulting, application of X-ray techniques, preparation of skeletons, study methods for feathers, tissue techniques and methods for effective illustrations). Over 900 references to literature are listed with an extensive index running to 30 pages.

Attention must be drawn, however, to a companion work — "The feathers and plumage of birds" by A. A. Voitkevich, 1966 (translated by Scripta-Technica from "Pero Ptitsy") Pp. xviii + 1-335, 73 figs. London: Sidgwick & Jackson. This book, retailing at \$11.15 in New Zealand, gives many European references not found in the American bibliography and will need to be consulted by users of "Avian Anatomy" who are more concerned with other species.

*Avian Anatomy — Integument* is a fundamental work which must be strongly recommended even if its price dictates that only University and Government Department libraries can afford it. Its usefulness is not limited to the Academic. Quite a number of amateurs will want to dip into it, now that they know of its existence, and who knows, the study of "pterylography" may yet have the place in New Zealand which it rightly deserves!

E. W. D.