Ptaki Ziem Polskich

Tom II. By Jan Sokolowski. Pp. 569 (66 plates). (Warszawa: Państwowe Wydawnictwo Naukowe, 1958.) Cena zl. 85.

IN this second volume of "The Birds of Poland", Sokolowski deals with the Striges, Accipitres, Columbae, Pterocletes, Galli, Gressores, Phoenicopteri, Grues, Otides, Ralli, Laro-Limicolae, Lamellirostres (Anseres), Steganopodes, Tubinares, Podicipedes, Colymbi and Alcae, that reside in, migrate through, or visit Poland. He follows the same classification as in Vol. 1, which was reviewed in *Nature*, 182, 972 (1958).

The wealth of interesting information and acute observation collected in this volume is of great value to the ornithologist and the nature lover, but, as in Vol. 1, the generalized and organized treatment of the data is sadly missing. At least one of the author's remarks cannot remain unchallenged. He states that birds which soar do so only by thermal lift and only between 10 a.m. and 4 p.m. (pp. 42 and 182), but ignores the three other known sources of lift which are also used by birds in soaring flight: (*a*) the orographic lift during windy days over hilly country, which occurs at all times of day and under all conditions of cloud cover; (*b*) the wave-lift that occurs even under a complete cover of lenticular alto-stratus which enables birds such as vultures and kites to hang in the sky on the crest of the wave, for hours at a time; (*c*) the dynamic lift at all hours of the day and under all conditions of cloud cover utilized by those experts in soaring, the gull and the albatross, which sweep over the water using the wind-gradient and the up-currents created by the air blowing over the waves.

As in the first volume, the text is well illustrated with black-and-white drawings, but the numerous half-tone plates are badly reproduced from well-chosen photographs. It is regrettable that no scale is given in the colour plates, which are well drawn but poorly produced. The glossaries are very useful but contain some errors in spelling.

B. NOWOSIELSKI-SLEPOWRON

The Succession of Life through Geological Time

By Kenneth P. Oakley and Helen M. Muir-Wood. Third and revised edition. Pp. vii+94 (12 plates). (London: British Museum (Natural History), 1956.) 4*s*.

Fossil Amphibians and Reptiles

By W. E. Swinton. Second edition. Pp. ix+118+17 plates. (London: British Museum (Natural History), 1958.) 5*s*.

Fossil Birds

By W. E. Swinton. Pp. vi+63+11 plates. (London: British Museum (Natural History), 1958.) 5*s*. net.

ORIGINALLY prepared as a guide to an exhibit in the Department of Palæontology of the British Museum (Natural History) in London "The Succession of Life through Geological Time" has now appeared as a third edition. Its merits may be judged by the fact that it has achieved the independent status of a junior text-book in schools and universities in many parts of the world. In the new edition the text has been brought up to date and all the plates of vertebrate restorations have been replaced by original designs. Another well-known guide, Dr. W. E. Swinton's "Fossil Amphibians and Reptiles", has also appeared in a new edition. This handbook aims at giving a conspectus of the subject which can be used by the visitor in the galleries and also perused at leisure afterwards. It includes sufficient detail to be of value to the advanced student as well as the general reader. Based on the rich series of fossils in the Department of Geology of the Museum, it refers, where necessary, to material in other museums, and also directs attention to gaps in the national collection. The appearance of this handbook has been followed by another prepared by Dr. Swinton, "Fossil Birds". Its plan is similar to that of "Fossil Amphibians and Reptiles". Unlike amphibians and reptiles, however, which bulk largely in the fossil record yet are of slight importance in the living fauna of Britain, birds form an outstanding feature of the living fauna all the world over, but are only an insignificant element in the later geological formations. Nevertheless, these remains, which are well represented in the Museum collection, include many of first-rate interest and importance, of which *Archæopteryx*, the first known bird, is *facile princeps*; the original specimen of this famous 'missing link' is one of the Museum's greatest treasures. All three volumes are distinguished by some original designs by Maurice Wilson; they contribute greatly to publications of which the Museum staff may well be proud.

Feedback Control Systems

By Prof. Otto J. M. Smith. (McGraw-Hill Series in Control Systems Engineering.) Pp. xviii+694. (London: McGraw-Hill Publishing Company, Ltd., 1958.) 101*s*. 6*d*.

A WIDE range of linear and non-linear control systems are considered here, and methods described for the analysis and design of these various systems. The book is arranged simply, having four parts. In Parts 1 and 2 the author deals with the analysis and synthesis of linear systems. Linear techniques include descriptions of the use of *s*-plane plots, root locus constructions, the *G*-plane (Nyquist) polar plot, Bode diagram, Routh's criterion, and impulse response calculation from the poles and zeros on the *s*-plane. Techniques are presented for analysis of linear systems with random input signals, and for their optimum design on the basis of minimum error power. The behaviour of systems containing a time-delay in the closed loop is considered, and the 'Posicast' control (a form of linear predictor control) of such systems is described.

Parts 3 and 4 present techniques for non-linear systems. Much of the analysis is concerned with relay systems, using phase plane and describing function methods. Unilateral and bilateral non-linearities are also considered, where saturation, hysteresis, and backlash are included among the examples taken. Synthesis of non-linear systems employing predictor control is dealt with in some detail, it being assumed here that the system is of the saturating type. The final chapter describes the fundamentals of carrier type control systems.

In general, the theory is adequately supported by worked examples, of which the chapters on non-linear systems are in fact almost entirely composed. Part 3, which purports to deal with the analysis of non-linear systems, would have benefited if a complete account of relevant techniques had been given, to include omissions such as non-linear systems with random inputs, and sampling systems. In common with many modern books on the subject, too much emphasis is placed on detailed analysis, and too little on the simple basic generalities. There is, however, very much to recommend the book to final-year and postgraduate students, especially in regard to relay systems and predictor control. M. J. SOMERVILLE