

paying thirty-five shillings for a text-book that covers inadequately only a portion of their course in agricultural botany. The author had a great opportunity, and one can only regret that he has not made the best use of it.

W. B. BRIERLEY

## PHILIPPINE BIRDS

### Birds of the Philippines

By Jean Delacour and Ernst Mayr. (Pacific World Series.) Pp. xv + 309. (New York: The Macmillan Company, 1946.) 18s. net.

IN a foreword to this volume, Prof. Fairfield Osborn explains that it is one of a series brought out under the auspices of the American Committee for International Protection of Wild Life. The object of this series, which deals with all branches of animal life and plants, is to make known to the public "the wonder and beauty of natural things" and create a desire to protect and conserve the fauna and flora of the islands of the Pacific and neighbouring lands. Much of the pioneer work on the avifauna of the Philippines was done by two famous English collectors, A. H. Everitt and John Whitehead, and the Marquis of Tweeddale made the birds of these islands his special study. Macgregor's "Manual" was for long the standard authority, and some eleven years ago Hachisuka commenced an ambitious work, of which not more than five parts appeared—but like all that writer's work it is a mere compilation.

This volume now brings our knowledge up to date in a very condensed form and is a valuable addition to the ornithological literature of the area. It is unfortunate, however, that more space has not been devoted to the habits and biology of the different species, which are of more interest to the general reader than the details of subspecies. Then, too, in the chapter on the bird geography of the islands the entire absence of English names is apt to be rather disconcerting to the general reader. To the student of geographical variation the book supplies much useful information, and nowhere can this subject be better studied than in the Philippine Islands. Take, for example, the striking crimson-backed woodpecker, *Chrysocolaptes lucidus*, of which there are no fewer than six well-defined races differing in colour.

These islands are the home of the magnificent monkey-eating eagle, *Pithecophaga jefferyi*, first discovered by John Whitehead. They are specially rich in pigeons, cuckoos and kingfishers, the last ranging from the rather ungainly stork-billed kingfisher to the brilliantly coloured woodland species barely five inches in length. The Philippines are considered a sub-region of the Oriental region; but a part of the Archipelago, the Palawan group, belongs to the Malaysian sub-region. The birds of this group are treated in a separate appendix, and one of the most striking is the Palawan peacock pheasant, *Polyplectron emphanum*, which belongs to a genus not represented in the Philippines proper but ranging from Borneo to the Eastern Himalayas.

The authors have considered it necessary to suppress some well-known genera. They do not recognize the genus *Squatarola* and treat it as a synonym of *Pluvialis*, since they do not think the absence of the hind-toe in the grey plover is sufficient to place it in a separate genus from the golden plover. Had they studied Lowe's papers they would have

learnt there are other differences which make a good case for keeping the two genera. It is unfortunate, too, that many well-established English names have been changed because the authors consider them unsuitable. Among others the common kingfisher becomes the river kingfisher, Swinhoe's snipe the marsh snipe, and the black-necked tailor-bird the common tailor-bird. All rather confusing for the amateur ornithologist who visits different parts of the East.

N. B. KINNEAR

## A RUSSIAN REVIEW OF BONDS IN CHEMISTRY

### The Chemical Bond and the Structure of Molecules

(In Russian.) By Ya. K. Syrkin and M. E. Dyatkina. Pp. 588. (Moscow and Leningrad: State Scientific-Technical Publishing House of Chemical Literature, 1946.) 30 roubles.

THE authors of this work, who in recent years have been making important contributions to the study of resonance, the diradical state, polarity in the hydrocarbon series, and the structure of the boron hydrides, are probably the best-known Russian workers in the field of quantum chemistry. The book is intended to fill the gap which, has apparently existed in Russian chemical literature by reason of the absence of books comparable with the standard British and American treatises on the theory of the chemical bond and wave-mechanical conceptions of valency. It covers broadly the ground of Pauling's "Nature of the Chemical Bond", but in addition presents the mathematical foundations of quantum mechanics (Schrödinger's method), the detailed Heitler-London treatment of molecules, and the mathematical point of view in general; for the authors consider that the student can achieve the critical attitude essential for progress in this field only by becoming thoroughly acquainted with all the postulates, limitations and approximations involved in the deduction of the equations which he will use.

After a description of the principles of the electronic configurations of atoms, which includes an introduction to the conception of wave functions, there follows a wave-mechanical study of the hydrogen molecule ion, the hydrogen molecule, and the homopolar bond. The subjects of directed valency bonds, resonance, the method of molecular orbitals, infra-red and Raman spectra, dipole moments, bond energies, intermolecular forces, the crystalline state, complex compounds, and the structure of the boron hydrides are presented against a background of experimental data, and controversial matters are critically discussed. Quite recent work is reviewed; for example, Longuet-Higgins and Bell on  $B_2H_6$  (*Proc. Roy. Soc.*, A, 183, 357; 1945).

The last three chapters (pp. 480-569) are entirely mathematical and deal with the three-electron problem (Slater's method), the calculation of resonance energy, and miscellaneous problems.

There are author, formulæ and subject indexes. The book appears to be more comprehensive and up to date than any single volume on the chemical bond at present available in the English language.

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