with the general mathematical theory of electromagnetic waves, with special reference to transmission and telephone lines, and in the sixth chapter Hertzian telegraphy is briefly discussed from the practical side. The next two chapters, forming the second part of the volume, deal with harmonic analysis and non-harmonic E.M.F.'s and currents, and bear directly on the problems met with in alternating-current machinery. The mathematics is advanced, and the book is only suitable for advanced students. In an appendix are given eighty-eight problems for the student to work out, and there are a number of very excellent diagrams.

(2) Prof. Kennelly describes his book as an elementary treatise; it covers both the theoretical and practical side of wireless telegraphy and telephony, and is admirably suited for the reader with only very slight technical knowledge. The exposition of the theoretical side is clear, and the description of practical methods, though short, is sufficient to give a general idea of the present position of the art. The only objection which we have to raise against the book is on account of the diagrams, which are numerous but far from clear. Those in the earlier part of the book especially are on so small a scale that they are practically unintelligible; this is the more to be regretted as the type and paper are excellent, and there is no apparent reason why the diagrams should not be equally well reproduced.

(3) Dr. Erskine-Murray's little book is a popular exposition of the methods and present position of wireless telephony. Dr. Erskine-Murray combines a thorough knowledge of his subject with the power of clear and simple explanation, and we know of no better book for those of the general public who are anxious to know how wireless telephony now stands. We are rather doubtful whether the somewhat rosy view of the future taken in the last chapter is likely to be realised, although the advances already made make one chary of expressing too strong a doubt.

(4) No stronger evidence of the assured position of wireless telegraphy as a commercial means of communication could be afforded than the publication of this little Government handbook. The book itself does not call for much comment, since it contains only instructions and regulations for operators on board ship or in coast stations, but that such regulations should be called for is a more convincing proof that wireless telegraphy has settled down to the steady enjoyment of its own kingdom than any number of treatises or popular booklets. The position of wireless telephony to-day is much the same as that of wireless telegraphy ten years ago. Will 1920 see the issue of a Government handbook for wireless telephone operators?

OUR BOOK SHELF.

The Liverpool Geological Society. A Retrospect of Fifty Years' Existence and Work. By W. Hewitt. Pp. 117. (Liverpool: C. Tinling and Co., Ltd., 1910.)

THE Liverpool Geological Society, which was established on December 13, 1859, has signalised its jubilee by the publication of this volume, which includes an account of the history of the society and its geological labours, a list of papers printed in the Proceedings, and biographical notices of some past members. The society originated from a meeting held at the residence of G. H. Morton, who was its real founder, and for about forty years the chief moving spirit among the members. A capital portrait of him is given. Well known as the author of a volume "On the Geology of the Country around Liverpool," and of a series of important papers on the stratigraphy and palæontology of the Carboniferous rocks of Flintshire, he was one of the most distinguished of provincial geologists. By regarding the country within fifteen miles of Liverpool as their proper sphere of study, the society took the Carboniferous limestone series of Flintshire as their foundation-rocks, together with the succeeding Millstone Grit, Permian, Trias, Pleistocene, and Recent deposits.

On all these formations the members of the society have done excellent work. Undoubted Permian strata, including a bed of magnesian limestone with Schizodus, were described by Mr. E. Dickson at Skiliaw Clough, near Parbold. The researches of the late T. Mellard Reade on the Triassic rocks, the Glacial Drifts, and the recent physical changes in the Lancashire district are well known. His portrait is included; also that of Dr. Charles Ricketts, another enthusiastic worker who dealt with many local physical problems. There is one other portrait, that of Joseph Lomas, who had done much in investigating the fauna, flora, and origin of the Trias. Unfortunately, a railway accident in Algeria terminated the life of this zealous and genial worker at the early age of forty-eight. Photographic plates are given of the famous footprints of Cheirotherium from the Keuper Sandstone of Storeton, in Cheshire, described by Morton; and of the gypsum boulder from the Glacial Drift of Great Crosby, described by Mellard Reade. The volume has been carefully prepared, and is a valuable and interesting record of the work of Liverpool geologists.

Catalogue of the Lepidoptera Phalaenae of the British Museum. Vol. ix. Catalogue of the Noctuidæ in the Collection of the British Museum. By Sir George F. Hampson, Bart. Pp. xv+552; plates cxxxvii-cxlvii. (London: Printed by Order of the Trustees British Museum [Natural History]; Longmans and Co.; B. Quaritch; Dulau and Co., Ltd., 1910.) Catalogue 15*s.*; plates, 12*s.*

WE have again to congratulate the authorities of the British Museum and the indefatigable author on the appearance, within less than a year, of another volume of this highly important descriptive catalogue of moths. It is the sixth which has been devoted to the Noctuidæ, and is the third and last volume dealing with the great subfamily Acronyctinæ, of which 385 genera and 2288 species (a large proportion new) are described, and a great number illustrated in the three volumes devoted to the subfamily.

It may be useful to note that at the commencement of his work Sir George gave a table of fifty-two families of Lepidoptera, of which seven (families 33–39 inclusive) are butterflies, placed between family 32, Castiniadæ, and family 40, Euschemonidæ, the remaining forty-five families being moths. Of these, the first three, the Syntomidæ, Arctiadæ, and Agaristidæ, are described in the three first volumes of the work; while of the fifteen subfamilies into which the Noctuidæ are divided at the commencement of vol. iv., only the first four subfamilies have yet been dealt with. It therefore follows that the nine volumes which have hitherto appeared cannot be expected to represent a quarter, and perhaps not even a tenth, of the whole work, although