

graphs taken by the author himself. In a country of the size and extent of America, with climates ranging from the arctic to the tropical, and with large tracts of more or less untrodden wastes, the bird-lover and photographer has, of course, vastly greater opportunities (especially among the larger species, to which the author has confined his attention) than his brother in our own islands, and it must be confessed that these opportunities have not been neglected, for a more delightful book, both as regards text and illustrations, it would be difficult to produce.

The breeding colonies of brown pelicans of New England must form a really marvellous sight. On the occasion of the first visit of the author and his party, the boat was run ashore without alarming the birds. "Then," writes the narrator, "we stood up and shouted, but hardly a bird rose. There they sat upon their nests, hundreds and thousands of them, many within forty or fifty feet, solemnly gazing at us. It was not until we sprang out upon the shore that there was any considerable flight, and even then we noticed that it occurred only within a radius of fifty or sixty feet, the rest of the colony remaining on their nests apparently in perfect unconcern." Time after time the colony has been raided by feather and egg hunters, but it is satisfactory to learn that Pelican Island has recently been made by President Roosevelt a Government reserve for wild birds.

Not less interesting is the author's account of the colonies of white ibises and Louisiana herons in the Cape Sable wilderness, this being followed by a fascinating description, with equally fascinating photographs, of the colonies of sooty terns and noddies on "Lonely Bird Key," in the Dry Tortugas group, far out in the Gulf of Mexico. But if we were to cite even a tenth of the passages to which we should like to refer, editorial limits would be far exceeded, and in bringing this brief notice of an admirable bird-book to a close we cannot do better than advise our readers to get copies for themselves.

*Instruction in Photography.* By Sir W. de W. Abney. Eleventh edition, revised. Pp. 676. (London: Hliffe and Sons, Ltd., 1905.) Price 7s. 6d. net.

THIS work, which for many years has held the premier position among English text-books of photography, is to a peculiar extent the record of the author's own experiments and investigations, and in the new edition much new matter on the subject of colour photography has been added, the product of the attention which Sir W. de W. Abney has devoted to that branch of photography for some years. In other sections of the book it may be noted that the descriptions of lenses are brought up to date, while the chapter on sensitometry includes a description of Mr. Chapman Jones's plate tester. An entirely new chapter has been added to the book entitled "The Failure of a Photographic Law," and including the well known experiments made by the author upon the effect of intermittent exposures and upon the failure of the reciprocity law. Here also will be found an interesting discussion of the effect of temperature upon the sensitiveness of plates, while the last part of the chapter is devoted to an account of the author's researches upon the effect of different monochromatic lights upon a plate. The book has been entirely reset, larger type being employed throughout and the printing generally improved. No alteration has been made in the theoretical views set forth, and the silver sub-bromide theory of the latent image is adopted in its entirety.

C. E. K. M.

*La Bobine d'Induction.* By H. Armagnat. Pp. 228. (Paris: Gauthier-Villars, 1905.) Price 5 francs.

IN this book a very interesting account is given of the induction coil in its theoretical and practical aspects. The electromagnetic problems involved are clearly stated, and the various factors which stand in the way of a complete mathematical theory are considered in some detail. The effects of sparking at the interruptor, the parts played by the iron core, by the secondary capacity, &c., are carefully examined and methods of experimental investigation are illustrated. The differences between mechanical and electrolytic interruptors are discussed, and the more purely theoretical part of the book concludes with a chapter on the power and output of a coil and of the factors upon which these depend. The methods of measuring the electromagnetic constants of a coil are indicated, as are the most common sources of breakdown, how they may be detected, and how in some cases remedied.

In the description of the practical construction of coils which follows, the different methods of winding, insulation, &c., are described in detail, and the relative dimensions of the various parts of coils of standard makes are given. The particular features of different types of interruptors, mechanical and electrolytic, upon which efficient working depends are stated clearly (although the action of the commonest mechanical interruptor is not quite so simple as it is made to appear, and might perhaps have been described in greater detail in a book of this kind).

The principles of the action of several special forms, such as Tesla's, of induction apparatus used in practice are given in outline, and a final chapter is devoted to a description of the various uses of induction coils. The range of this chapter is perhaps indicated when it is said that it includes the discussion of such questions as the ignition apparatus of explosion-engines and the production of ozone.

A very useful bibliography, in which the references are in most cases accompanied by short abstracts, completes an excellent book.

*Handbook of Metallurgy.* By Prof. Carl Schnabel. Translated by Prof. Henry Louis. Second Edition. Vol. i. Copper—Lead—Silver—Gold. Pp. xx + 1123. (London: Macmillan and Co., Ltd., 1905.) Price 25s. net.

THIS volume is a translation of the second German edition which appeared in 1902. Prof. Schnabel has found it necessary to increase the length of the book considerably, the translation being 214 pages longer than that of the first edition. A number of new furnaces and other appliances are described, and in particular the account of the extraction of copper by electro-metallurgical methods has undergone great expansion. The older metallurgical methods are purposely dwelt on by the author, who gives as his reason that a knowledge of the development of metallurgy stimulates inventive genius. It is equally certain that the inclusion of the descriptions of out-of-date methods helps to make books bulky.

The merits and defects of the book remain much the same as in the first edition. It contains a mass of detailed information as to the dimensions of appliances in use at particular works, the analyses of products, and the like, but the discussion of the principles underlying the practice is generally less thorough. This is as much as to say that the book is "practical." Prof. Louis is to be congratulated on the translation, which makes a valuable work available to British students.