SCIENTIFIC LITERATURE.

The Mechanical Engineer's Pocket Book. By Wm. Kent. New York, J. Wiley & Sons, 1895. 168 illustrations, pp. xxxi.; 1087, 16 mo. $5.00.

This 'pocket-book,' although altogether too large for the pocket—as are, in fact, all these books, when meeting the requirements fully—is the most important and valuable accession to the portable library of the engineer that has recently appeared. Its scope is purposely confined to those subjects which are of main interest to the mechanical engineer, including the electrical engineering branch, and matters assignable to civil engineering, distinctively, are omitted; it being assumed that the interested engineer will find them in his 'Trautwine.' The author of the new 'pocket-book' is a distinguished engineer and metallurgist, and has had a peculiarly fruitful and fortunate variety of experience in those departments. He supplemented a mercantile education and some experience with a course of study in mechanical engineering, and subsequently had charge of iron and steel works in Pittsburgh, edited a technical journal, was the responsible laboratory assistant in charge of important work of the 'United States Iron and Steel Board,' and has enjoyed a most unique and helpful experience as a consulting engineer. No one could better comprehend precisely what is demanded of the author of such a book.

Throughout a period of now many years material was in process of accumulation, as advised by Nystrom: 'Every engineer should make his own pocket-book.' The construction of the book in hand was commenced at the request of the publishers, who selected the presumably best prepared man for the work, and the result of four years of labor is an admirable, an extensive and a 'meaty' volume.

The section devoted to the materials of engineering, their strength and their properties, is peculiarly valuable and complete. It is a department in which the author is thoroughly at home and with which he has all his life been familiar. The revision of the old formulæ and their constants has been very carefully and completely performed, and this work in itself constitutes a great boon to the engineer. The wide range of difference of proportions of parts of engines and machines observed among contemporary builders and 'authorities' has been the subject of long and conscientious labors. When it is said that sizes of important parts, in the best practice, for 'low-speed' and 'high-speed' engines, respectively, average as four in the one to seven in the other, and when it is known that variations of ten to one, in certain proportions of parts, among well-known makers, are known to exist, the importance of this revision becomes appreciable.

Experimental data are collated to date, and in immense quantity in all departments, and the theory of construction, as far as required and appropriate to such a book as this, has been well condensed and revised, not only by the author, but by specialists whose aid has been sought by him.

The book is especially rich in matter relating to the steam-engine and steam-boilers, stationary, marine and locomotive, and a moderate amount of space is well utilized by a very condensed resumé of principles and practice in electrical engineering. It may perhaps be fairly anticipated that this section will grow somewhat with the rapidly succeeding editions of the book which, it is safe to predict, will follow. Refrigerating machinery here, for the first time, finds space in some degree commensurate with its growing importance, and theory and practice are judiciously presented with data derived by the best experiments yet reported.

This book has more importance, and de-

serves much more space, than so incomplete a notice would indicate; but it is only practicable here to give the briefest possible indication of its contents, and to advise everyone interested in the subjects treated to examine the work and judge it for himself. Mr. Kent and his publishers —who have put up the book in excellent shape in all respects—are to be heartily congratulated on the outcome of their long struggle with the most difficult task that authorship knows—the condensation of a a great mass of useful special information into manageable and compact form. The product of their efforts is a mechanical engineer's pocket-book covering the field with remarkable completeness, correct as to theory, rich in data, supplying all the tables, 'constants of nature,' and results of scientific research in its department, required by the practitioner, and in marvellously compact form.

In size, type, paper and presswork, binding and finish, the book is fully up to the established standard for such publications. It seems remarkably free from printers' and other errors—although it must undoubtedly fail of absolute perfection in this respect in a first edition—and is a credit to all concerned in its production. It is a great work well done.

R. H. THURSTON.

Birdcraft, a Field Book of Two Hundred Song, Game and Water Birds. By MABEL OSGOOD WRIGHT. Pp. 317. 15 double plates, mostly colored. New York and London, Macmillan & Co. 8°. May, 1895. Price, $3.00.

On opening Mrs. Wright's *Birdcraft*, fresh from the press, one is likely to exclaim 'what horrible pictures!' and wonder how a reputable publisher or author could permit such atrocious daubs to deface a well printed book. But in spite of these staring eyesores, which certainly prejudice one against the work, the text contains much of interest and, taken as a whole, is well written. The spirit of the book is in touch with the popular and growing fashion of studying birds in the field, and its chief purpose seems to be to interest the novice and aid in identifying birds 'in the bush.' It contains introductory chapters on 'the spring song,' 'the building of the nest,' 'water birds,' 'birds of autumn and winter,' and 'how to name the birds.' The book proper begins with a 'synopsis of bird families,' followed by popular descriptions and short biographies of 200 species—mostly well-known eastern birds—and ends with keys for the ready identification of males in spring plumage. The utility of such keys can be tested only by actual use. These are simple and look as if they would be helpful to the beginner, though it almost takes one's breath away to find the robin classed with the cardinal and tanager under 'birds conspicuously red.'

Most of the biographies are based on the author's field experience in southern Connecticut, and as a rule are interesting and accurate. Now and then misleading statements creep in, particularly with reference to the geographic ranges. For instance, the white-eyed vireo, chat, orchard oriole, and other Carolinian birds are said to inhabit the 'eastern United States,' while, as a matter of fact, they are absent from the northern tier of States and New England, except in the southern parts. Other surprising statements may be traced to popular prejudice. Thus the author says of the Blue Jay: "Here is a bird against whom the hand of every lover of song-birds should be turned * * * for the Jay is a cannibal, not a whit less destructive than the crow. * * * Day by day they sally out of their nesting places to market for themselves and for their young, and nothing will do for them but fresh eggs and tender squabs from the nests of the song-birds; to be followed later by berries,