

(10955) F. W. B. asks: 1. Please give (in substance) an explanation of the phenomena of rotating storms, such as whirlwinds, cyclones, etc. Do they always rotate in one direction, and why? A. The rotation of storms is caused by the rotation of the earth on its axis. In the northern hemisphere these storms rotate in a direction opposite to the motion of the hands of a clock; in the southern hemisphere they turn with the hands of a clock. All cyclones, hurricanes, tornadoes, etc., follow the same law. 2. Is it possible for a whirlwind to rotate for a time in one direction, and then reverse and whirl in the opposite? I ask this last especially for the reason that two reputable persons of my acquaintance claim to have seen this phenomenon. A. Small whirlwinds, such as form in a field or at a street corner, probably turn in either direction; but if one was seen to rotate one way, and in a brief time another was seen in the same place turning in the opposite direction, we should consider that these were two different whirlwinds, and not a whirlwind which had reversed itself.

NEW BOOKS, ETC.

We have received from Knowledge, 27 Chancery Lane, London, W. C., a circular slide rule devised by Major B. Baden-Powell. The instrument consists of two similarly figured dials, an outer fixed one and an inner rotatable one. These are graduated in logarithmic sequence, and the numbers are arranged in spirals, so that the decimals coincide, as in all slide rules. While not professing to be an absolutely exact calculating machine, this simple appliance ought to prove of the greatest use in everyday life. It is so simple in action, so compact, and yet so reliable, that it should find a place on the writing table of all those who have frequent calculations to make. Not only does it enable one very rapidly to obtain approximate results, even with large figures, in multiplication and division, but for those who have to deal with foreign measures and wish to know, almost at a glance, the equivalent in English measures, this should prove helpful. One advantage of this form of apparatus may be noted, that any special measures which have to be converted, such as rubles to pounds, carats to grains, or kilowatts to horse-power, can be temporarily marked on the card. The equivalent fractions of decimals, proportions, and square roots are also easily found.

THE MODIFICATION OF ILLINOIS COAL BY LOW TEMPERATURE DISTILLATION. By S. W. Parr and C. K. Francis. University of Illinois Engineering Experiment Station. Urbana, Ill.: Published by the University. 8vo.; Pp. 48.

The details of this paper are many and intricate, and the conclusions rather vague and unimportant. The main conclusion appears to be that coal can be made more available for certain purposes by treatment, but neither the cost of the treatment nor the total B.T.U. of the evolved gases is given. In fact, the research is incomplete and hardly ripe for presentation.

ELECTRICITY: WHAT IS IT? By W. Denham Verschöyle, M.E., M.I.M.E., M.A.I.M.E. London: Swan Sonnenschein & Co., Lim. New York: The Macmillan Company, 1908. 16mo.; cloth; 259 pages; illustrated. Price, \$1.

A purely theoretical position has been taken by the author in discussing the question: What is electricity? In seeking the laws that regulate the intermediate action of energy and matter the finding of new facts has been subordinate to generalization through chapters on the gyron, atom, molecule, heat and light, electricity and magnetism, dissociation and devolution, and life. The importance of theoretical work in the new science as demonstrated in this volume may cause additional attention to be drawn to it when known that the tables and general conclusions have received a measure of confirmation in the work of Sir William Ramsay. Spectrum analysis is dealt with in the appendix.

CEMENT LABORATORY MANUAL. A Manual of Instructions for the Use of Students in Cement Laboratory Practice. By L. A. Waterbury, C.E. New York: John Wiley & Sons, 1908. 12mo.; 122 pages, 28 figures. Price, \$1.

This manual has been prepared for the use of students taking the course in cement laboratory practice in the University of Illinois, and for the use of others who may have occasion to use such a laboratory manual. Instructions for the problems originally used in the course mentioned were devised by Ira O. Baker, professor of civil engineering, University of Illinois, under whose direction the author had charge of the cement laboratory at that institution for three years. This manual has been prepared by revising and extending the instructions already in use. The problems which are given herein are suitable to class use and are not intended to serve as instructions for the testing of cements for commercial purposes. However, the problems have been designed to include all of the tests which are ordinarily made, so that a student who shall have completed these problems

should be able to do testing for commercial purposes, although the experience which is required for the production of uniformly satisfactory results in the latter class of work can be obtained only by a considerable amount of practice, and cannot be obtained to any considerable extent by a laboratory course which is intended chiefly to teach methods of testing.

ELEMENTS OF RAILROAD TRACK AND CONSTRUCTION. By Winter L. Wilson. New York: John Wiley & Sons, 1908. 12mo.; 320 pages, 181 figures. Price, \$2.

In this volume no attempt has been made to treat the subjects of railroad track and construction with any considerable amount of detail, but rather to present a few of the fundamental principles in such manner that the inexperienced engineering student can form a general idea of the subjects. There are a number of excellent treatises on track which go into the subject with a wealth of detail and a thoroughness of discussion which is of immense value to the maintenance-of-way engineer with some experience; but, unfortunately, these books are not suitable for class-room work, both on account of the student not being able to appreciate the value of the details and also on account of the impossibility of reading these books in the time usually given to such subjects in an engineering course. Details of practice can be much more readily learned and appreciated from actual experience. There is not much time in the four years of an engineering course that can economically be given to the details of practice, but it is essential that the student should understand the fundamental principles of the subjects. In this volume some of the general principles of track and of the part of railroad construction with which the young engineer may come in contact early in his experience are presented.

HIGHWAY ENGINEERING. By Charles E. Morrison, A.M., C.E. New York: John Wiley & Sons, 1908. 8vo.; 315 pages, 60 figures. Price, \$2.50.

This was prepared for the second-year students of the department of civil engineering at Columbia University, with a view to furnishing a text in which the fundamentals of the subject should not be buried in a mass of detail, such as is frequently found, to be the case in works of a similar character. This book is, therefore, not a reference work, but rather one in which it has been the endeavor to outline and emphasize those basic principles which are essential to good highways.

THE ENGINEERS' DESCRIPTIVE CHARTS IN COLORS. Showing the Development of the Steam Boiler. Showing the Development of the Steam Engine. Showing the Development of the Electric Generator. By Joseph G. Branch, B.S., M.E., Author of Stationary Engines, Conversations on Electricity, etc. New York and Chicago: Rand, McNally & Co., 1908. 28 1/2 x 22 inches; illustrated. Price, 50 cents each.

The charts are clearly illustrated and effectively printed in three colors. The development of the subjects is both technical and historical and the charts will prove to be an invaluable aid to all engineers, firemen, machinists, students, and electricians.

STEAM POWER PLANT ENGINEERING. By G. F. Gebhardt. New York: John Wiley & Sons, 1908. 8vo.; 816 pages, 461 figures. Price, \$6.

This book is the outcome of a series of lectures delivered to the Senior class of the Armour Institute of Technology, Chicago, Ill. It is primarily intended as a text-book for engineering students, but, it is hoped, will also be of interest to practising engineers. The field embraced by the title is a large one and it has been necessary to limit the treatment to essential elements. Much of the matter contained in the author's original notes, including that relating to steam engine design, valve gears, steam boiler design, and the like, has therefore been omitted. The numerous references appearing throughout the text and the appended bibliographies, which have been carefully compiled, are depended upon to extend the scope of the work. The standard codes of the American Society of Mechanical Engineers for conducting engine and boiler trials are in frequent demand by engineers and have therefore been included as an appendix. Authorities have been freely consulted and extensive use made of current engineering literature, due acknowledgment being made by footnote or reference whenever possible. The matter included is representative of American practice and no effort has been made to include any other except in a few special cases.

LONG ODDS. By Harold Bindloss. Boston, 1908. 12mo.; 401 pages. Price, \$1.50.

This latest and best book by this popular teller of tales is a story of splendid endeavor, the scene Portuguese West Africa. A promise to a dying partner sends the Quixotic hero out into the steaming jungle on an errand of freedom and into innumerable perils which thrill the imagination with the strange ways of the mysterious and fascinating Dark Continent. The vivid picture of the so-called contract labor conditions, which amount to Negro slavery, is of particular value to everyone interested in the Congo reform movement. There is an American missionary of fine heroism

whose acquaintance every American will gladly make, and the absorbing love story holds the reader enthralled.

HERCULANEUM, PAST, PRESENT AND FUTURE. By Charles Waldstein, Litt. D., Ph.D., L.H.D., and Leonard Shoo-bridge, M.A. With Appendices. London and New York: The Macmillan Company, 1908. Illustrated. Imperial 8vo.; 324 pages. Price, \$5.

Dr. Waldstein has written an exciting book, says the New York Tribune. Archaeology has always had more romance about it than the prosaic layman has been prepared to admit, but in the present instance it makes a peculiarly alluring appeal. If it stirs the blood to think of what the excavator feels when he uncovers a single tomb in Egypt it is positively thrilling to contemplate the possibilities summed up in the name of that Campanian town which was buried by an eruption of Vesuvius in 79 A. D., and has been left almost undisturbed in its sleep ever since. There are reasons why we are justified in believing that Herculanum, if fully uncovered, would yield treasures of art and other vestiges of the ancient past incomparably richer than those dug up at Pompeii. The Italian government has committed itself to excavate Herculanum on its own responsibility. The work will necessarily be slow. It requires prodigious sums, which only the nations of the world, acting together, could supply. No better contribution could be made toward a movement culminating in such a scheme than is made in these pages. Obviously, excavation at Herculanum should reveal innumerable objects for a few hundred to be found at Pompeii. Furthermore, the two towns suffered in distinctly different degrees from the malice of Vesuvius. Herculanum is a mile and a quarter nearer than Pompeii to the foot of the volcano. Pompeii suffered enough in all conscience, but she got off with, on the whole, less damage. Now what happened at Herculanum? With overwhelming suddenness a sea of liquid mud swept over the town and buried it to a depth of about eighty feet.

THE BOOK OF THE PANSY, VIOLA, AND VIOLET. By Howard H. Crane. New York: John Lane Company, 1908. 16mo.; 106 pp. Price, \$1.

The beautiful flowers of the pansy, that we are now accustomed to see in nearly every garden worthy of the name, were not evolved in one short space of time. They are the outcome of many years of persistent effort on the part of a comparatively few enthusiasts, who, by dint of infinite patience and labor, have helped to evolve the glorious blooms that are now so largely grown. The pansy dates only from 1813. With careful breeding the pansy was evolved from the heart's-ease. The book deals with everything relating to the pansy, the viola, and the violet.

LES NOUVEAUX LIVRES SCIENTIFIQUE ET INDUSTRIELS. Vol. I. Annees 1902 à 1907. Livraisons 1 à 20. Bibliographie des Ouvrages publiés en France. Du 1er Juillet, 1902, au Juin, 1907. 1° Table alphabétique des sujets traités. 2° Table alphabétique des noms d'auteurs. 3° Livraisons trimestrielles (Nos. 1 à 20). Paris: H. Dunod et E. Pinat, Editeurs, 1908.

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