The Engineer's Library

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BOOK REVIEWS.

Manual of Surveying for Field and Office. By Raymond E. Davis, C.E., instructor in Civil Engineering, University of Illinois. Published by McGraw-Hill Book Co., New York. First edition, 1915. 395 pages; illustrated; 4½ x 7 ins.; flexible leather binding. Price, $2.50.

Of the several handbooks on surveying that have appeared this year, civil engineers and surveyors will find the manual under consideration one worthy of investigation. The practice of surveying, from both field and office standpoint, is dealt with concisely and in a manner that makes it a very serviceable volume for the engineering student as well as the man in the field. The proper use of surveying instruments, the best procedure in making surveys, and the proper methods of computing and mapping are dealt with in a manner suggesting the particular aim in view to be instruction, not only to civil engineering students, but to students in other courses requiring a working knowledge of surveying.

The first chapter prepares the user for the practice of surveying developed in succeeding chapters. It covers the field note book, field problems, surveying instruments, office computations and maps. The succeeding chapters are under the following headings: Elementary field problems; compass and transit problems; level problems; use of the plane-table and sextant; field astronomy; topographic surveying and office problems. Some 122 pages of the work comprise the usual tables necessary to the surveyor.

The subject-matter is well arranged, in that each problem is complete in itself as far as possible. There is little information necessary to an inexperienced surveyor that has not been included in the text-book. A good deal of emphasis is placed on the precision of measurements, methods of checking, and systematic compilation of notes. The latitude, longitude and azimuth problems require little or previous knowledge of astronomy. Plane-table methods for large scale work have been given more attention than they are usually accorded. The index is very complete, facilitating ready reference.

The author gives credit to a number of prominent authorities for assistance rendered in the compilation of the work.

Valves and Valve Gears. By F. D. Furman, M.E., Stevens Institute of Technology. Published by John Wiley and Sons, New York; Canadian selling agents, Renouf Publishing Co., Montreal. First edition, 1915. (Reviewed by Robt. W. Angus, B.A.Sc., Professor of Mechanical Engineering, University of Toronto.)

Vol. 1.—Steam Engines and Steam Turbines. 254 pages; 357 illustrations; 6x9 ins.; cloth. Price, $2.50 net.

Vol. 2.—Gasoline, Gas and Oil Engines. 190 pages; 170 illustrations; 6 x 9 ins.; cloth. Price, $2.00 net.

This work is devoted to a branch of mechanical design sometimes treated by itself, but more commonly in general books on engines. The first volume deals with valves for steam engines and steam turbines, and begins with a general description of the parts of an engine and a discussion of the different features of a valve, such as lead, lap, etc.

This is followed by a discussion of the Leuner and other valve diagrams and the applications of these to valve design, adjustment and analysis. The next two chapters deal with valve forms and the various mechanisms used for operating the valves, including shaft and other governors. About two-thirds of this volume is taken up in discussing valves used in various engines, in many cases drafting-board problems being suggested for solution.

The second volume treats of gasoline, gas and oil engine valves, and the general treatment is fairly complete. After giving a description of the action of the internal combustion engine, the details, such as carburettors, igniters and ignition systems, number and disposition of cylinders, valve gears, cams, etc., are described and considered briefly. Many actual forms of valve mechanisms are then fully considered and analyses made in most cases. Amongst the machines treated in this way are the Franklin, Knight, Gnome and other aeroplane engines, Diesel and several forms of gas and oil engines.

Properties of Steam and Ammonia. By G. A. Goodenough, M.E., Professor of Thermodynamics, University of Illinois. Published by John Wiley and Sons, New York; Canadian selling agents, Renouf Publishing Co., Montreal. First edition, 1915. 108 pages; illustrated; 7 x 10 ins.; cloth. Price, $1.25 net.

In this book of steam and ammonia tables Professor Goodenough has aimed at accuracy and convenience in application, and, with these ends in view, has consulted the works of the most recent experimenters who have been working along this line. The tables of saturated steam are similarly arranged to those of other compilers, while the properties of superheated vapors have been differently arranged; but whether this results in a greater facility for use or not, one cannot say without much experience in their use.