Book Reviews

Low-pressure laminating of plastics. J. S. Hicks. New York: Reinhold, 1947. Pp. 162. (Illustrated.) $4.50.

In the words of the author, "The very young field of low-pressure laminating and fabricating has set forth in its swaddling clothes after V-J Day to seek its proper place. . . . ." The technical usefulness of these relatively new resins and processes is a challenge to plastic fabricators. This book, therefore, should be very helpful to those who want to become acquainted with this field. The low-pressure laminating techniques are explained in very elementary fashion with many pictures to illustrate the various steps.

The author has limited his discussions strictly to the low-pressure techniques and has carefully refrained from padding the book with information on the many related subjects. Lists of books and pertinent references can be found throughout the text; also, the names of some of the suppliers of laminating equipment and materials are given.

The final chapter on engineering and cost principles contains interesting tables showing the comparative weight and cost per cubic foot of the various types of structural materials, and a list of 11 experiments, giving detailed instructions for making and fabricating simple laminations, appears in the appendix.

Although the information in the book is reliable and instructive, it is designed primarily for the beginner. The expert might find it disappointing for that reason.

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Concise anatomy. Linden F. Edwards. Philadelphia: Blakiston, 1947. Pp. xxiv + 548. (Illustrated.)

This book represents the second edition of a text first published in 1934 under the title *Anatomy for physical education.* The present edition has been written for the student in the various ancillary fields of anatomy, such as physical therapy, nursing, etc., and is not intended as a substitute for the more comprehensive treatises used by medical and dental students. Regional anatomy is emphasized rather than systemic, although several chapters are devoted to the major systems. The text is, on the whole, clear and well written. The illustrations are adequate, but few are original; 225 of the 324 total are taken from Morris' *Human anatomy* alone. The physical aspect of the book and the arrangement of the printed page is clear and pleasing.

Evaluation of the over-all worth of a new textbook of anatomy is difficult. So many have been written, and for so many purposes. Errors or differences in interpretation can be found in all of them, the large as well as the small. The basic material is comparatively well standardized, and the chief discrepancy of opinion invariably lies in the amount of descriptive detail deemed necessary for the purpose. A certain class in physical therapy once taught by the reviewer would have been swamped by the detail in *Concise anatomy*; in the hands of Prof. Edwards they might have thrived upon it. The average medical student, in these turbulent days of "down with nonessentials," would be apotheosized if he knew half of Prof. Edwards' book, but no professor of anatomy will ever be willing to admit this. These are the facts and individual opinion remains largely just that.

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Advanced mathematics for engineers. (2nd ed.) H. W. Reddick and F. H. Miller. New York: John Wiley; London: Chapman & Hall, 194. Pp. xii + 5087. (Illustrated.) $5.00.

This book, written by two professors at Cooper Union Institute of Technology in New York, is the result of lectures for juniors and seniors in engineering courses at this Institute. The first edition was published in 1938. This second edition shows that the efforts of the authors have met with the appreciation of their colleagues.

The 11 chapters deal with ordinary differential equations, hyperbolic functions, elliptic integrals, infinite series, Fourier series, Gamma and Bessel functions, partial derivatives and partial differential equations, vector analysis, probability, functions of complex variables, and the operational calculus. This constitutes a considerable amount of material, and it is treated very well. A large number of problems, the answers to which are given in the last pages of the book, enrich the text.

Some interesting applications enliven the theory. Examples of the use of hyperbolic functions are Schiele's pivot and the buckling of a rotating shaft; elliptic functions are illustrated by the skipping rope and the field intensity due to a circular current. The problem of a wire clamped at its lower end at a small angle with the vertical serves as a case which leads to Bessel functions. As applications of partial differential equations of the second order we meet the determination of the resultant magnetic field strength arising from a current excited in a solenoid and the induced eddy currents set up in the copper core, as well as a problem of the drying of a porous slab by evaporation. The chapter on the operational calculus includes not only the Heaviside operators, but also Bromwich' line integrals.

The second edition differs from the first mainly by an appendix of 5 pages on "Units and Dimensional Analysis," a considerable extension of the number of problems, and the addition of a few new topics. The authors mention specifically among these new problems a mechanical brake problem involving elliptic integrals (based on an article by I. Opatowksi. *Amer. math. Monthly*, 1941, p. 443), a more extended treatment of Fourier series, and an article on the vibrating membrane in a rigid rectangular frame.

This reviewer is very well pleased with the authors' clear way of exposition; it is a pleasure to read this book. It can be strongly recommended to students of engineering and physics who are in need of advanced calculus either as their main text or as supplementary reading. It ranks with the best books on this subject in any language.

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