matical symbols in actual use and it closes with directions as regards editorial work. The object is to give an exposition of the contemporaneous mathematical notation, omitting what is very seldom used. In the second and third parts a number of rules are given as regards the choice and the use of the symbols. Although these rules may appear to the reader as platitudes, yet their formulation is not without interest. The subject of mathematical notation is so important that such efforts to give a clear expression of what ought to be strict rules in the choice and use of notation deserve serious attention, especially on the part of the beginner.

The work closes with an unusually complete table of contents covering eleven pages. The number of the different subjects is very large. The various chapter headings are as follows: Nombres entiers, fractions, quantités déterminées, nombres indéterminés, signes d'operations, signes de coordination, signes de fonctions, signes de relations, notations de la géométrie, signes de la géométrie analytique, mathématiques appliquées, signes de rédaction, netteté du signe, précision du signe, rappel des propriétés de l'objet, rappel des rapports entre les objets, choix des signes généraux, mesure des quantités, objets d'une seule sorte en nombre déterminé, objets d'une même sorte en nombre indéterminé, objets de deux sortes, correspondances entre deux sortes de signes, objets de plus de deux sortes, cas difficiles, écriture des expressions, expressions mal écrites, structure des expressions, expressions abrégées ou condensées, notations particulières, relations, systèmes d'équations, notations initiales des problèmes, mise en équations, direction des calculs, verifications.

<div style="text-align: right">G. A. MILLER.</div>

Applied Mechanics for Engineers. By E. F. HANCOCK. The Macmillan Company, 1909. xii + 385 pp.

IN writing this text the author has boldly, if not wisely, taken the viewpoint of the engineer in choosing the material which he considers essential, as well as in the method of presenting it. He has clearly in mind the fact that in an undergraduate course in mechanics for technical schools the greatest difficulty encountered by the student lies in seeing the application of theory to practice. As stated in the preface, no new material in the matter of principles and theory is presented. However, in the matter of application of the fundamental prin-

ciples the author has purposely entered the field of the engineer
for new and up-to-date material. Of the 292 problems (with
few answers) given for solution by the student many are adapted
from original sources in engineering journals, and in this con-
nection many references are cited. In this method of building
up a text there lies the danger of having the choice of material
influenced by local conditions, evidences of which crop out
in many places in the book. It could easily be criticized by the
engineer whose problems are mainly those of static equilibrium,
and he would say that insufficient stress is placed on his line of
work and that the side of engineering dealing with dynamics
is over-emphasized. Certainly the strong influence of the
latter is evident. Again, in the choice of material the text
might tend to become an engineer's hand book, which at best
would be insufficient in content and poorly arranged for refer-
ence. In this connection it might seem quite superfluous to
include in appendices tables of logarithms, trigonometric func-
tions, squares, roots, etc., which the student has used in a more
convenient form long before he studies mechanics.

In bringing into the text practical engineering problems the
author handles his material well, and in adapting this material
the danger of leaving vague and sometimes erroneous notions
concerning engineering projects in the minds of the students is
reduced to a minimum. To help present these problems, and
in order to give clear notions of the theory the text is illus-
trated with 205 well-drawn figures, each of which tells its story
well because it holds fast to fundamentals. The print is clear
and the typographical errors noted are few and unimportant.
Approximations and empirical formulas are used frequently be-
cause these often arise in engineering practice, and comparisons
of results obtained from their use with theoretical values are
made.

If a table of contents were given here it would show that the
text contains chapters on only those fundamental notions which
all would agree should be found in a text on mechanics. The
author's claim for the completeness of the chapters on moment
of inertia, center of gravity, work and energy, friction, and im-
pact, both from the standpoint of theory and application, may
be granted ; at least for the applications.

The book contains considerable engineering data of value,
which would be increased materially if the students made a
judicious use of the references cited, a few of the more involved

theoretical discussions, and a maximum of application. It is plainly a text for students in technical courses, while its use in a more general course would hardly be recommended.

ERNEST W. PONZER.

NOTES.

THE July number (volume 11, number 3) of the *Transactions of the American Mathematical Society* contains the following papers : "Die natürlichen Gleichungen der analytischen Curven in euclidischem Raume," by E. STUDY ; "Two-dimensional chains and the associated collineations," by J. W. YOUNG; "Groups of rational transformations in a general field," by L. I. NEIKIRK ; "On osculating element-bands associated with loci of surface-elements," by P. F. SMITH ; "Fields of extremals in space," by G. A. BLISS, and M. MASON ; "Groups generated by two operators s_1, s_2 satisfying the equation $s_1 s_2^2 = s_2 s_1^2$," by G. A. MILLER ; "Congruences of the elliptic type," by L. P. EISENHART.

THE July number (volume 31, number 3) of the *American Journal of Mathematics* contains the following papers : "The osculants of plane rational quartic curves," by H. I. THOMSEN ; "On the primitive groups of classes six and eight," by W. A. MANNING ; "Minimalkurven als Oërter von Krümmungsmittelpunkten," and "Minimalcurven und Serret'sche Flächen," by E. STUDY ; "On Steinerians of quartic surfaces," by J. N. VAN DER VRIES ; "On the determination of the ternary modular groups," by R. L. BÖRGER ; "Groups of transformations of Sylow subgroups," by G. A. MILLER.

THE concluding (July) number of volume 11 of the *Annals of Mathematics* contains : "The theory of shadow rails," by W. H. JACKSON ; "On a new method of computing the roots of Bessel's functions," by W. MARSHALL ; "A functional equation for the sine," by E. B. VAN VLECK ; "Periodic decimal fractions," by W. H. JACKSON ; "Concerning the invariant points of commutative collineations," by W. B. FITE ; "A new construction for cycloids," by H. SCHAPPER ; "Metric classification of conics and quadrics by means of rank," by G. RUTLEDGE ; "A method of solving linear differential equations," by P. A. LAMBERT.