

connection with transformation groups. And besides these reviews by German mathematicians there is an account by Professor Eddy, now of the University of Minnesota, of the remarkable development of *graphical methods* within the past thirty years, particularly in connection with engineering theory and practice.

The same general interest attaches to the paper in which Professor Hilbert, now of Göttingen, gives an outline of his own important investigations in the field of *algebraic invariants*; to that of Professor Minkowski, now of Königsberg, on his *geometry of integral numbers*; of Professor Pringsheim, of Munich, on his general theory of the *divergency and convergency of series* with positive terms; of Professor Study on his researches in *spherical trigonometry*; and of Mr. D'Ocagne, of Paris, on his powerful graphical method: "*Nomographie*."

But the volume is not simply a collection of expository papers and *resumés*. It contains a full share of valuable and interesting original papers also. In the field of the *theory of substitutions* and *algebraic equations* are papers by Cole now of Columbia, Maschke and Moore of Chicago, de Perrott and Taber of Clarke and Weber of Strasburg; in the field of *functions*, papers by Bolza of Chicago, Hermite of Paris, Krause of Dresden, Pincherle of Bologna and Stringham of the University of California; while mathematical *history*, the reduction of *binary quantities*, *continuous transformation groups*, *algebraic curves*, the *Grassmann analysis* and *geodesic lines* are represented by papers by Halsted of the University of Texas, Hurwitz of Zürich, Meyer of Clausthal, Noether of Erlangen, Schlegel of Hagen and Weyr of Prague respectively. From every point of view, therefore, this volume is an important contribution to the mathematical literature of America. It is, moreover, carefully edited and beautifully printed.

HENRY B. FINE.

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## ELECTRICITY AND MAGNETISM.

*Elements of the Mathematical Theory of Electricity and Magnetism.*

By J. J. THOMSON, F. R. S., Cavendish Professor of Experimental Physics in the University of Cambridge. vi+510 pp., octavo. Cambridge, University Press; New York, The Macmillan Company, 1895. \$2.60.

When Professor Thomson undertook to edit a new edition of Clark Maxwell's treatise it was hoped he would re-