combine these elements properly, are necessary steps in all study of phenomena. These two processes are the products of what may be called a refined form of Mill's method of concomitant variations.

The chapter dealing with the idea of order of magnitude and measurement is of particular interest to the scientist.

H. D. THOMPSON.

NOTES.

PROFESSOR FELIX KLEIN's Lectures on Mathematics, known as "The Evanston Colloquium" (New York, Macmillan, 1894), are out of print. A. Hermann, of Paris, has just brought out a French translation of this work, prepared by M. L. Laugel; the title is, "Conférences sur les mathématiques, faites au congrès de mathématiques tenu à l' occasion de l' exposition de Chicago." M. Laugel has added seventeen pages of valuable bibliographical notes, thus bringing the references up to date.

M. Laugel has also accomplished the difficult task of translating into French the collected mathematical works of Bernhard Riemann. This translation is now in the press of MM. Gauthier-Villars and will soon be ready.

THE memoir on the analytical representation of direction, etc., published by Caspar Wessel, in 1797, which contains the earliest systematic attempt at a geometrical interpretation of imaginaries was the subject of Professor W. W. Beman's vice-presidential address before Section A of the American Association for the Advancement of Science last summer. The address was published in full in *Science*, vol. 6, pp. 297–307 (Aug. 27, 1897).

AT the meeting of the Paris Academy of Sciences, February 7, 1898, the death of the well-known publisher, M. JEAN ALBERT GAUTHIER-VILLARS, was announced, and resolutions were adopted in recognition of his manifold services to science, particularly of his generous assistance to the French Government and the Academy in publishing the complete works of Lagrange, Fermat, Fourier, and Cauchy.

THE Schubert prize of the Imperial Academy of Sciences, St. Petersburg, has been awarded to PROFESSOR SIMON NEWCOMB for work in theoretical astronomy.

PROFESSOR D. E. SMITH, professor of mathematics in the Michigan State Normal College, has been appointed to the principalship of the State Normal School at Brockport, New York.

DR. EDGAR ODELL LOVETT, of Princeton University, has been promoted to an assistant professorship in the John C. Green School of Science of that institution.

PROFESSORS FELIX KLEIN and GEORGE SALMON have been elected foreign members of the Belgian Academy of Sciences.

NEW PUBLICATIONS.

I. HIGHER MATHEMATICS.

BALL (W. W. R.).   Récréations et problèmes mathématiques des temps anciens et modernes.   Traduit sur la troisième édition anglaise, par J. Fitz-Patrick.   Paris, Hermann, 1897.   8vo.   4 and 352 pp.
Fr. 9.00

BENEDETTI (G.).   Scienza dei triangoli Pitogorici dipendenti dai tre mezzi determinati dalle proporzioni geometriche discrete.   Trieste, 1897.   8vo.   21 pp.   Mk. 1.80

BORTKEWITSCH (L. v.).   Das Gesetz der kleinen Zahlen.   Leipzig, Teubner, 1898.   8vo.   7 and 52 pp.   Mk. 2.00

CURTZE (M.).   See PETRI PHILOMENI, etc.

CZUBER (E.).   Vorlesungen über Differential- und Integral-Rechnung. Vol 1.   Leipzig, Teubner, 1898.   8vo.   13 and 526 pp.   Mk. 12.00

DESAINT (L.).   Sur quelques points de la théorie des fonctions.   Paris, 1897.   4to.   79 pp.

DICKSON (L. E.).   The quadratic Cremona transformation.   (*California Academy of Sciences*, Vol. 1, No. 2.)   San Francisco, 1898.   8vo. 11 pp.

DICKSTEIN (S.).   See PASCAL (E.), PEANO (G.), and SCHLEGEL (V.).

ENRIQUES (F.).   Lezioni di geometria pro'ettiva.   Bologna, Zanichelli, 1898.   8vo.   9 and 379 pp.   Fr. 9.00

FITZ-PATRICK (J.).   See BALL (W. W. R.).

GALDEANO (DE).   Las modernas generalisaciones expresadas por el álgebra simbólica.   Madrid, 1896.   142 pp.   Fr. 2.00

GLÖSEL (K.).   Ueber Combinationen zu bestimmten Summen.   Bielitz, 1897.   8vo.   32 pp.   Mk. 1.50

GOURSAT (E.).   Leçons sur l'intégration des équations aux dérivées partielles du second ordre à deux variables indépendantes.   Vol. II : La méthode de Laplace ; les systèmes en involution ; la méthode de M. Darboux ; les équations de la première classe ; transformations des équations du second ordre ; généralisations diverses.   Paris, Hermann, 1898.   8vo.   344 pp.   Fr. 10.50