should have been credited to Poincaré. "Rouché and Combe-rousse" is incorrectly listed under the date 1891, of its sixth edition; in the fifth edition of 1883 the notes treat of the same subjects as in the later editions. Miss Scott's articles in volume 1 (1900) of the *Mathematical Gazette* should surely be mentioned in connection with von Staudt's Geometrie der Lage, and if two English editions of Newcomb's Popular Astronomy are to be listed, reference should also be give to the 8 American, the 4 German, the Russian, and the Norwegian editions. The entry after "[Crelle, A. L.]" under 1835 should be put in the list for 1834. To the title under Eisenmenger's name on page 52 may be added: pp. 14+1 pl.

Incomplete as the work before us therefore appears, the mathematician must ever be grateful to Dr. Sommerville for this new, carefully prepared and admirably arranged aid to orientation in a vast field of mathematical science.

The volume is well printed by His Majesty's Stationers and the general get up (including the paper binding) is the same as for the International Catalogue.

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NOTES.

THE thirtieth regular meeting of the Chicago Section of the AMERICAN MATHEMATICAL SOCIETY will be held at the University of Chicago on April 5-6.

THE opening (January) number of volume 13 of the *Transactions of the American Mathematical Society* contains the following papers: "Ueber eine idealtheoretische Funktion," by E. LANDAU; "Theorems of oscillation for two linear differential equations of the second order with two parameters," by R. G. D. RICHARDSON; "The absolute minimum of a definite integral in a special field," by E. J. MILES; "An existence theorem for a problem of the calculus of variations in space," by E. G. BILL; "Linear algebras," by L. E. DICKSON; "A note concerning Veblen's axioms for geometry," by R. L. MOORE; "Natural families of curves in a general curved space of n dimensions," by JOSEPH LIPKE; "A class of periodic orbits of superior planets," by F. R. MOULTON; "Harmonic functions and Green's integral," by O. D. KELLOGG.

THE opening (January) number of volume 34 of the *American Journal of Mathematics* contains: " Primitive groups with a determination of the primitive groups of degree 20," by ELIZABETH R. BENNETT; " On arithmetical theory of pencils of binary quadratic forms," by D. N. LEHMER; " On the principle of duality in the geometry of the sphere," by ARTHUR RANUM; " On the fundamental postulate of tamisage," by R. K. MORLEY; " Derivative domains of rationality," by S. EPsteen; " Critical revision of de Haan's Tables of definite integrals," by E. W. SHELDON. The frontispiece of the volume is a portrait of Maclaurin.

THE December number (volume 13, number 2) of the *Annals of Mathematics* contains: "Points of indeterminate slope on the discriminant locus of an ordinary differential equation," by W. R. LONGLEY; " Boundary problems and Green's functions for linear differential and difference equations," by MAXIME BÔCHER; " Conjugate directions on a hypersurface in a space of four dimensions and some allied curves," by C. L. E. MOORE.

AT the meeting of the London mathematical society held on December 14 the following papers were read: By J. W. NICHOLSON, " The pressure of radiation on a cylindrical obstacle"; by H. HILTON, "Hermitian invariants of a canonical substitution"; by E. W. HOBSON, "The fundamental lemma of the calculus of variations and some related theorems"; by W. BURNSIDE, "The outer isomorphisms of a group"; by E. B. STOUFFER, "Invariants of linear differential equations"; by J. C. FIELDS, "A method of proving certain theorems relating to adjointness."

AT the meeting of the Edinburgh Mathematical Society on January 12 the following papers were read: By J. A. DONALDSON, " An infinite series of triangles and conics with a common pole and polar "; by R. F. DAVIS, " The condition that the family of surfaces $\phi(x, y, z, \lambda) \doteq 0$ may be one of an orthogonal triad "; by F. E. EDWARDS, " Graphical trisection of circular arc."

THE annual meeting of the Mathematical association was held in London, January 10. The following papers were read. Presidential address, by E. W. HOBSON, " On the work of the international commission on mathematical teaching," by C.

GODFREY; "On some unrealized possibilities in mathematical education," by G. ST. L. CARSON; "A plea for the earlier introduction of the calculus, by C. V. DURELL.

THE United States Bureau of Education has recently issued Bulletins 13 and 16 for 1911, the former containing the report of the American Committees I and II, on mathematics in the elementary schools of the United States, the latter the report of Committees III and IV, on mathematics in the public and private secondary schools. These reports are prepared under the direction of the American Commissioners of the International commission on the teaching of mathematics. They may be secured gratis by addressing the United States Commissioner of Education at Washington.

AT the University of Göttingen mathematical statistics has recently been added to the list of possible subjects from which the major and minors can be chosen for examination for the doctorate. Candidates in applied mathematics must henceforth be prepared to be examined in the mathematics of insurance.

DR. G. SCHIRMER, a Chicago physician, has established at the University of Erlangen, a prize fund, to be known as the Helene Ottilie Schirmer foundation, in honor of his late wife. The income of about 600 marks is to be given to the author of the most meritorious thesis prepared at the university during a period of two years preceding each award; the subjects are to be in mathematics or physics in odd years, and in medicine in even years. The first award has recently been made to Dr. R. BALDUS for his dissertation on certain line congruences.

AT the Collège de France the chair of mathematics has been replaced by two, one in analysis and the other in geometry. Professor J. HADAMARD has been appointed professor of analysis and Dr. M. D'OCAGNE has been appointed professor of geometry. Dr. VESSIOT has charge of the mathematical examinations for entrance and advancement. The lectureship under the Peccot foundation has been divided; during the first half year it will be filled by Dr. E. CHAZY and during the second half year by Dr. L. CHATENET. The Peccot prize for the year 1911 was awarded to Dr. M. JANET.

THE Belgian academy has crowned a memoir on analysis by S. BERNSTEIN and awarded the F. Deruyts prize for geometry to Dr. E. FAIRON.

THE London mathematical society has awarded its De Morgan medal to Professor HORACE LAMB.

THE fiftieth scientific anniversary of Professor GASTON DARBOUX was celebrated at the Sorbonne on January 21.

PROFESSOR V. VOLTERRA, of the University of Rome, is giving a series of lectures at the University of Paris on the extension of the theory of functions, the integro-differential equations and integral equations, with applications.   The first lecture was given January 22.

PROFESSOR A. VOSS, of the University of Munich, has been decorated with the Bavarian order of Maximilian.

PROFESSOR F. ENRIQUES, of the University of Bologna, has received the honorary degree of doctor of laws from the University of St. Andrews.

PROFESSOR J. J. THOMSON, of the University of Cambridge, has been elected foreign member of the royal academy of sciences of Naples.

PROFESSOR G. LAURICELLA, who had recently accepted a professorship of mathematics at the University of Rome, has at his own request resumed his former duties at the University of Catania.

PROFESSOR P. ANDOYER has been elected president of the Société mathématique du France.

DR. F. NUSL, of the Bohemian technical school at Prague, has been promoted to a full professorship of mathematics.

DR. R. BALDUS has been appointed docent in mathematics at the University of Erlangen.

DR. K. KNOPP has been appointed docent in mathematics at the University of Berlin.

PROFESSOR G. FABER, of the technical school at Stuttgart, has accepted a professorship of mathematics at the University of Königsberg.

DR. K. KOMMERELL has been appointed docent in mathematics at the technical school at Stuttgart.

DR. E. KRUPPA has been appointed docent in geometry at the University of Czernowitz.

PROFESSOR H. HENRIQUES, of the technical school at Stockholm, has been promoted to a full professorship of descriptive geometry.

PROFESSOR K. WIEGHARDT, of the technical school at Hanover, has accepted a professorship of mechanics at the technical school of Vienna.

DR. F. NOETHER has been appointed docent in mathematics at the technical school of Karlsruhe.

DR. H. STRÖLE has been appointed docent in mathematics at the University of Neuchâtel.

DR. A. TIMPE, of the technical school at Aachen, has been appointed docent in mechanics at the University of Münster.

PROFESSOR P. BURGATTI, of the University of Bologna, has been promoted to a full professorship of theoretical mechanics.

DR. Z. GIAMBELLI has been appointed associate professor of algebra at the University of Cagliari.

PROFESSOR E. C. COLPITTS, of the College of Emporia, Kansas, has been appointed professor of mathematics at the State College of Washington, at Pullman, Washington.

DR. A. B. FRIZELL, of the University of Kansas, has been appointed professor of mathematics in McPherson College, McPherson, Kansas.

THE death is announced of Professor GEORGE CHRYSTAL, of the University of Edinburgh, at the age of 60 years.