1914.]

Making use of the angle Θ which the "support" (Stütze) of a polygon makes with a fixed directed line and which may be defined as a function (Stützwinkelfunktion) of the parameter ϑ in the parametric representation

$$\zeta = e^{i\vartheta}$$

and the unit circle and Stieltjes' integrals, §§ 11–12, the mapping process is extended to simple convex domains in an original manner (§§ 13–14).

Theorem 7, page 66, which is based upon the hypothesis made on the previous page is rigorously proved in § 15 by means of Koebe's famous "Verzerrungssatz" (theorem of distortion). In conclusion references to some applications of Koebe's theorem and continuity method are given. We merely mention the interesting theorem: Every singly sheeted domain of the plane with n-fold connectivity can always be mapped conformally upon another singly sheeted domain whose boundary consists of n rectilinear cuts of given directions.

Many a reader would have probably greatly appreciated a fuller treatment of Koebe's methods and results indicated at the end of this section, and would certainly welcome another volume on these more advanced subjects together with the results quite recently obtained by Plemelj, Carathéodory, Osgood, and others.

As a most valuable feature of the book I mention the interesting examples worked out in the last section.

ARNOLD EMCH.

NOTES

THE April number (volume 36, number 2) of the *American Journal of Mathematics* contains the following papers: "Iterated limits in general analysis," by R. E. ROOT; "Simply transitive primitive groups whose maximal subgroup contains a transitive constituent of order p^2, or pq, or a transitive constituent of degree 5," by Miss E. R. BENNETT; "An extension of Green's theorem," by Miss I. BARNEY; "On the asymptotic solutions of linear differential equations," by C. E. LOVE; "Restricted systems of equations," by A. B. COBLE; "The canonical types of nets of modular conics," by A. H. WILSON; "On long waves," by J. H. M. WEDDERBURN.

UNDER the auspices of the Edinburgh mathematical society, a mathematical colloquium will be held at the University of Edinburgh July 28–31, immediately following the Napier tercentenary celebration. The following courses have been arranged: By M. D'OCAGNE: two lectures on "Nomography"; by H. W. RICHMOND: four lectures on "Infinity in geometry"; by E. CUNNINGHAM: four lectures on "Critical studies of modern electric theories"; by E. T. WHITTAKER: two lectures on "The solution of algebraic and transcendental equations in the mathematical laboratory."

COLUMBIA UNIVERSITY. The following advanced courses in mathematics are announced for the summer session, July 6 to August 14. All courses are five hours a week. By Professor C. J. KEYSER: History and significance of central mathematical concepts; Modern theories in geometry.—By Professor JAMES MACLAY: Theory of functions of a real variable; Theory of functions of a complex variable.—By Professor W. B. FITE: Differential equations; Higher algebra.

THE following courses in mathematics are announced for the academic year 1914–1915.

COLUMBIA UNIVERSITY.—By Professor C. J. KEYSER: Philosophy of mathematics, three hours.—By Professor T. S. FISKE: Theory of point sets, three hours, second half-year.—By Professor F. N. COLE: Algebra, four hours.—By Professor JAMES MACLAY: Theory of functions, four hours.—By Professor EDWARD KASNER: Integral equations, two hours, second half-year; Seminar in differential geometry, two hours.—By Professor W. B. FITE: Calculus of variations, three hours, first half-year.—By Professor H. E. HAWKES: Differential geometry of curves, three hours, first half-year.—By Professor C. C. GROVE: Mathematical theory of statistics, three hours, first half-year.

CORNELL UNIVERSITY.—By Professor J. McMAHON: Theory of probabilities, three hours.—By Professor J. I. HUTCHINSON: Elliptic functions, two hours.—By Professor V. SNYDER: Descriptive geometry (first term), three hours; Algebra (second term), three hours.—By Professor F. R. SHARPE: Fourier series and spherical harmonics, three hours.—By Professor

W. B. CARVER: Analytic and projective geometry, three hours.—By Professor A. RANUM; Line geometry (first term), three hours.—By Professor D. C. GILLESPIE: Calculus of variations, two hours.—By Dr. F. W. OWENS: Mechanics, three hours.—By Dr. J. V. McKELVEY: Advanced calculus, three hours.—By Dr. L. L. SILVERMAN: Infinite series (first term), three hours.—By Dr. W. A. HURWITZ: Partial differential equations of mathematical physics, two hours.—By Dr. R. W. BURGESS: Differential equations, two hours.—By Dr. J. SLEPIAN: Theory of functions, three hours.

HARVARD UNIVERSITY.—All courses meet three times a week throughout the year except those marked *, which meet for half a year.—By Professor W. F. OSGOOD: Infinite series and products*; Introduction to potential functions and Laplace's equation*; Galois theory of equations.*—By Professor M. BÔCHER: Analytic theory of heat; Fourier series and Legendre polynomials*; Linear differential and integral equations.—By Professor C. L. BOUTON: Advanced calculus; Elementary differential equations*; Geometrical transformations, with special reference to the work of Sophus Lie.—By Professor J. L. COOLIDGE: Geometry of the circle; Introduction to modern geometry and modern algebra (with Dr. GREEN).—By Professor E. V. HUNTINGTON: Fundamental concepts of mathematics*.—By Professor G. D. BIRKHOFF: Advanced dynamics; Calculus of variations*.—By Dr. D. JACKSON: Theory of functions; Definite integrals*.—By Dr. G. M. GREEN: Differential geometry of curves and surfaces*; Projective differential geometry*.

Professors Bouton and Birkhoff will conduct a fortnightly seminar in analysis.

Courses of research are also offered by Professor Osgood in the theory of functions; by Professor Bôcher in analysis and algebra; by Professor Bouton in the theory of point transformations; by Professor Coolidge in geometry; by Professor Birkhoff in the theory of differential equations; by Dr. Jackson in the theory of functions of real variables.

PRINCETON UNIVERSITY.—By Professor H. B. FINE: Algebra, three hours.—By Professor L. P. EISENHART: Differential geometry, three hours; Mechanics, three hours. —By Professor O. VEBLEN: Projective geometry, I, three

hours; Projective geometry, II, three hours.—By Professor BOUTROUX: Differential equations and advanced calculus, three hours; Higher analysis, three hours.—By Professor H. T. GRONWALL: Integral equations, three hours.—By Professor E. P. ADAMS: Hydrodynamics, three hours.

DR. O. HAUPT has been appointed docent in mathematics at the technical school of Carlsruhe.

DR. S. JANISEWSKI has been appointed docent in mathematics at the University of Lemberg.

MR. C. S. DARWIN has been appointed mathematical lecturer at Christ's College, Cambridge.

PROFESSOR E. B. VAN VLECK delivered a public lecture on March 31 at the Paris Ecole Normale Supérieure on "The influence of Fourier's series upon the development of mathematics."

AT the invitation of the University of Rome, Professor EDWARD KASNER delivered a lecture on March 14 "Sulla geometria della rappresentazione conforme." The lecture will be published in the Lincei Rendiconti.

AT the University of Arizona, Professor L. L. DINES has been promoted to a full professorship of mathematics.

PROFESSOR P. L. SAUREL, of the College of the City of New York, has been promoted to a full professorship of mathematics.

DR. ANNA J. PELL, of Mount Holyoke College, has been promoted to an associate professorship of mathematics.

DR. C. E. BROOKS has been appointed associate professor of mathematics and insurance at the University of California.

AT the University of Texas, Dr. E. L. DODD has been promoted to an adjunct professorship of actuarial mathematics.

AT Harvard University, Dr. C. L. BOUTON has been promoted from an assistant professorship to an associate pro-

fessorship of mathematics. Dr. G. M. GREEN has been appointed instructor in mathematics.

AT Princeton University, Dr. T. H. GRONWALL has been promoted to an assistant professorship of mathematics. The notice in the May BULLETIN concerning Professor Gronwall was due to an editorial error.

DR. R. W. BURGESS and Dr. J. SLEPIAN have been appointed instructors in mathematics at Cornell University.

DR. C. G. P. KUSCHKE has been appointed instructor in mathematics in the University of Washington.

PROFESSOR G. L. BROWN, of the South Dakota State College, has been made acting president of the College. Mr. C. N. MILLS has been appointed acting professor of mathematics.

MR. L. S. HILL has been appointed assistant professor of mathematics in the University of Montana.

DR. G. W. GAIN has been appointed instructor in mathematics in Washington and Jefferson College.

DR. H. C. GOSSARD has been appointed instructor in mathematics in the University of Oklahoma.

NEW PUBLICATIONS.

I. HIGHER MATHEMATICS.

ADHÉMAR (R. D'). Henri Poincaré. Paris, Blond et Gay, 1914. 16mo. 64 pp. Fr. 0.60

BELL (R. J. T.). An elementary treatise on coordinate geometry of three dimensions. New edition. New York, Macmillan, 1914. 8vo. 17+ 381 pp. Cloth. $2.75

BERNAYS (P.). Zur elementaren Theorie der Landauschen Funktion $\varphi(\alpha)$. (Habilitation.) Zürich, 1913. 8vo. 38 pp.

BIERI (H.). Ueber die unvollständige Gammafunktion. (Diss.) Bern, 1912. 8vo. 45 pp.

BOUTROUX (P.). Les principes de l'analyse mathématique. Exposé historique et critique. Tome 1: Les nombres, les grandeurs, les figures,