page 35, formula (1), $w_0$ should be $w_0/t$;

page 37, formula $(5i')$, the last $+$ sign should be $-$;

page 38, formula $(5t)$, the coefficient $6\frac{1}{2}$ should be $5\frac{1}{2}$;

page 38, formula $(5t')$, the last $+$ sign should be $-$.

In Professor Hayashi's paper: "On the rectifiability of a twisted cubic," in the current volume,

page 74, line 8, *for* $\dot{x}\dot{y}\ddot{z}$ *read:* $|\dot{x}\dot{y}\ddot{z}|$.

In Professor Carmichael's paper: "Note on a physical interpretation of Stieltjes integrals," in the current volume, pages 102–105, the last paragraph of the paper should be deleted.

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## NOTES.

THE twenty-sixth annual meeting of the American Mathematical Society will be held in New York City on Tuesday and Wednesday, December 30–31, 1919, immediately preceding the meeting of the Mathematical Association of America. The annual election of officers of the Society will close on Wednesday morning. The joint dinner of the two organizations will be held on Wednesday evening. Titles of papers for this meeting should be in the hands of the Secretary by December 9.

THE thirteenth western meeting of the Society, combining the meetings of the Chicago and the Southwestern Sections, will be held at St. Louis in affiliation with the American Association for the Advancement of Science on December 30–31. Retiring addresses will be delivered by Professor G. D. BIRKHOFF, as chairman of Section A, and Professor G. A. BLISS, as chairman of the Chicago Section. Titles and abstracts of papers should be in the hands of Professor ARNOLD DRESDEN, secretary of the Chicago Section, by December 2.

A NEW edition of the List of Officers and Members of the Society is in preparation and will be issued in January next. Blanks for furnishing information have been sent to the members, and prompt response is requested in order that the List may be as accurate as possible.

THE opening (September) number of volume 21 of the *Annals of Mathematics* contains the following papers: "Investigation of a class of fundamental inequalities in the

theory of analytic functions," by J. L. W. V. JENSEN, translated by T. H. GRONWALL; "Functions of limited variation in an infinite number of dimensions," by P. J. DANIELL; "A new sequence of integral tests for the convergence and divergence of infinite series," by R. W. BRINK; "Calculation of the complex zeros of the function $P(z)$ complementary to the incomplete gamma function," by P. FRANKLIN; "Total differentiability," by E. J. TOWNSEND.

THE following nine doctorates with mathematics as major subject were conferred by American universities in the academic year 1918–1919; the title of the dissertation is added in each case: LOUIS BRAND, Harvard, "I. On linear equations with an infinite number of variables. II. On infinite systems of linear integral equations. III. Flexual deflections and statically indeterminate beams"; G. H. CRESSE, Chicago, "On the class numbers of binary forms;" JESSIE M. JACOBS, Illinois, "The trilinear binary form as a cubic surface;" GERTRUDE I. McCAIN, Indiana, "Series of linear iterated fractional functions—character of the functions;" C. N. REYNOLDS, Harvard, "On the zeros of solutions of linear differential equations;" WAYNE SENSENIG, Pennsylvania, "The invariant theory of involutions on conics;" CHAN-CHAN TSOO, Harvard, "The geometry of a non-euclidean line-sphere transformation;" C. L. E. WOLFE, California, "On the indeterminate cubic equation $x^3 + Dy^3 + D^2z^3 - 3Dxyz = 1$;" H. E. WOLFE, Indiana, "A study of plane circle to circle transformations by means of tetracyclic coördinates."

AT the meeting of the National academy of sciences at New Haven, November 10–12, the papers read included the following: By E. W. BROWN: "Jupiter's five attendant planets;" by EDWARD KASNER: "Some new theorems in the dynamics of particles;" by J. K. WHITTEMORE: "The starting of a ship under constant power."

AT the University of Strasbourg, the following courses in pure and applied mathematics are announced for the academic year 1919–1920:—By Professor FRÉCHET: Functional calculus, two hours first semester, three hours second semester; Approximating functions, one hour first semester.—By Professor VALIRON: Entire functions, two hours second

semester.—By Professor VILLAT: Rational mechanics, three
hours first semester, one hour second semester; Elliptic func-
tions with application to mathematical physics, two hours
second semester.—By Professor ESCLANGON: Astronomy, two
hours. Courses in pure mathematics will also be given by
Professor PÉRÈS. MM. ANTOINE and DARMOIS are maîtres
de conférences in mathematics, and M. VÉRONNET is chargé
de conférences in rational mechanics.

VUIBERT, of Paris, has announced that publication of the
following periodicals is to be resumed this fall: *L'Education
mathématique* (which last appeared in July, 1914) and *Revue
de Mathématiques spéciales* (last published in September, 1914).

THE Belgian academy of sciences has awarded the Deruyts
prize to Dr. LUCIEN GODEAUX, for his researches in algebraic
geometry. The Academy states that an extension of time
has been granted during which memoirs may be presented for
two prizes, of 800 francs each, first announced March 7, 1914
for award August 1, 1915. The subjects are: The infinitesimal
geometry of curved surfaces, and Systems of conics in space.
Competing memoirs should be written in French, Flemish, or
Latin, and should be sent to the Secretary at the Palais des
Académies, Brussels, before August 1, 1920.

THE decennial prize in pure mathematics founded by the
Belgian government has been awarded to Professor A. DE-
MOULIN, for the decade 1904–1913.

THE Paris academy of sciences announces the award of the
following prizes in pure and applied mathematics: the Fran-
cœur prize (1,000 francs) to Dr. G. GIRAUD, for his contribu-
tions to the theory of automorphic functions; the Poncelet
prize (2,000 francs) to Gen. P. CHARBONNIER, for his researches
in ballistics; the Benjamin Valz prize (460 francs) to F.
BOQUET, for the totality of his scientific work; the de Ponté-
coulant prize (700 francs) to Professor A. S. EDDINGTON, for
his work in celestial mechanics; the Petit d'Ormoy prize
(10,000 francs) to Professor H. LEBESGUE, for his contributions
to mathematics. The foundation for scientific research has
awarded the Gegner stipend (4,000 francs) to Professor R.
BAIRE, for his work in the general theory of functions.

DR. J. FAIRON has been appointed professor of mathematics at the University of Liège.

PROFESSORS E. L. A. MERLIN and M. L. M. STUYVAERT have been promoted to full professorships of mathematics at the University of Ghent.

AT the University of Nancy, Dr. J. HAAG has been appointed professor of the calculus, and Professors GOT, of the Lycée at Marseilles, and LEAU, of the Lycée St. Louis, are in charge of courses. Professor A. M. G. FLOQUET has retired from active teaching.

ASSOCIATE professor E. GAU has been appointed to the professorship of infinitesimal analysis at the University of Grenoble, succeeding Professor COLLET, who has retired from active teaching.

AT French universities, the following maîtres de conférences have been appointed: MM. CHAPELON and KAMPÉ de FÉRIET, at the University of Lille; JANET, at the University of Grenoble; TURRIÈRE, at the University of Montpellier.

PROFESSOR V. J. BOUSSINESQ, of the University of Paris, has retired from active teaching.

DR. G. HESSENBERG has been appointed professor of mathematics at the University of Tübingen.

PROFESSOR W. KILLING, of the University of Munich, has retired from active teaching.

DR. F. SCHUR has been appointed to a professorship at the University of Breslau.

Dr. H. TIETZE has been appointed professor of mathematics at the University of Erlangen.

AT the University of Freiburg i. Br., Dr. A. LOEWY has been appointed professor of mathematics, and Professor L. STICKELBERGER has retired from active teaching.

THE library of the late Professor MAXIME BÔCHER, of Harvard, has been purchased for the Aberdeen Proving Ground.

THE mathematical library of the late Dr. R. A. HARRIS has been presented to Cornell University by Mrs. Harris. The collection comprises nearly three thousand volumes, including practically the complete literature on the theory of tides. It will be housed in the mathematical seminar.

AT the newly established southern division of the University of California, located at Los Angeles, the normal school and collegiate mathematics are the only branches of mathematics as yet provided. Miss MYRTIE COLLIER has been made head of the normal department, and Mr. G. E. F. SHERWOOD will have charge of the collegiate mathematics.

THE honorary degree of doctor of laws was conferred on Professor T. F. HOLGATE, of Northwestern University, by Queen's University, Ontario, in October.

ASSISTANT professor W. D. MACMILLAN, of the University of Chicago, has been promoted to an associate professorship of astronomy.

PROFESSOR A. A. BENNETT, of the University of Texas, has been granted a second year's leave of absence to serve as mathematics and dynamics expert in the ordnance bureau of the war department at Washington.

ASSISTANT professor H. N. DAVIS, of Harvard University, has been promoted to a full professorship of mechanical engineering.

AT the University of Michigan, the following changes have been made in the mathematical staff: associate professors PETER FIELD and L. C. KARPINSKI have been promoted to full professorships, and assistant professor J. W. BRADSHAW to an associate professorship; Dr. E. S. ALLEN has resigned to accept an assistant professorship at the University of West Virginia; Mr. E. C. BLANKENSTEIN, Mr. M. F. JOHNSON, Mr. D. C. KUZORINOFF, and Mr. O. J. PETERSON have been appointed instructors.

ASSISTANT professor W. E. MILNE, of the University of Oregon, has been promoted to a full professorship of mathematics.

AT the centennial celebration of Colgate University on October 11, JAMES M. TAYLOR, professor of mathematics in the University since 1870, received the honorary degree of doctor of science.

IN the mathematics department of the University of Minnesota, the following changes have been made: assistant professor R. R. SHUMWAY has been promoted to an associate professorship; Dr. C. H. YEATON has resigned to become professor of mathematics at the School of Engineering of Milwaukee; Miss OLIVE ATWOOD and Mr. R. M. MATHEWS have been appointed instructors.

PROFESSOR F. J. HOLDER, of the University of Pittsburgh, has been appointed professor of mathematics and dean of the school of commerce at Mercer University, Macon, Ga.

AT Vassar College, assistant professor LOUISE D. CUMMINGS has been promoted to an associate professorship and Dr. MARY E. WELLS to an assistant professorship of mathematics.

ASSOCIATE professor R. P. STEPHENS, of the University of Georgia, has been promoted to a full professorship of mathematics.

AT the Armour Institute of Technology, assistant professor W. C. KRATHWOHL has been promoted to an associate professorship and Dr. W. L. MISER, of the University of Arizona, has been appointed assistant professor of mathematics.

AT the University of California, associate professor C. A. NOBLE has been promoted to a full professorship of mathematics.

AT Washington University, St. Louis, assistant professor OTTO DUNKEL has been promoted to an associate professorship, and Dr. J. R. MUSSELMAN has been appointed instructor in mathematics.