16. In this communication Study makes some criticisms on the so-called principle of conservation of number, as stated by Schubert in his " Kalkul der abzählenden Geometrie." The paper will appear in the *Archiv für Mathematik.*

E. B. WILSON.

(*To be continued.*)

NOTES.

THE Annual Register of the AMERICAN MATHEMATICAL SOCIETY for the year 1905 is now in press and will soon be issued. The Register contains this year a complete catalogue of the Society's library, which now amounts to over 2000 volumes. The membership of the Society is now 473, including 32 life-members. The treasurer's report shows a balance of $ 3884.28 on hand December 27, 1904.

THE presidential address "On mathematical progress in America," delivered by Professor THOMAS S. FISKE at the annual meeting of the Society will be published in the February BULLETIN.

THE annual meeting of the Association of teachers of mathematics in the Middle States and Maryland was held at Princeton, New Jersey, November 26. It was attended by about 100 teachers representing nearly every college and secondary school within its territory. Sixteen new members were admitted, thereby increasing the membership to 297.
The following officers were elected : President, Professor T. S. FISKE ; Vice-President, Dean H. B. FINE ; Secretary, Dr. ARTHUR SCHULTZE. President Wilson of Princeton University, delivered the address of welcome. The following papers were read : "On defining the various forms of numbers ordinally," by H. B. FINE ; "The relative importance of the topics in elementary algebra," by A. HEIKES ; "Some of the conditions under which mathematical teachers are working," by M. CURTIS ; "The great movements now taking place in the teaching of mathematics in other countries," by G. LEGRAS.

THE Central association of science and mathematics teachers held its fourth meeting at the Northwestern University Profes-

sional School in Chicago, November 25–26.   President HOL-
GATE gave an address of welcome.   At the opening general
session an address was given by Professor D. C. JACKSON:
"Desirable product from the teacher of mathematics; the
point of view of an engineering teacher."   The following
papers were read before the mathematical section: "Some
problems confronting the teacher of geometry," by C. W. SUT-
TON; "The high school mathematics club," by C. W. NEWHALL;
"The introduction of meteorology into the course of instruc-
tion in mathematics and physics," by C. ABBE; "Progress in
correlation of physics and mathematics," by F. S. BISHOP.
The officers of the section for the coming year are: Chairman,
H. E. COBB; Vice-Chairman, J. V. COLLINS; Secretary,
Miss MABEL SYKES.

ON Saturday, November 12, 1904, a conference of the
teachers of mathematics in schools affiliated or coöperating
with the University of Chicago was held at the university
under the chairmanship of Professor E. H. MOORE.   The
paper of the conference was by Miss MABEL SYKES, of the
South Chicago High School, on "Conservative and radical
elements in the teaching of mathematics."   It was followed by
an animated discussion relative mainly to the desirability of
closer interrelation (in accordance with established and current
usage in Germany, France and England) of algebra, geometry
and physics, both in time and order of teaching and in matter
taught.   Especial interest attached to the reports on various
experiments in progress.   The *School Review* for January,
1905 will give a full digest of the paper and the discussion.

AT the annual meeting of the London mathematical society
held on November 10, the following officers were elected: A.
R. FORSYTH, president; A. E. H. LOVE and J. H. GRACE,
secretaries; J. LARMOR, treasurer; three vice-presidents and
nine other members of the council.   The following papers
were read: By Professor H. LAMB (president's address),
"Theory of waves on liquids"; by Professor V. VOLTERRA,
"Note on the application of the method of images to problems
in vibration"; by Mr. G. H. HARDY, "Zeros of certain classes
of integral Taylor's series"; by Rev. E. W. BARNES, "Linear
differential equations of the first order"; by Mr. H. HILTON,
"Curves on a conicoid"; by Dr. H. F. BAKER, "Remarks on

alternants and continuous groups"; by Dr. J. W. L. GLAISHER, "On the expansion of the elliptic and zeta functions of 2/3 k in powers of q"; by Mr. J. E. WRIGHT, "Examples of perpetuants"; by Professor R. W. GENESE, "Two simple results in the attraction of uniform wires obtained by quaternions, with, for comparison, their verification by the geometry of the complex"; by Mr. P. W. WOOD, "On the reducibility of covariants of binary quantics of infinite order"; by Professor W. BURNSIDE, "On some properties of groups of odd order."

AT the Breslau meeting of German scientists and physicians, a committee was appointed to formulate a plan by which a larger part of the instruction given in the gymnasia could be devoted to mathematics and science than is now the case. Professor A. GUTZMER, as chairman of the association, and Professor F. KLEIN, as representative of the German mathematical society, are among its members.

THE Deutsche Mathematiker-Vereinigung now numbers 635 members. Professor E. PAPPERITZ has been elected to the council. The next regular meeting will be held in Meran, in the Tyrol, in September, 1905, in connection with the seventy-eighth general meeting of German naturalists and physicians.

AMONG the books just issued or about to appear from the publishing house of B. G. Teubner in Leipzig, may be mentioned : "Theorie der Elektrizität, Band 1, Einführung in die Maxwellsche Theorie der Elektrizität, von Dr. A. FÖPPL; zweite umgearbeitete Auflage," by Dr. M. ABRAHAM; Band 2, "Die höheren Probleme der Elektrodynamik," bearbeitet von Dr. M. ABRAHAM; "The Dynamics of particles, and of rigid, elastic and fluid bodies," by ARTHUR GORDON WEBSTER; "Entwickelungen nach oszillierenden Funktionen. Fünfte (Schluss) Lieferung," by H. BURKHARDT; "Wissenschaftliche Abhandlungen über theoretische Physik," in two volumes, by H. A. LORENTZ.

THE firm of Gauthier-Villars, Paris, announces the following works in press : Lessons on discontinuous functions, by R. BAIRE, edited by A. DENJOY; Correspondence of Hermite and Stieltjes, volumes 1 and 2, by B. BAILLAUD and H. BOURGET.

UNIVERSITY OF PARIS. The following courses will be given during the second semester of 1905. — By Professor E.

PICARD : Theory of functions of several variables, two hours.
— By Professor E. GOURSAT : Partial differential equations, two
hours. — By Professor P. PAINLEVÉ : General laws of motions
of systems, analytic mechanics, hydrostatics and hydrodynamics,
two hours. — By Professor H. ANDOYER : Program to obtain
the certificate in astronomy, two hours. — By Professor J.
BOUSSINESQ : Equilibrium of elasticity of the sphere, propa-
gation of motion from a center in an indefinite homogeneous
elastic medium, two hours. — By Professor G. KOENIGS :
Principles of elasticity, mechanics and resistance of materials,
two hours. — By Professors P. APPELL and L. RAFFY : Course
in general mathematics, two hours. — By Professor J. TAN-
NERY : Differential and integral calculus, two hours. — The
courses of Professors E. BOREL and J. HADAMARD have not
been announced.

A MOVEMENT is now on foot to erect a monument at Laibach,
Austria, to the memory of GEORG FREIHERR VON VEGA, well
known to the mathematical world for his contributions to the
practical use of logarithms, his Tables having passed through
no less than eighty editions. Contributions are solicited and
may be sent to Professor A. Krazer, Westendstrasse 57, Karls-
ruhe, Germany.

THE Academy of Sciences of St. Petersburg has awarded its
Schubert prize for 1905 to Dr. G. W. HILL. The three pre-
vious awards of the Schubert Prize were to Gyldèn in 1889,
Tisserand in 1893, and Newcomb in 1897.

AMONG the awards made by the Royal society of London
during the year 1904, the following are for mathematical inves-
tigations : The royal medal to Professor W. BURNSIDE, of
Cambridge, for his researches in the theory of groups ; the
Sylvester medal to Professor G. CANTOR, of Halle, for his
researches in the theory of aggregates and of sets of points of
the arithmetic continuum, of transfinite numbers and of Fouri-
er's series.

PROFESSOR G. KOWALEWSKI, of Greifswald, and Dr. F.
LONDON, of Breslau, have been appointed associate professors
of mathematics at the University of Bonn.

PROFESSOR G. LANDSBERG, of Heidelberg, has been appointed
associate professor of mathematics at the University of Breslau.

AT the technical school of Darmstadt, Professor S. GUNDEL-FINGER has recently celebrated the twenty-fifth anniversary of his appointment as professor of mathematics. A new course on the calculus of variations is given by him during the present semester, and Professor G. SCHEFFERS is conducting the course on the calculus, formerly given by Professor Gundel-finger.

Dr. PANEK has been appointed professor of mathematics at the Bohemian technical school at Prague.

DR. M. WEBER, government building inspector, of Berlin, has been appointed professor of mechanics at the technical school of Hanover.

DR. K. TH. VAHLEN, of Königsberg, has been appointed associate professor of mathematics at the University of Greifs-wald.

PROFESSOR A. KNESER, of the mining academy of Berlin, has been appointed professor of mathematics at the University of Breslau. He will assume the new office April 1, 1905.

DR. J. GRÜNWALD has been appointed docent in mathematics at the technical school of Vienna.

MR. J. H. JEANS, M.A., of Trinity College, has been appointed university lecturer in mathematics at Cambridge University. Appointments to these lectureships, which are four in number, are made for five years.

PROFESSOR R. S. WOODWARD, of Columbia University, has been elected president of the Carnegie Institution.

AT the recent celebration of the one hundred and fiftieth anniversary of the founding of Columbia University, the new professorship of mathematics, recently filled by the appointment of Professor C. J. KEYSER, was named the Adrain professorship, in honor of ROBERT ADRAIN, one of the founders. of the theory of observational errors, who held the chair of mathematics in Columbia College from 1813 to 1825.

MR. B. H. CAMP has been appointed instructor in mathematics at Wesleyan University.

DR. G. D. RICHARDSON has been appointed instructor in mathematics at Yale University.

DR. FRANCESCO CHIZZONI, professor of geometry at the University of Modena, died September 23, at the age of 56 years.

THE death is announced, on November 27, 1904, of Professor PAUL TANNERY, the well known French authority on the history of mathematics.

PROFESSOR ACHSAH M. ELY, head of the department of mathematics at Vassar College since 1887, died on December 13. Miss Ely had been a member of the AMERICAN MATHEMATICAL SOCIETY since 1891.