

all numbers from 1 to 125000, and the values of  $S$  and  $T$  used to obtain the sines and tangents of small arcs. This is followed by the trigonometric table, in which the functions are given for every microgone. Eight decimals are used for each microgone up to 25000, after which the eighth decimal is omitted from all but the centimiligones.

In order to secure accuracy the author has made a comparison with the famous manuscript tables of Prony, preserved at Paris. The proof sheets were afterwards compared with the tables already mentioned as having been issued recently by the French government. Moreover, a final check was secured by comparing in every case the sum of the cosine and tangent with the sine. In the course of his comparisons M. Mendizábal-Tamborrel found eight errors in the French tables. These have been communicated by him to the *Académie des Sciences* at Paris. Much praise is due the author for the excellent manner in which he has dealt with the difficult problem of arranging the logarithms upon the pages. Old style type is used, and suitable tables of proportional parts are given whenever possible.

In a short notice like the present, it does not seem desirable to enter upon the question of the best method of angular measurement. But it is very important to have extended tables in existence arranged according to the various proposed methods: and to the author of the present work is therefore due the credit of having performed a considerable service to science. That this opinion is very generally held, is sufficiently shown by the list of subscribers to the present work, which includes the names of nearly all the most distinguished astronomers and geodesists.

HAROLD JACOBY.

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NOTES.

A REGULAR meeting of the NEW YORK MATHEMATICAL SOCIETY was held Saturday afternoon, October 8, at half-past three o'clock, the president in the chair. The following persons having been duly nominated, and being recommended by the council, were elected to membership: Professor Levi Leonard Conant, Worcester Polytechnic Institute; Dr. George Daniel Gable, Lafayette College; Professor William Jasper Kerr, State University of Utah; Mr. John Cunningham McLennan, University of Toronto; Mr. Joseph Clement Pfister, Columbia College. The secretary announced the publication and distribution since the last meeting of a pamphlet containing a new list of members, the constitution, by-laws, etc.

The following papers were read: "An orthomorphic transformation of the ellipsoid," by Miss Ella C. Williams; "Some geometrical illustrations of theorems in number," by Professor Ellery W. Davis. In the former paper the elliptic functions in Weierstrass's form were employed to obtain formulas for the transformation of the surface of an ellipsoid into a plane rectangle in such a manner that corresponding infinitesimal elements should be similar to each other. The latter paper has been contributed by the author to the *American Journal of Mathematics*.  
T. S. F.

Dr. Robert Fricke and Dr. Friederich Pockels, both of whom have recently published books under Professor Klein's guidance, have become *privatdocenten* at the University of Göttingen.  
M. BÖ.

R. de Paolis, professor of higher geometry at the University of Pisa, died recently at Rome, at the early age of thirty-eight years.

Dr. A. E. Hess, of the University of Marburg, has become *ordinarius* professor of mathematics there, and Dr. H. Minowski has received a professorship of mathematics at Bonn.

The French Association for the Advancement of Science commenced its twenty-first annual meeting at Pau on September 17.  
H. J.

The department of mathematics at the University of Chicago announces for the present autumn quarter, in the graduate department, a course on the theory of the icosahedron by Professor Moore; in the higher two classes of the undergraduate department, a course in advanced calculus and one in the theory of equations and invariants, both by Professor Maschke; also one in the theory of substitutions, with applications to algebraic equations, by Mr. Young. All these courses occupy four hours per week each.

A preliminary announcement for the winter quarter gives in the graduate department to Professor Moore a seminary occupying four hours a week and devoted to (a) geometry of space of  $n$  dimensions, (b) configurations, (c) groups of operations (the abstract general theory; particular group-forms), and (d) linear automorphic functions, also a course on the elliptic modular functions; to Professor Bolza a course on linear differential equations and one on the theory of functions (introductory); to Mr. Young a course on the theory of numbers. In the higher classes of the undergraduate department Professor Maschke is to follow the advanced

calculus with differential equations and is to continue the theory of invariants; while Mr. Hancock is to begin an elementary course in the calculus.

In the spring quarter Dr. Bolza expects to give elliptic functions in the place of linear differential equations. The other graduate courses, with the exception of Mr. Young's, will continue as in the preceding term. In the undergraduate department Professor Maschke will lecture on higher plane curves and on analytical mechanics, and Mr. Hancock will continue his course in calculus. The instruction in the lower two classes of the college will be given, it is announced, by Mr. Young and Mr. Hancock.

T. S. F.

The graduate courses in mathematics given the present year at Princeton are: by Professor Fine, (1) differential equations, general course, embracing the elements of the theory of linear equations and of Lie's transformation theory, (2) theory of substitutions and the arithmetical theory of the algebraic equation; by Professor Thompson, (3) theory of functions, (4) elliptic functions and their applications to geometry and dynamics.

H. B. F.

In the various courses in astronomy at the Johns Hopkins University there are now eighteen advanced students, five of whom intend making astronomy their principal subject for the doctor's degree. Professor Newcomb is giving a course in celestial mechanics to the most advanced students. Dr. Poor is giving two courses; the first includes a careful discussion of precession and nutation, to be followed by the methods of computing orbits and special perturbations: the second is a less advanced course and includes the principal problems of spherical and practical astronomy, a general outline of the problems of theoretical, and a sketch of historical astronomy.

C. L. P.

Professor H. A. Newton of Yale has been elected a foreign member of the Royal Society of London. Among other Americans recently elected to such membership are Professor H. A. Rowland and Dr. B. A. Gould.

T. S. F.