THE FEBRUARY MEETING OF THE SAN FRANCISCO SECTION.

THE seventeenth regular meeting of the San Francisco Section of the AMERICAN MATHEMATICAL SOCIETY was held at Stanford University, on Saturday, February 26, 1910.   The following members were present :

Professor R. E. Allardice, Professor H. F. Blichfeldt, Professor G. C. Edwards, Professor R. L. Green, Professor M. W. Haskell, Professor L. M. Hoskins, Professor D. N. Lehmer, Professor H. C. Moreno, Professor C. A. Noble, Mr. E. W. Ponzer, Professor T. M. Putnam, Dr. H. W. Stager.

Professor Blichfeldt occupied the chair.   A committee consisting of Professors Allardice, Haskell, and Lehmer was appointed to draft resolutions in memory of the late Professor Irving Stringham.

The following papers were read at this meeting :

(1) Professor L. M. HOSKINS : " The strain of an elastic sphere of which the density is a function of the distance from the centre."

(2) Professor D. N. LEHMER : " A list of primes."

(3) Professor W. A. MANNING : " A note on Bochert's theorem."

(4) Professor C. A. NOBLE : " Characteristics of two partial differential equations of the first order."

(5) Mr. E. W. PONZER : " The principles of the calculus as applied in technical courses."

Abstracts of the papers are given below in order as numbered in the foregoing list :

1. The problem solved in the paper of Professor Hoskins is that of the strain of an elastic sphere of which the density is any known function of the distance from the center, the bodily forces having a potential which is a known function of the co-ordinates of position.   The only restriction on the potential function is that it is developable in a series of spherical surface harmonics ; an analogous restriction must hold regarding the surface stresses.   General formulas are deduced for the elastic displacements, and the solution is given in full for the case in which the potential is a spherical solid harmonic of the second degree while the surface is free from stress.   In this case the

surface values of the ellipticity e and angular displacement α are found to be expressible in simple form. Computations for the case of Laplace's law of density show that, for given values of the modulus of rigidity and total mass, e is about 11 per cent. less and α about 22 per cent. less than in the case of uniform density, these results being nearly independent of the compressibility.

2. The list of primes upon which Professor Lehmer is engaged is intended to extend to the limit of the factor tables recently published by the Carnegie Institution of Washington. The list is already completed for the primes contained in the 1st, 2d, 7th, 8th, 9th, and 10th millions. The table is to contain 133 pages, each with 5,000 entries. There are fifty columns, each containing 100 lines. As the table stands, it will be only a few moments' work to obtain the number of primes between any two given limits, or the rank of any given prime in the series of primes. The number of primes in each successive thousand is checked against the counts made by Glaisher (see his Introduction to the factor table for the sixth million) and the number in each successive fifty thousand is compared with the results of Bertelsen's computations (see *Acta Mathematica*, volume 17, 1893). No discrepancies with the latter have as yet appeared and the frequent differences with Glaisher are all due to the presence of errors in the tables from which he made his count.

3. In this note Professor Manning shows that if the substitutions of degree u in a 4-fold transitive group of class u and degree n (not alternating) are all of order 2, then $u > \frac{1}{2} n$.

4. Professor Noble deduces, after Hilbert, the ordinary differential equations of the characteristics of two partial differential equations of first order, shows how these suffice to obtain the general solution of the given equations, and constructs the corresponding problem in the calculus of variations.

5. Mr. Ponzer's paper presents a study of the various principles of the calculus as applied in the principal technical courses, both qualitatively and quantitatively ; the nature and frequency of the principles applied is discussed, with suggestions as to where emphasis should be placed, and what should be omitted, in a course in the calculus.

C. A. NOBLE,
Secretary of the Section.