THE SEPTEMBER MEETING OF THE SAN FRANCISCO SECTION.

THE eighteenth regular meeting of the San Francisco Section of the American Mathematical Society was held at the University of California on Saturday, September 24, 1910. The following members were present:

Professor R. E. Allardice, Mr. B. A. Bernstein, 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, Professor T. M. Putnam.

Professor Blichfeldt occupied the chair. The following officers were elected for the ensuing year: Chairman, Professor Lehmer; Secretary, Professor Moreno; program committee, Professors Blichfeldt, Haskell, and Moreno.

The dates of the next two meetings were fixed as April 8, 1911, and October 28, 1911.

The following papers were read at this meeting:

(1) Professor H. F. BLICHFELDT: "On the order of linear homogeneous groups. IV."

(2) Professor D. N. LEHMER: "On the study of the general cubic by means of three involutions of rays in the plane."

Abstracts of the papers are given below:

1. In the theorems by Professor Blichfeldt on groups of linear homogeneous substitutions of determinant unity, a group of special nature is of importance, called a "self-conjugate subgroup H." It is contained in a linear group G when certain conditions are fulfilled. The theorems referred to suffer a lack of completeness due to the fact that it has not been proved that H actually contains fewer substitutions than G. In the present paper this proof has been supplied under the condition that G be primitive; besides, it is found that the number of variables n is divisible by the prime p associated with H in the theorems. An immediate result is the lowering of the known superior limit to the order of G, particularly when n is a prime.

2. Given three unrelated involutions of rays in the plane, with centers at A, B, and C, then for any point P in the plane the rays at A, B, and C that correspond in the involutions at those points to the rays PA, PB, and PC will not generally meet in a point. If, however, they do meet in a point P', then the points P and P' are said to be conjugate with respect to all three involutions. The locus of points that have conjugate points with respect to three involutions is found to be the general plane cubic. Professor Lehmer studies the curve from this point of view and connects the theory with the theory of the curve as developed by Schroeter in his Ebene Kurven dritter Ordnung (Leipzig, 1888).

C. A. NOBLE,
Secretary of the Section.

A NEW PROOF OF THE THEOREM OF WEIERSTRASS CONCERNING THE FACTORIZATION OF A POWER SERIES.

BY DR. W. D. MACMILLAN.

IN the BULLETIN for April, 1910, Bliss gives a simplified proof of the following theorem due to Weierstrass:

Let $f(y;\ x_1, \cdots, x_p)$ be a convergent power series in y and $x_1, \cdots, x_p$, such that $f(y;\ 0, \cdots, 0)$ begins with a term of degree n. Then $f(y;\ x_1, \cdots, x_p)$ is factorable in the form

$$f(y;\ x_1, \cdots, x_p) = [y^n + a_1 y^{n-1} + \cdots + a_n] \cdot g(y;\ x_1 \cdots, x_p),$$

where $a_1, \cdots, a_n$ are convergent power series in $x_1, \cdots, x_p$ vanishing for $x_1 = x_2 = \cdots = x_p = 0$, and g is a convergent power series in $y;\ x_1, \cdots, x_p$ which has a constant term different from zero.

Since $g(y;\ x_1, \cdots, x_p)$ has a constant term, we may denote its reciprocal by $\phi(y;\ x_1, \cdots, x_p)$ and state the theorem in the following form:

Let $f(y;\ x_1, \cdots, x_p)$ be a convergent power series in $y;\ x_1, \cdots, x_p$ such that $f(y;\ 0, \cdots, 0)$ begins with a term of degree n. Then a convergent power series $\phi(y;\ x_1, \cdots, x_p)$, having a constant term different from zero can be found such that the product