## NOTES.

A SPECIAL meeting of the NEW YORK MATHEMATICAL
SOCIETY for the purpose of giving the members an oppor-
tunity of meeting Professor Felix Klein of Göttingen was
held Saturday afternoon, September 30, at half past three
o'clock, the president, Dr. McClintock, in the chair. The
president introduced Professor Klein in a brief address
describing Professor Klein's mission to America and paying
tribute to him in his different capacities as teacher, investi-
gator, organizer, and editor.

In his address to the Society, Professor Klein described a
paper by Dr. Schilling* containing a non-euclidean develop-
ment of spherical trigonometry in which the fundamental
formulæ found a real geometrical interpretation when applied
to a generalized spherical triangle whose sides and angles
have complex values.    Passing from the subject of non-
euclidean geometry, he referred to other recent investigations
connected with spherical trigonometry, mentioning a paper by
himself† and one read by Dr. Study‡ at the Chicago Con-
gress.    In concluding he deprecated the opinion obtaining
among many persons that the so-called elementary subjects
offer to the mathematician no opportunities for investigation.

This address was followed by a general discussion.    Several
questions were put to Professor Klein, to which he replied at
length.    After the adjournment of the meeting, those present
were individually introduced to Professor Klein, and a gen-
eral conversation ensued.

DURING the two weeks following the Mathematical Congress
at Chicago, Professor Klein (as was announced in the
BULLETIN, vol. II. p. 260) held a series of *colloquia* at North-
western University, Evanston.    His addresses at these meet-
ings are in course of publication by Macmillan & Co. in
commission for Northwestern University.                T. S. F.

A COMPLETE edition of the works and lectures of Weierstrass
is in course of preparation.    As in the case of Kronecker's
works, there will be two series.    One of these, consisting of
three quarto volumes, similar in style to the edition of Jacobi's
works, will comprise all the published memoirs together with
a number of papers not previously printed.    The other series
will contain Weierstrass's lectures, viz. : (1) two courses of

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\* Mathematische Annalen, vol. 39, p. 598.
† Ibid., vol. 37, p. 573.
‡ See this number of the BULLETIN, p. 16.

lectures on elliptic functions, one more elementary, taking the
differential equation as a starting point, the other based on the
addition theorem ; (2) lectures on the applications of the
elliptic functions ; (3) lectures on hyperelliptic functions ;
(4) lectures on Abelian functions.

The first volume of the memoirs is now in press. It opens
with a paper on the theory of the elliptic functions presented
by Weierstrass to the board of examiners of the Münster
Academy, in 1841. This volume will probably be followed by
the first part of the series of lectures.

AMONG the fall announcements we notice the following :

Ginn & Co. have in press a work by W. E. Byerly of
Harvard University on "Fourier's series, and spherical, cylin-
drical, and ellipsoidal harmonics."

Macmillan & Co. announce of works by American authors:
a "History of Mathematics," by Florian Cajori of Colorado
College ; a "Synthetic solid geometry," by N. F. Dupuis, of
Queen's College, Kingston, Canada ; a work on the "Resist-
ance of ships and screw propulsion," by D. W. Taylor of the
U. S. Navy Yard, Mare Island, California; and the second
part (Statics) of A. Ziwet's "Mechanics." They also promise
an English translation of Heinrich Hertz's "Researches on the
propagation of electrical force," by D. E. Jones; and a new
edition, revised and augmented, of J. J. Thomson's "Notes
on recent researches in electricity and magnetism,"—the latter
to appear early in 1894.

B. G. Teubner's announcements include, besides the edition
of Kronecker's papers and lectures, a German translation, by
H. Maser, of E. Goursat's lectures on partial differential equa-
tions ("Vorlesungen über die Integration der partiellen Dif-
ferentialgleichungen erster Ordnung, gehalten an der Faculté
des sciences zu Paris; bearbeitet von C. Bourlet"), and a
work on elementary mathematics by G. Holzmüller ("Metho-
disches Lehrbuch der Elementar-Mathematik, im engsten An-
schluss an die neuen Lehrpläne"), in two parts.

THE second *Jahresbericht der deutschen Mathematiker-Ver-
einigung*, for the year 1892, has just appeared (Berlin, Reimer).
It contains obituary notices on L. Kronecker (by H. Weber),
H. Schröter (by Sturm), H. Gretschel (by Papperitz), J. Gier-
ster (by Fricke); abstracts of the papers by Bjerknes, Fricke,
F. Klein, F. Meyer, Schapira, Schlegel, Schumacher, and
Study, that were to be read at the Nürnberg meeting planned
for last year but abandoned on account of the cholera ; finally,
a more extensive report, "Die Entwicklung der Lehre vom
Erddruck," by F. Kötter of Berlin.

As announced in the Bulletin, vol. II, p. 212, the third annual meeting of the *Deutsche Mathematiker-Vereinigung* was held at Munich, September 5th to 10th. The meeting took place in the great hall of the Polytechnic School, Professor Reye of Strassburg presiding. On the opening day there were present 74 members out of a total membership of 233. The exhibition of models, which filled four rooms of the School, was described and explained by its originator, Professor Dyck.

The preliminary announcement comprises two longer reports, viz., "On the theory of algebraic functions," by *Brill* and *Nöther*, and "Special chapters in mechanics," by *Henneberg;* and the following papers :

*Bauschinger*, Ueber Festigkeitsbestimmungen (mit Demonstrationen im mechanisch-technischen Laboratorium der technischen Hochschule);

*H. Brunn*, Zur Analysis situs;

*K. Döhlemann*, Zur Theorie des Nullsystems;

*Freyberg*, Ueber Töplers Vorlesungs-Apparat zur Statik und Dynamik starrer Körper;

*Haas*, Ueber einen Präcessionsglobus;

*D. Hilbert*, Zwei neue Beweise für die Zerlegbarkeit der Zahlen eines Körpers in Primideale;

*E. v. Lommel*, Zur Demonstration von Magnet-Kraftlinien ;

*R. Mehmcke*, Ueber Rechenmaschinen und Rechenapparate;

*F. Meyer*, Ueber projective Gruppen der Ebene ;

*A. Pringsheim*, Ueber die Taylor'sche Reihe ;

*H. Wiener*, Weiteres über Grundlagen und Aufbau der Geometrie.

What is remarkable in this provisional programme is the very large share given to applied mathematics. This programme, and the additional fact of the simultaneous exhibition of models, instruments, and apparatus pertaining to pure and applied mathematics, would seem to indicate as the leading feature of the present meeting the great prominence given to the applications. The explanation will be found in the existence, at Munich, of a prosperous Polytechnic School maintaining close relations with the university and counting among its teachers the present energetic and active secretary of the German Mathematical Association, Professor W. Dyck. The coexistence and coöperation in the same city of university and engineering school, such as is found in Munich, is unique in Germany.  A. Z.

Professor F. Lindemann has been called from the University at Königsberg to Munich.

The meeting of the French Association for the Advancement

of Science was held this year at Besançon, August 3–13, Dr. Bouchard being president. The meeting next year will be held at Caen, with Mascart as president, and in 1895 at Bordeaux, with Trélat as president.

PROFESSOR E. W. DAVIS has accepted the professorship of mathematics at the University of Nebraska, Lincoln, Nebraska. T. S. F.

## NEW PUBLICATIONS.

### I. HIGHER MATHEMATICS.

AURIC (A.). Les équations linéaires et leurs applications. [Thèse.] Paris, Gauthier-Villars, 1893. 4to. 81 pp. Fr. 3.50

BEAU (O.). Einige Mitteilungen aus dem Gebiete der trigonometrischen Reihen und der Fourierschen Integrale. [Progr.] Sorau, 1893. 4to. 22 pp. Mk. 1.00

BJÖRLING (C. F. E ). Lärobok i Differentialkalkyl och algebraisk Analysis. 2d ed. Lund, 1893. 8vo. 12 and 366 pp. 1 plate. Mk. 12.00

BOWSER (E. A.). An elementary treatise on analytic geometry, embracing plane geometry and an introduction to geometry of three dimensions. 17th ed., enlarged. New York, Van Nostrand, 1893. 12mo. Illustrated. Cloth. $1.75

BRICKE (F.). Die kürzeste Linie auf dem einschaligen Hyperboloid. [Progr.] Grünberg, 1893. 4to. 16 pp. Mk. 1.00

CASEY (J.). A treatise on the analytical geometry of the point, line, circle, and conic sections 2d ed., revised and enlarged. 8vo. 584 pp. Dublin, Hodges, 1893. 12s.

CRANZ (H.). Lehrbuch der analytischen Geometrie der Ebene. Erster Teil : Analytische Geometrie des Punktes und der Geraden. Mit einer Sammlung von Aufgaben, etc., nach System Kleyer. Stuttgart, Maier, 1892. 8vo. 7 and 266 pp. Mk. 6.00

DALWIGK (F. v.). Beiträge zur Theorie der Thetafunctionen von $p$ Variablen. Leipzig, Engelmann, 1892. 4to. 43 pp. Mk. 2.00

DAUBER (A.). Leitfaden der analytischen Geometrie. Helmstedt, 1893. 8vo. 35 pp. Illustrated. Mk. 1.20

DEPÈNE. Über die einem Dreieck ein- und umgeschriebenen Kegelschnitte. [Progr.] Breslau, 1893. 4to. 14 pp. Mk. 1.20

DESCARTES. See TANNERY, P.

DETTE (W.). Einleitung in die analytische Geometrie der Ebene. [Progr.] Elberfeld, 1893. 8vo. 76 pp. 4 plates. Mk. 1.50

DODGSON (C. L.). Curiosa mathematica. Part II : Pillow problems thought out during sleepless nights. London, Macmillan, 1893. 8vo. 2s.