NOTES.

A REGULAR meeting of the NEW YORK MATHEMATICAL SO-
CIETY was held Saturday afternoon, May 6, at half-past three
o'clock, the president, Dr. McClintock, in the chair.   Profes-
sor E. S. Crawley read a paper entitled "The forms of uni-
nodal quartics with four real and distinct asymptotes."
Taking the equation in the form $a_1w_4 + a_2w_3 + a_3w_2 = 0$,
where a_1, a_2, a_3 are real constants, and w_4, w_3, w_2 are homo-
geneous functions of x and y of the degrees indicated by the
subscripts, the relations to each other of the roots of the equa-
tions $w_4 = 0$, $w_3 = 0$, $w_2 = 0$, were examined and discussed.
Professor Crawley exhibited an elaborate series of drawings,
showing the various forms of the curves.   A paper by Pro-
fessor E. A. Engler, entitled "Geometrical constructions for
cutting from a cone of revolution plane sections (*a*) of given
excentricity, (*b*) of given latus rectum," was also presented to
the Society.   T. S. F.

THE annual meeting of the *Deutsche Mathematiker-Verein-
igung* will take place at Munich, September 4–10.   The exhi-
bition of mathematical models, instruments, etc., prepared for
this meeting will be open to visitors from September 1 to
September 30.   A. Z.

HARVARD UNIVERSITY.—Besides regular undergraduate
courses, the class-room work in which will average nineteen
hours a week throughout the year, the following more advanced
mathematical courses are offered for the year 1893–94:—
By Professor J. M. Peirce : Quaternions (first course); Alge-
braic plane curves; Qualitative algebra.   By Professor C. J.
White: Differential and integral calculus (second course);
Theory of equations.   By Professor Byerly: Analytic me-
chanics; Trigonometric series, and spherical harmonics.   By
Professor B. O. Peirce : Potential function; Hydrostatics
and hydrokinematics.   By Dr. Osgood: Higher algebra; The-
ory of substitutions.   By Dr. Bôcher : Modern geometry;
Theory of functions (first course); Functions defined by dif-
ferential equations.

Each of the above courses, with a few exceptions, extends
throughout the year and consists of three lectures a week.
There are also offered two courses in which the work will
consist of investigation and reading to be carried on by the
students.   These are:—By Professor J. M. Peirce: Studies
in algebraic curves, quaternions, or the theory of functions,
at the option of each student.   By Dr. Osgood: Theory of
invariants.

Attention should also be called to several courses, largely
mathematical, in the departments of physics and engineering.