MATHEMATICS

Chairman: JOHN YARNELLE, Hanover College
ERNST SNAPPER, Indiana University, was elected chairman for 1963

ABSTRACTS

Bi-angular coordinates: The N-Sectrix. MYRON EFFING, Evansville College—Pairs of numbers (η, ι) are shown to locate points in a plane by use of a primary coordinate system in which η and ι are angles. The equation of the first degree in these variables, $\eta = m\iota + \emptyset$, plots curves which divide any angle in $1/m$ parts, where m is called the index, if $\emptyset$, the deferent, is available. If the index can be expressed as a ratio in lowest terms, graphing is easily accomplished. A set of conversion equations to rectangular and polar coordinates enables the author to derive the circle, the Trisectrix of Maclaurin, the Trisectrix, Freeth's Nephroid, and Freeth's Supertrisectrix if the deferent is zero and the index takes the values $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{3}$, $\frac{3}{4}$, and $\frac{5}{6}$ respectively. Because many more curves can be written out in rectangular coordinates to trisect the angle and to fractionize an angle in any manner whatever, the first degree equation is called the "N-sectrix."

An Introduction to the Stability of Differential Equations. JAMES C. LILLO, Purdue University.—The use of the equation of first approximation for studying the stability of a bounded solution of a nonlinear differential system. Associated problems for nxn variable matrices arising from this approach to the stability problem. The use of a Liapunov function in studying the stability of a solution of a differential equation.