Naturally, such a treatment leads to a sharp conflict with the school of "logisticians" and enthusiasts of "axiomatics." This phase of the great problem is considered in the concluding chapter: axiomatics in geometry. It seems to me of great importance and actuality and I should like to advise every young American mathematician to read carefully this clear cut presentation of the issue.

On the tendency to reduce all and everything in mathematics to axiomatics the author has this to say:

"Mit Uebertreibungen dieser Art, die eine etwa als Axiomasis zu bezeichnende wissenschaftliche Modekrankheit darstellen, haben wir es jedoch nicht zu tun. Man muss sie austoben lassen: Gleich allen Moden werden sie von selbst aufhören."

Concerning the comparative value of productive mathematical activities Study makes the following statement:

"Auf die Resultate kommt es vor Allem an, und in zweiter Linie erst steht die Methode für Den, der nicht nur mathematische Philosophie oder philosophische Mathematik treiben, sondern sich schöpferisch betätigen will."

The critical remarks concerning Poincaré's scientific activity, so far as they are of a personal nature, might have been omitted. Poincaré was precisely of the type of mathematicians that were after results; with him the method was of secondary importance.

As a whole, the reading of the book with its vigorous and aggressive style is very refreshing, and nobody that intends to be well informed on the foundations of mathematics should fail to familiarize himself with its contents.

ARNOLD EMCH.

Contribution à l'Étude des Courbes convexes fermées et de certaines Courbes qui s'y rattachent. Par CHARLES JORDAN et RAYMOND FIEDLER. Paris, A. Hermann et Fils, 1912. 77 pp.

As the authors point out, this monograph is an auxiliary of their investigations in geometric probabilities and treats of closed convex curves and some associates that may be conveniently established by the method of tangential polar coordinates.

Such a system in a plane may be defined as follows:

Choose a point as the pole and a straight line through it,

with a definite direction as the positive direction, as the polar axis. Then, a directed straight line will be defined:

(I) When the angular coefficient α is given; i. e., the angle through which the polar axis must be turned in a counter clock-wise direction to make it coincide with the positive direction of the given straight line. Thus, α may vary from 0 to 2π.

(II) When the distance $| p |$ of the pole from the straight line is given; the tangential vector p will be considered as positive or negative according as the pole lies to the left or right of the straight line; p may therefore vary from $-\infty$ to $+\infty$.

An equation $F(p, \alpha) = 0$ under certain conditions represents a curve enveloped by the straight lines whose coordinates α and p satisfy this equation. Also in this system of coordinates the parametric representation (uniformization) is of great importance. In order that $p = f(t)$, $\alpha = \varphi(t)$ represent a curve of type II (including convex curves) it is necessary that $f(t)$ and $\{\varphi(t) - \pi t/w\}$ be coperiodic uniform functions of t, of period $2w$, and that the first derivatives of p and α exist for all values of t. Moreover, α must be a monoton function of t.

By means of these coordinates and parametric representations, such curves as reciprocal polars, "developoids," "developants," "tangential radials" and "antiradials," parallel curves, envelopes of diameters, "centrics" and "medials" of convex curves, and "orbiforms" (convex curves of constant diameter) and their relations are investigated.

For the purpose in view the method of tangential polar coordinates is very effective and, in the hands of the authors, has produced a number of new results.

The treatment is clear and concise, but the lack of appropriate headings throughout the text detracts somewhat from a convenient and systematic presentation of the subject.

Typographically the work is below the usual French standard of book-making. See, for instance, the formula below the second line on page 25.

ARNOLD EMCH.