

section of an angle and various pieces of apparatus designed to solve the same problems are described and their theory discussed. Later some interesting constructive approximations are given.

The properties of various transcendental curves are used to obtain approximately an  $n$ th root and to divide any angle into  $n$  equal parts. The division of the circle and of the arc of the lemniscate into  $n$  equal parts for special values of  $n$  with the aid of ruler and compass alone is discussed.

A development of attempts to arrive at the value of  $\pi$  from the time of Ahmes to that of Lindemann is presented. This leads naturally to mechanical quadrature and rectification.

Under the heading of analytic approximations are included such titles as Taylor's series, Lagrange's interpolation formula, exponential series with application to the quadrature of the hyperbola, De Moivre's theorem, indeterminate forms, and the determination of  $\pi$  by the use of series.

The discussion of the irrationality of  $\pi$  and  $\pi^2$  brings out the methods used by famous mathematicians of old. The book closes with the proof of the transcendental nature of  $e$  and  $\pi$ .

There is much concrete work in algebra and geometry throughout the book, consequently a chance for errors, many of which have been listed in an appendix of two pages.

Student's mathematical clubs in our universities desiring some interesting material for the rounding out of a course in mathematics would find the volume rich in suggestions.

ERNEST W. PONZER.

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## NOTES.

THE sixth regular meeting of the Southwestern Section of the American Mathematical Society will be held at the University of Kansas on Saturday, November 30. Titles and abstracts of papers to be presented at this meeting should be in the hands of the chairman of the programme committee, Professor J. N. Van der Vries, University of Kansas, by November 8.

THE annual meeting of the Society will be held this year at Cleveland, Ohio, in affiliation with the American association