36[A].—H. S. Uhler, *Exact values of n!, n = 201(1)300*. A photostat of a typed copy (20 leaves) is in the Library of Brown University.

This calculation is an extension of results in the booklet by this author, 12 Hawthorne Ave., Hamden 14, Conn., reviewed in *MTAC*, p. 312.

37[D].—Table of $(1/x) \tan x$, manuscript prepared by, and in possession of, the Westinghouse Electric Corporation, Research Laboratories, East Pittsburgh, Pa.

In some computations on transmission line measurements it was found that a table of $(1/x) \tan x$ was necessary and this was computed for the following radian arguments: $x = [0(.0001).1(.001)3.15(.01)6.3(.1)10; 4D]$. For values of the parameter up to $x = 2$, the values of the tangent (to 8S) were taken from the NYMTP volume (1943; see *MTAC*, p. 178f), and for $x > 2$, from K. Hayashi, *Fünfstellige Funktionentafeln*, Berlin, 1930, where $x = [0(.01)10; 5D]$. In this manuscript each value of the argument is followed by the value of tan in the table used, followed by the 4-place value of $(1/x) \tan x$. The only previously published table of this function appears to have been the one in Jahnke & Emde, *Tables of Functions*, $x = [0(.01)3.14; 4-5S]$.

**Thomas W. Dakin**

Insulation Department

**Editorial Note:** Since Hayashi’s table referred to above, is only 5-place, a 4-place table derived from it must be uncertain in the last figure; but furthermore, all of Hayashi’s tables are unreliable. If the NYMTP volume for tan $x$, $x = [2(-.1)10; 10D]$, p. 402-403, had been used, much greater security would have been achieved. Then Hayashi’s 10-place table of tan $x$, *Sieben- und mehrstellige Tafeln der Kreis- und Hyperhelfunktionen . . .*, Berlin, 1926, $x = 2(-.01)6-3$, p. 128(2)180, could be employed for filling in the remaining gap.

38[A].—J. W. Wrench Jr., $\pi^{\pm n}$.

This table of $\pi^{\pm n}$, $n = 1(1)110$, was calculated by involution of $\pi$ and $1/\pi$, to 206S at least, and corresponding powers were checked by multiplication to yield a product differing from unity by less than $10^{-200}$. Incidentally, the value of $\pi^2$ as computed by H. S. Uhler to 262D and my approximation of $\pi^{-1}$, correct to 253D, appeared in Nat. Acad. Sci., *Proc.*, v. 24, 1938, p. 29; see *MTAC*, p. 55. Subsequently, I extended the approximation of $\pi^{-1}$ to 358D.

Upon collation of my results with those given by Peters & Stein, *Anhang*, p. 2, of Peters *Zehnstellige Logarithmentafel*, v. 1, Berlin, 1922, it was found that their tables of $\pi^{\pm n}$, $n = [1(1)32; 32S and 32D respectively]$, are entirely free from error.

It is intended that the present table shall provide the basis for an extensive table of $\pi^n/n!$ to be used in evaluating various transcendental functions corresponding to rational multiples of $\pi$ in the argument.

**J. W. Wrench, Jr.**

**MECHANICAL AIDS TO COMPUTATION**


The paper presents a brief description of problems which have been treated on the differential analyzer at the General Electric Co. References to original publications are given for most of the problems outlined. Although the bibliography of papers describing applications is not complete, it is a useful selection covering a wide field of interest and is reproduced below.


S. H. C.

NOTES

40. Correct, but—!—In H. Levy & L. Roth, Elements of Probability, Oxford, 1936, p. 80, is the following footnote: "For example, if \( n = 10 \), the error in replacing \( (1 - \frac{1}{n})^n \) by \( e \) does not affect the sixth decimal place." This is a footnote to the word "large" in the text statement, "If \( n \) is sufficiently large, \( (1 - \frac{1}{n})^n \) is approximately \( e \). . . ."

The correct values of \( (0.9)^{10} \) and \( e \), to 9D, are respectively as follows: 2.867 971 991 and 2.718 281 828.

University of Minnesota

George J. Stigler

Editorial Note: It may be noted that Levy & Roth evidently did not carry out the necessary computations; perhaps they had in mind the well-known fact that when \( e \) is expressed as the infinite sum of reciprocals of successive factorials one needs to take only a few terms in order to obtain a fair approximation to the value of \( e \). Indeed, if one confines one's self to \( n = 10 \), and carries out computations to 9D, then

\[
e = 1 + \frac{1}{1!} + \frac{1}{2!} + \frac{1}{3!} + \cdots + \frac{1}{10!},
\]

and the sum of the terms is 2.718 281 801. In other words, "if \( n = 10 \), the error in replacing \( \sum_{n=0}^{10} \frac{1}{n!} \) by \( e \) does not affect the sixth [or even the seventh] decimal place."

41. Early Decimal Division of the Sexagesimal Degree (see N 29, p. 400f).—In our previous note on this topic we listed seven or eight editions of De Thiende, 1585, by Simon Stevin, including Norton's English translation. We forgot to give a reference to the English edition, 8 or 9, of Vera Sanford, in A Source Book in Mathematics, ed. by D. E. Smith, New York, 1929, p. 20–34. This was translated from no. 4, Girard's French edition of 1634.

R. C. A.

42. First Mortality Table (see MTAC, p. 402f).—A facsimile of R. So. London, Phil. Trans., 1693, p. 600, including Halley's first mortality table, is printed in Isis, v. 23, 1935, p. 16.

G. Sarton

Harvard University

43. Francis William Newman (1805–1897).—Newman was a younger brother of J. H. Newman (1801–1890), the English cardinal. He had a brilliant career at Oxford where he obtained a double first in classics and...