On p. 67 is a table of the last 26 figures for each of 35 values of 9^n, $n = 89,100,200,\cdots,387420489$. Thus the last 26 figures of N are found to be

$$24\ 178799\ 359681\ 422627\ 177289.$$

These results check with those quoted above, except in the case of the first of the McIntyre figures. Weiss gives also two tables and formulae for finding last figures of 9^n.

J. W. Meares in Br. Astron. Assoc., *J.*, v. 31, 1921, p. 277–278, comments on $9!^{(9!^{9!})}$ and finds that its value is greater than 10 to the power $10^{2000000}$ but less than 10 to the power $10^{2000001}$.

R. C. A.

[1] In accordance with British usage, Crommelin here means 1000×10^{24}; in the United States this would be interpreted as 1000×10^{15}.

55. A New Result Concerning a Mersenne Number.—(Compare N. **23**, **33**, v. 1, p. 333, 404). On 9 February 1946 I finished testing the character of the Mersenne number $M_{229} = 2^{229} - 1 = 8627\ 18293\ 34882\ 04734\ 29344\ 48278\ 46281\ 81556\ 38862\ 15212\ 98319\ 39531\ 55279\ 74911$. Since the final residue, the 228th, was not zero the conclusion is that M_{229} is composite.

The Lucasian sequence used was 4,14,194,37634,1416317954, etc.

The 228th residue was found to be 1970 11660 94225 75309 56180 91126 86257 27776 96596 41856 06805 84362 68648 91891.

Thus, among these numbers M_p, up to and including $p = 257$, there are only three whose characters are unknown, namely: $p = 193,199,227$. There are, however, eleven M_p, known to be composite, but of which no factor is known.

I have begun a similar investigation of M_{199}.

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QUERIES

17. Tables for Circles.—In O. G. Gregory, *Mathematics for Practical Men*, London, 1825, p. 406, after "A Table of Circles, from which knowing the diameters, the areas, circumferences, and sides of equal squares are found," by Goodwyn (see MTE **81**), Gregory remarks that this table was "to supersede the necessity of consulting some erroneous tables of the areas, &c. of circles recently put into circulation." What author and publication are here indicated? The *English Catalogue* lists the following anonymous item issued in the following year: *Tables of Areas and Circumferences of Circles*, 3 parts, London, 1826.

R. C. A.

QUERIES—REPLIES

21. Briggs' Arithmetica Logarithmica (Q7, v. 1, p. 170).—In my library is a copy of this volume with the extra 12 pages containing the logarithms of numbers [100001(1)101000; 14D] and the square roots of integers [1(1)200; 11D], with first differences in each case.

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EDITORIAL NOTE: At present only four existing copies of these extra pages are known to us. Rather extensive inquiry suggests that the copy owned by Mr. Lownes may be the only one in America.

22. INTEGRAL AND FUNCTIONAL TABLES.—(**Q15**, p. 459).—With reference to tables of $\int_0^z e^{-t^2}dt$, I should like to draw attention to my paper "An approximate method for calculating heat flow in an infinite medium heated by a cylinder," Phys. So. London, *Proc.*, v. 56, 1944, p. 365, where I have given a rough chart of this integral $[2\pi^{-\frac{1}{2}}\int_0^{\omega e^{i\beta}} e^{-t^2}dt]$ for a complex argument [$\beta = 0(15°)90°$; $\omega = 0(.1).3(.2).7, 1$], together with formulae for computation in a number of cases.

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23. ROOTS OF THE EQUATION TAN $x = cx$ (**Q8**, v. 1, p. 203; **QR10**, p. 336; **17**, p. 459).—The NDRC report, *Tables for Solutions of the Wave Equation for Rectangular and Circular Boundaries having Finite Impedance* (see *MTAC*, v. 1, p. 438–440) has (in a different notation) the first four roots (i.e. the first four branches of the functions) of the equations $\tan x = cx$, $\tanh x = cx$, $\cot x = cx$, and $\coth x = cx$, tabulated as functions of the complex variable c. We have obtained expansions of x in powers of c and $1/c$ (used in preparation of the above mentioned NDRC report) from which one can easily compute values on the other branches or improve the accuracy of the above tables. We also have theoretical material and other types of expansions for the regions about the singularities of the inverse functions. This material is in our possession at the NYMTP, but is as yet available only to certain Government agencies and activities.

A. P. HILLMAN & H. E. SALZER

CORRIGENDA

V. 1

P. 205, l. 17, *for* $j_{2,s/\pi}$, *read* $j_{2,s}/\pi$.

P. 213, **A**$_2$ 38, l. 3, *add* $x = 0(.5)12$; **B**$_2$ 4, *for* 5D, *read* 4D.

P. 214, **B**$_3$ 13, *for* $e^{x_s^2\theta}$, *read* $e^{-x_s^2\theta}$, and *for* 4, *read* .4; **B**$_3$ 17, *for* $J_1(\frac{1}{2}x_s)e^{-x_s^2t}$ *read* $J(\frac{1}{10}x)e^{-x_s^2}$.

P. 215, **B**$_5$ 8, *add* also 5D, = 1(1)8; **B**$_7$ 22, *for* =, *read* or.

P. 217, **C**$_2$ 7, delete $\leq$ 14D; **D**$_1$ 7, l. 3, when $n = 10, 11$, *read* $s = 3, 3$.

P. 221, **A**$_4$ 1, delete $x \not> 21.6$; **A**$_5$ 1, *for* $x \not> 21.6$, *read* for each n; **A**$_5$ 6, 7, *for* $Y_0(x)$, $Y_1(x)$, *read* $Y^{(0)}(x)$, $Y^{(1)}(x)$, and *transfer* these two entries as **C**$_3$ 8, 9.

P. 222, **A**$_5$ 12, *for* zeros, *read* first zero.

P. 226, **A**$_1$ 12, 13, *for* 5D, *read* 5S, and *for* 4D, *read* 4S.

P. 227, **A**$_2$ 28, *for* OKAYA 2, x, *read* OKAYA 2, x^{-1}

P. 241, **B** 5, *for* $J_{-1/6}(x)$, *read* $J_{-1/6}(\frac{1}{3}x^{\frac{1}{2}})$; and *for* 41.035, *read* 41.305.

P. 245, l. 14, *for* $E_n(x)$, *read* $\mathbf{E}_n(x)$.

P. 251, **B** 16, *read* 4D, $Ki_2(x)$, SEELIGER, $x = .25(.01)1(.05)7$.

P. 284, l. 13, *for* $Y_n(x)$, for, *read* $Y_n(x)$ for each n, for.