the sums $\sum_{k=1}^{(n)} (-)^k k^{-s}$ for various integer values of s and their asymptotic behavior for large n is studied. The term ${}_n\bar{\Phi}_1$ arises from the curvature of the circle and is $O(n^{-1})$ as $n \to \infty$, while ${}_n\bar{\Phi}_0 = -(2 \log 2)n + O(n^{-1})$. The O-term of ${}_n\bar{\Phi}_0$ is also analyzed in somewhat more detail and a table of ${}_n\bar{\Phi}_0$ is given for $n = 1(1)12$.

Similar results are obtained for the problem of n equally charged and equally spaced particles on a circle. The self-energy in this case is

$$ {}_n^0\Phi = \frac{n}{4r} \sum_{k=1}^{n-1} \csc(\pi k/n), $$

and a table is given for $n = 1(1)30$ when $n = 2\pi r$.

The alternating sums $\sum_{k=1}^{(n)} (-1)^k k^m$ reduce to polynomials in n with rational coefficients when m is an integer. These are given explicitly for $m = 0(1)7$. Finally, the graphs of the seven sums $\sum_{k=1}^{(n)} (-1)^k k^s$, $n = 1(1)7$, are plotted as functions of s for $-2.6 \leq s \leq 3$.

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MATHEMATICAL TABLES—ERRATA

In this issue references have been made to errata in RMT **1205.**

239.—NBSCL, *Tables of* 10^x. (*Antilogarithms to the Base* 10.) Applied Math. Ser. No. 27. Washington, 1953.

In working with 10-figure logarithms recently, I noticed a discrepancy between a value given in this new table of 10^x, and a value from GUILLEMIN.[1] Since Guillemin gives 13 figures for 10^x for $x = 0(.0001).6999$, and 12 figures for $x = .6999(.0001).9999$, and DEPREZ[2] gives 14 places 1(1)9999, every tenth value in v. 27 may easily be checked directly from these tables.

In checking every tenth value for the block from $x = .40000$ to .50000, I find 128 values in error in the last figure; 127 values should have the last figure raised by one, and one value, that for .49270, should have the last figure reduced by one.

It seems rather surprising that a corps of experienced computers, working with the most modern calculating instruments, should spend the amount of time and labor represented by this table simply to smooth out a 200-year-old table without even checking the accuracy of that table. Only the expenditure of a very little extra time would have been necessary to use the Sundstrand machine to subtabulate Deprez's table to tenths and thus to get a 14-place table of 10^x, which, if rounded to ten places would yield a table far superior to Dodson. Reference is made in the introduction of this volume to the Deprez table, so it is certainly known and available to the personnel of the laboratory.

In line with this reasoning, by using the Deprez values for the block .4680 to .4700 in conjunction with COMRIE's simple, accurate, and very powerful system of end-figure interpolation to tenths (*Supplement to Nautical Almanac*, London, 1931), together with an old Ellis two-register machine, I reproduced the block .46800 to .47000 (p. 236) to 14 places. Rounding this to ten places and comparing page 236 with these values, I find 23 further errors in the 200 entries, besides the four errors already found in this block. Judging from this sample and from the test above, it would appear that about 13 per cent of the entries in Table I are in error by being one too low in the last digit.

This same volume contains a very fine table, Table II, which gives 16-place values for 10^x for $x = 0(.001).999$. Every 100th value in Table I may be checked easily by direct comparison with the second column of Table II. In the block .40000 to .50000 there are eleven of this type of entry in Table I in error, as may be directly ascertained by checking in Table II.

It is to be hoped that in the near future the Laboratory will issue a corrected version of this Table.

A list of the errors referred to above is appended herewith.

The final digit in 10^x is too low by a unit for the following values of x.

40020	41690	43920	46070	46916	48190
40100	780	980	080	921	260
40190	830	990	180	928	270
320	900	44010	240	930	380
390	930	090	700	936	390
440	950	140	710	938	520
450	42110	180	750	944	570
570	160	300	780	963	670
590	240	400	800	965	730
620	260	450	804	990	750
700	520	540	825	47100	810
790	740	610	832	160	910
840	810	620	834	170	920
41220	900	680	837	190	49050
300	43020	690	838	250	180
350	050	740	852	550	530
500	070	780	855	580	650
510	160	800	860	640	750
520	350	45110	863	750	780
530	480	190	867	790	840
550	530	260	868	850	870
570	670	270	903	870	880
590	730	360	908	940	930
620	840	490	909	950	980
640	910	46030	912	48140	990

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[1] A. GUILLEMIN, *Tables de Logarithmes à 3 quatrades et Nombres Correspondants avec 12–13 chiffres*. Paris, 1912.

[2] F. DEPREZ, *Tables for Calculating, by Machine, Logarithms to 13 Places of Decimals*. Berne, 1939.