TABLE ERRATA

In this issue reference has been made to errata in Review **56.**

248.—HAROLD T. DAVIS, *Tables of the Higher Mathematical Functions*, v. 1, The Principia Press, Inc., Bloomington, Indiana, 1933.

The following errata have been found.

The Gamma Function, Table 1, p. 201, $x = 1.0255$:
For 0.98590 26815 *read* 0.98590 94917.
The Gamma Function, Table 4, p. 250, Log Γ (22.7):
For 20.5459 7344 7877 *read* 20.6459 7344 7877.

A systematic error in Table 4 was discovered some time ago for Log $\Gamma(x)$, $x = 69.9 + n$, where $n = 0(1)31$. The corrected values are as follows:

p. 253 for Log Γ(69.9) read 98.0491 3939 9253
p. 253 for Log Γ(70.9) read 99.8936 1657 4999
p. 254 for Log Γ(71.9) read 101.7442 6281 0182
p. 254 for Log Γ(72.9) read 103.6009 9170 0565
p. 254 for Log Γ(73.9) read 105.4637 1922 8883
p. 254 for Log Γ(74.9) read 107.3323 6366 7278
p. 254 for Log Γ(75.9) read 109.2068 4548 4977
p. 254 for Log Γ(76.9) read 111.0870 8726 0872
p. 254 for Log Γ(77.9) read 112.9730 1360 0674
p. 254 for Log Γ(78.9) read 114.8645 5105 8346
p. 254 for Log Γ(79.9) read 116.7616 2806 1556
p. 254 for Log Γ(80.9) read 118.6641 7484 0870
p. 254 for Log Γ(81.9) read 120.5721 2336 2482
p. 254 for Log Γ(82.9) read 122.4854 0726 4243
p. 254 for Log Γ(83.9) read 124.4039 6179 4793
p. 254 for Log Γ(84.9) read 126.3277 2375 5621
p. 254 for Log Γ(85.9) read 128.2566 3144 5865

p. 255 for
Log Γ(86.9) read 130.1906 2460 9697
Log Γ(87.9) read 132.1296 4438 6145
Log Γ(88.9) read 134.0736 3326 1219
Log Γ(89.9) read 136.0225 3502 2189
Log Γ(90.9) read 137.9762 9471 3923
Log Γ(91.9) read 139.9348 5859 7145
Log Γ(92.9) read 141.8981 7410 8531
Log Γ(93.9) read 143.8661 8982 2524
Log Γ(94.9) read 145.8388 5541 4790
Log Γ(95.9) read 147.8161 2162 7218
Log Γ(96.9) read 149.7979 4023 4388
Log Γ(97.9) read 151.7842 6401 1439
Log Γ(98.9) read 153.7750 4670 3242
Log Γ(99.9) read 155.7702 4299 4839
Log Γ(100.9) read 157.7698 0848 3065

The first of these errata was reported by Professor Charles A. Hutchinson, University of Colorado, Boulder, Colorado. The others were furnished by Professor H. T. Davis.

NOTES

Alan Mathison Turing

1912–1954

Dr. A. M. Turing, who played a decisive part in various phases of the development and exploitation of automatic computing machines, died on 7 June 1954; he was born in London on 23 June 1912. A detailed account of his life and work, which we have used in the preparation of this note, has been prepared by M. H. A. Newman [1].

It was about 1935 that Turing, first at Cambridge and then at Princeton, began studies in mathematical logic which led him to introduce the concepts of "computable numbers" and what are now known as "Turing machines." It was

not until after the war that he became active in the realization of machines of this type. During 1945–7, when Turing was at Teddington, laying the foundations for the Automatic Computing Engine of the National Physical Laboratory, we were living close by. We recall visits from Turing, with long discussions on various mathematical topics; we always found him an active listener, willing and able to contribute ideas on many fields, some far away from his current interest. In addition, from our window, we often saw him passing by on his training runs. From 1948 until his death he was at the University of Manchester participating in the mathematics and machine development program there. For his services to his country in World War II, he was awarded the O.B.E.; he was elected to the Fellowship of the Royal Society in 1951.

The classical paper, "On computable numbers, with an application to the Entscheidungsproblem," London Math. Soc., *Proc.*, s. 2, v. 42, 1936, p. 230–265; s. 2, v. 43, p. 544–546, was followed by one indicating the equivalence of his concept of "computable" with those of "general-recursive" (Gödel-Kleene) and "λ-definable" (Church). Among his other papers in logic was one on the insolubility of the word-problem for semi-groups with cancellation. In this connection we point out his excellent expository article: "Solvable and unsolvable problems," *Science News*, v. 31, 1954, p. 7–23.

Turing was responsible for the initial version of "Programmers' Handbook of the Manchester machine," 1950. His published work in numerical analysis was in two directions. In the first, "Rounding-off errors in matrix processes," *Quart. Jour. Mech. and Appl. Math.*, v. 1, 1948, p. 287–308, he introduced the concept of "condition-number," which has played a large part in later studies. In the second he was concerned with the Riemann zeta-function. His pre-war theoretical investigations were described in "A method for the calculation of the zeta-function," London Math. Soc., *Proc.*, s. 2, v. 48, 1943, p. 180–197. Some computing was done in 1950 on the Manchester machine; in the resulting paper, "Some calculations of the Riemann zeta-function," London Math. Soc., *Proc.*, s. 3, v. 3, 1953, p. 99–117, we find an unusually revealing story of work in progress and valuable remarks on the idea of rigorous computation.

Two other very readable articles are, "Computing machinery and intelligence," *Mind*, v. 59, 1950, p. 433–460, and "Digital computers applied to games: chess," *Faster than Thought*, ed., B. V. Bowden, Pitman, London, 1953, p. 288–295.

His latest work was in the domain of applied mathematics, and was concerned with the problem of morphogenesis, that is, of the growth and form of living material. He developed a chemical theory for this phenomenon and found it satisfactory, when tested on the Manchester computer, in certain botanical situations; this is described in "The chemical basis of morphogenesis," Roy. Soc., *Phil. Trans.*, Sec. B, v. 237, 1952, p. 37–72.

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1. Biographical Memoirs of Fellows of the Royal Society, v. 1, 1955, p. 253–263.