Beliakov and K. A. Karpov. Starting with the standard definition of the Weierstrass elliptic function $z = \wp(u;\, g_2,\, g_3)$ as the inverse of the function

$$u = \int_z^\infty \frac{dz}{(4z^3 - g_2 z - g_3)^{1/2}},$$

it gives a detailed discussion of the properties of that function, as well as formulas for the evaluation thereof corresponding to complex values of u. A section is devoted to a discussion of the numerical evaluation of $\wp(u;\, g_2,\, g_3)$ for large values of g_2 when $g_3 = \pm 1$. This is supplemented by a discussion of the evaluation of the Jacobi elliptic function $\mathrm{sn}(u,\, m)$, together with an auxiliary table of $K(m)$ to 8D for $m = 0.4980(0.0001)0.5020$, with first differences. The relevant computational methods are illustrated by the detailed evaluation of $\wp(0.2;\, 100,\, 1)$ and $\wp(0.3;\, 100,\, -1)$ to 7S.

The two main tables, which were calculated and checked by differencing on the Strela computer, consist of 7S values (in floating-point form) of $\wp(u;\, g_2,\, g_3)$ for $g_2 = 3(0.5)100$, $g_3 = 1$, and $g_2 = 3.5(0.5)100$, $g_3 = -1$, respectively, where in both tables $u = 0.01(0.01)\omega_1$. Here ω_1 represents the real half-period of the elliptic function. It should be noted that for the stated range of the invariants g_2 and g_3, the discriminant $g_2^3 - 27g_3^2$ is nonnegative, so that the zeros e_1, e_2, e_3 of $4z^3 - g_2 z - g_3$ are all real.

A description of the contents and use of the tables, including details of interpolation (with illustrative examples) is also given in the introduction.

Appended to the introduction is a listing of the various notations used for this elliptic function and a useful bibliography of 19 items.

An examination of the related tabular literature reveals that these tables are unique; indeed, Fletcher [1] in his definitive guide to tables of elliptic functions mentions no tables of $\wp(u;\, g_2,\, g_3)$ when g_2 and g_3 are real and the discriminant is positive.

J. W. W.

1. Alan Fletcher, "Guide to tables of elliptic functions," *MTAC*, v. 3, 1948, pp. 229–281.

7[7].—Robert Spira, *Tables of Zeros of Sections of the Zeta Function*, ms. of 30 sheets deposited in the UMT file.

This manuscript table consists of rounded 6D values of zeros, $\sigma + it$, of $\sum_{n=1}^{M} n^{-s}$ for $M = 3(1)12$, $0 < t < 100$; $M = 10^k$, $k = 2(1)5$, $-1 < \sigma$, $0 < t < 100$; $M = 10^{10}$, $0.75 < \sigma < 1$, $0 < t < 100$. No zero with $\sigma > 1$ was found. A detailed discussion by the author appears in [1] and [2].

J. W. W.

1. R. Spira, "Zeros of sections of the zeta function. I," *Math. Comp.*, v. 20, 1966, pp. 542–550.
2. R. Spira, "Zeros of sections of the zeta function. II", *ibid.*, v. 22, 1968, pp. 163–173.

8[7, 8].—W. Russell & M. Lal, *Table of Chi-Square Probability Function*, Department of Mathematics, Memorial University of Newfoundland, St. John's, Newfoundland, Canada, September 1967, 77 pp., 28 cm. One copy deposited in the UMT file.

Herein are tabulated to 5D the values of the chi-square distribution function