computer Strela. Presumably the observed rounding errors are attributable to a deficiency in the computer program. It is interesting to note that no other tabular discrepancies were observed.

The present attractively printed tables are by far the most extensive of their kind, and accordingly constitute an important accession to the growing store of mathematical tables. It is to be hoped that an emended edition eventually will be forthcoming.

J. W. W.

1. A. A. Abramov, *Tablitsy* ln $\Gamma(z)$ *v kompleksnoĭ oblasti*, Izdat. Akad. Nauk SSSR, Moscow, 1953. (See *MTAC*, v. 12, 1958, pp. 150–151, RMT **70**.)
2. H. T. Davis, *Tables of the Higher Mathematical Functions*, Vols. 1, 2, Principia Press, Bloomington, Indiana, 1933 and 1935. Revised edition, entitled *Tables of the Mathematical Functions*, published by The Principia Press of Trinity University, San Antonio, Texas, 1963. (See *Math. Comp.*, v. 19, 1965, pp. 696–698, RMT **131**.)
3. NBS Applied Mathematics Series, No. 17: *Tables of Coulomb Wave Functions*, U. S. Government Printing Office, Washington, D. C., 1952. (See *MTAC*, v. 7, 1953, pp. 101–102, RMT **1091**.)

95[L].—Roddam Narasimha, *On the Incomplete Gamma-function with One Negative Argument*, Report AE 123A, Department of Aeronautical Engineering, Indian Institute of Science, Bangalore, India, 16 pp. + 2 figs., 29 cm. Copy deposited in UMT file.

Let $g(\alpha, x) = \alpha e^{-x} \int_0^1 t^{\alpha-1} e^{xt}\, dt$ and $G(\alpha, x) = -\alpha e^x \int_1^\infty t^{\alpha-1} e^{-xt}\, dt$; then this report presents 5D tables of $g(\alpha, x)$ and $G(\alpha, x)$, the first for $\alpha = 0(0.2)2(0.5)5$, $x = 0(0.1)2(0.25)3(0.5)5(1)10$, and the second for $-\alpha = 0(0.2)2(0.5)5$ and for x as above.

In an introduction the author discusses the properties of these functions and the procedures followed in the calculation of these tables on an IBM 7090 system. Methods for extending the range of the tables are also described.

The author alludes to the application of the incomplete gamma function to the solution of problems in statistics, radiative transfer, and the kinetic theory of gases. A list of nine references is appended to the introduction.

Additional information concerning these functions, including related tabular data, is presented in a treatise [1] by this reviewer and in the NBS *Handbook* [2].

Y. L. L.

1. Y. L. Luke, *Integrals of Bessel Functions*, McGraw-Hill Book Co., New York, 1962. (See *Math. Comp.*, v. 17, 1963, pp. 318–320, RMT **51**.)
2. M. Abramowitz & I. A. Stegun, Editors, *Handbook of Mathematical Functions with Formulas, Graphs, and Mathematical Tables*, National Bureau of Standards, Applied Mathematics Series, No. 55, U. S. Government Printing Office, Washington, D. C., 1964. (See *Math. Comp.*, v. 19, 1965, pp. 147–149, RMT **1**.)

96[L].—E. Wai-Kwok Ng, *Lommel Functions of Two Imaginary Arguments*, Department of Astronomy, Columbia University, New York, undated ms. of 13 pp., deposited in UMT file.

This manuscript contains tables to 6S in floating-point form of

$$Y_n(w, z) = \sum_{m=0}^{\infty} (w/z)^{n+2m} I_{n+2m}(z)$$

and

$$\Theta_n(w, z) = \sum_{m=0}^{\infty} (z/w)^{n+2m} I_{n+2m}(z),$$

where $I_n(z)$ is the modified Bessel function of the first kind of order n, for the following ranges: $w = 0.1(0.1)1$, $z = 0.1(0.1)1$ for Y_1, Y_2, Θ_0, Θ_1; $w = 1(1)z$, $z = 2(1)20$ for Y_1, Y_2; $w = 2(1)20$, $z = 1(1)w$ for Θ_0, Θ_1.

Lommel's functions of two variables are usually represented by the symbols $U_n(w, z)$ and $V_n(w, z)$; these are related to the above functions by the formulas $Y_n(w, z) = i^{-n}U_n(iw, iz)$ and $\Theta_n(w, z) = i^{-n}V_n(iw, iz)$.

Tables of U_n and V_n have been calculated by Dekanosidze [1] and Boersma [2].

Y. L. L.

1. E. N. Dekanosidze, *Tablitsy tsilindricheskikh funktsiĭ ot dvukh peremennykh* (*Tables of cylinder functions*), Acad. Sci. USSR, Moscow, 1956. (See *MTAC*, v. 12, 1958, pp. 239–240, RMT **107**.) English translation published by Pergamon Press, New York, 1960. (See *Math. Comp.*, v. 16, 1962, p. 383, RMT **36**.)
2. J. Boersma, "On the computation of Lommel's functions of two variables," *Math. Comp.*, v. 16, 1962, pp. 232–238.

97[L, M].—Rory Thompson, *Table of* $I_n(b) = (2/\pi) \int_0^\infty ((\sin x)/x)^n \cos bx\, dx$, ms. of 26 computer sheets deposited in the UMT file.

The integral in the title is tabulated to 8D for $n = 3(1)100$, $b = 0(0.1)9$. Previous tables [1], [2] have been limited to the case $b = 0$. The method used in computing the present tables has been described by the author in [3].

In a marginal handwritten note the author notes 12 rounding errors detected by a comparison with the earlier tables, which extended to 10D. The presence of other rounding errors in this table is alluded to by the author; some of these are obvious among the early entries.

Apparently no attempt was made to edit the computer output constituting this table; for example, the fact that $I_n(b) = 0$ for $b \geqq n$ could have been used to reduce the number of entries shown for $n \leqq 8$. Furthermore, the obvious rounding errors referred to could have been removed in an improved copy.

Despite these flaws, this table is a valuable extension of the earlier, related tables.

A FORTRAN listing of the program used in the calculations is included.

J. W. W.

1. K. Harumi, S. Katsura & J. W. Wrench, Jr., "Values of $(2/\pi) \int_0^\infty ((\sin t)/t)^n\, dt$," *Math. Comp.*, v. 14, 1960, p. 379.
2. R. G. Medhurst & J. H. Roberts, "Evaluation of the integral $I_n(b) = (2/\pi) \int_0^\infty ((\sin x)/x)^n \cos (bx)\, dx$," *Math. Comp.*, v. 19, 1965, pp. 113–117.
3. Rory Thompson, "Evaluation of $I_n(b) = (2/\pi) \int_0^\infty ((\sin x)/x)^n \cos (bx)\, dx$ and of similar integrals", *Math. Comp.*, v. 20, 1966, pp. 330–332.

98[L, M].—Shigetoshi Katsura, Yuji Inoue, Seiji Hamashita & J. E. Kilpatrick, *Tables of Integrals of Threefold and Fourfold Products of Associated Legendre Functions*, The Technology Reports of the Tôhoku University, v. 30, 1965, pp. 93–164.

These extensive tables list the values, to accuracies varying from 11 to 15 signifi-