that "Average Joe" can trade it in anytime after 3 years, and that "Penny-Pincher" should keep it for 12 years. Only linear equations are used, and constants (like the 30%) are chosen at will. The results are accepted because they are reasonable. And one of the exercises, requiring an analysis of this sort, is:

> You are a girl's advisor in a major college. A young lady comes to you for advice about the field in which she should major. Work out a schedule.

I submit that examples such as these do not lead to good judgment about when mathematical models should be used.

The book contains some excellent chapters on matters not usually treated adequately. For instance, there is a chapter on the representation of information, which shows the student how to encode information in a form in which a computer can deal with it. The problem is treated on several levels: the physical representation of information, the representation of alphabetic information numerically, the use of arrays and lists, the representation of graphical relationships, and the Polish prefix representation of algebraic expressions. There is also a chapter on errors: where they come from, how to classify them, and how to safeguard (as far as possible) against them. More generally, the book contains a great deal of material designed to give the student a "world view" of what is going on in the computer field.

In summary, this is an excellent textbook for those instructors who are in sympathy with the philosophy that a first computer science course should teach students about algorithms rather than about programming. I happen not to be in sympathy with that philosophy.

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20[4, 5, 13.15].—JOHN R. RADBILL & GARY A. MCCUE, *Quasilinearization and Nonlinear Problems in Fluid and Orbital Mechanics*, American Elsevier Publishing Co., Inc., New York, 1970, xxiii + 228 pp., 24 cm. Price $14.00.

In Chapter 1 of this book the authors summarize some elementary results on ordinary differential equations. In Chapter 2 they present the "quasilinearization method," which, as far as can be determined from this book, is, in fact, Newton's method. The discussion of the validity and applicability of this method is best described as minimal. Chapters 3 through 9 present a number of applications, drawn mainly from the theory of hydrodynamic stability and boundary layer theory, but including also the computation of electrostatic probe characteristics (Chapter 5) and optimum orbital transfer with "bang bang" control (Chapter 8). A computer program is given in Chapter 9. Some of these problems are difficult and important, but the presentation is too sketchy to be understood without extensive prior knowledge. One cannot make sense of, say, the Orr-Sommerfeld equation, with so few mathematical tools. The level of the mathematical discussion throughout the book is extremely low, and this is particularly true of the numerical aspects which the authors claim to emphasize. The prose, always undistinguished, is sometimes incomprehensible.

In summary, it is difficult to imagine for what kind of reader this book has been written; the beginning mathematician or engineer should be referred to standard textbooks on numerical analysis or hydrodynamics, few of which, by the way, he will find in the authors' short bibliography.

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21[7].—CHIH-BING LING & JUNG LIN, *A Table of Sine Integral* Si $(n\pi/2)$, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, and Tennessee Technological University, Cookeville, Tennessee, November 1970, ms. of ii + 4 pp. deposited in the UMT file.

The table announced in the title of this manuscript actually consists of 25D values of $(2/\pi)$ Si $(n\pi/2)$ for $n = 1(1)200$.

For values of n not exceeding 7, full accuracy to 25D was attained on an IBM 1620 computer by use of the standard power series for the sine integral. The corresponding asymptotic series sufficed to yield the desired accuracy for values of n exceeding 35. For the intermediate values of n, recourse was had to power-series evaluation on an IBM 360 system, using a multi-precision arithmetical package supplied by Dr. T. C. Ting.

As a partial check, the values of Si $(m\pi)$ for $m = 1(1)3$ were deduced and successfully compared with the corresponding 15D values in a W.P.A. table [1] of the sine and cosine integrals.

J. W. W.

1. W. P. A., NEW YORK MATHEMATICAL TABLES PROJECT, *Table of Sine, Cosine and Exponential Integrals*, v. 2, 1940, pp. 206–207.

22[7].—T. S. MURTY, *Tables of the Conical Functions* $K_p(x)$, Marine Sciences Branch, Department of Energy, Mines and Resources, Ottawa, Ontario, Canada, ms. of 2 pp. + 120 computer sheets deposited in the UMT file.

The body of this manuscript consists of two tables: the first consists of 8S values of $K_p(x)$, or $P_{-1/2+ip}(x)$ in the standard notation of Legendre functions, for $p = 0.1(0.1)10$ and $x = 1(0.1)10$; the second gives 8S values of the zeros, the corresponding first derivatives, and the coordinates of the bend points of $K_p(x)$, for $p = 0.9(0.1)10$.

An introductory note briefly describes the formulas used in calculating these tables by double-precision computer arithmetic, thereby insuring complete accuracy of the final tabular data, according to the author.

These tables were calculated in connection with the theoretical determination of frequencies for an annular regime of liquid in rotating paraboloidal basins.

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