obtained from the analysis program which uses relaxation methods to solve the mixed elliptic-hyperbolic partial differential equation for flow about a specified shape (direct problem). It is assumed that embedded shock waves will be weak enough to introduce negligible vorticity and, hence, a potential flow model is used. The solution procedure is quite efficient, but numerical instabilities may be encountered for large regions of supersonic flow. In addition, the shock wave jump may be in error since the difference equations are not in conservative form.

Part II of the report is a users' manual describing the input procedures and execution of the program. Program listings and an example case are given. It is intended that the programs may be implemented without understanding the theory of Part I, and experience will tell if this is realizable. There are several aspects of the design program which require "individual skill and ingenuity" for "success." The programs are written in ANSI Fortran IV and designed for a teletype time-sharing system. Several computed outputs are given in Part III to illustrate the versatility of the techniques.

In general, the publication is a laudable effort to implement theoretical research into the design process. One weakness in this respect could be that only sparse information is provided on the experience with other users of the programs or with the limitations of the methods. Future improvements in this regard and in the boundary layer and analysis methods will undoubtedly be forthcoming.

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23 [7].—D. S. MITRINOVIC, *Uvod u Specijalne Funkcije* (*Introduction to the Special Functions*) (in Serbo-Croatian), Izdavacko Preduzeće Gradevinska Knjiga, Beograd, 1972, xi + 188 pp., 24 cm.

At a first glance of the volume under consideration, it would appear difficult to render a faithful review since the book is written in a totally unfamiliar language. By the same token, it would seem that the volume would be of little use to potential readers not acquainted with this language. On closer examination, the language barrier is considerably softened because there is little text, and what little there is is such that the meaning can usually be identified by the closeness of the words to their English counterparts and by the mathematical equations and notation surrounding the text.

The volume, which is divided into eight chapters, is essentially in the form of a handbook, though some proofs are given in sketchy form. On the other hand, numerous results are stated without proof in the principal part of the text or are given at the end of each chapter as a problem. Thus, the tome is ideally suited for self-study or as a pedagogical aid for classroom instruction. The results given are fundamental to the subject and are those which one would normally expect in an introductory text on the subject. A wealth of material is covered. The chapter titles are (1) Gamma Function and Beta Function, (2) Legendre Polynomials, (3) Laguerre Polynomials, (4) Hermite Polynomials, (5) Chebyshev Polynomials, (6) Bessel Functions, (7)

Orthogonal Functions, (8) Laplace Partial Differential Equation and Special Functions, (9) Examination Questions in Special Functions and (10) Tables of Special Functions.

Further comments on the first eight chapters are not required in view of our previous remarks. Chapter 9 is a list of exercises taken from examinations given to students by the Electrotechnical Faculty of the University of Beograd. Chapter 10 contains 5D tables of the basic functions pertinent to the material of Chapters 1–8. Thus, there are tables of the gamma function and its logarithmic derivative, the classical orthogonal polynomials and the various Bessel functions.

A bibliography and notation index enhance the usefulness of the volume.

Y.L.L.

24 [7].—D. S. MITRINOVIC, with the assistance of D. D. TOSIC & R. R. JANIC, *Specijalne Funkcije—Zbornik Zadataka i Problema* (*A Collection of Exercises and Problems*) (in Serbo-Croatian), Naucna Prjiga, Beograd, 1972, xii + 158 pp., 24 cm.

This work contains 375 problems. It can be considered a companion volume to the above reviewed *Special Functions* by the same author. The general remarks made there also pertain here. The first six chapters in both volumes have the same titles. Here, Chapter 7 is a collection of miscellaneous problems.

Except for Chapter 7, each chapter is in two parts. The first part states basic definitions and the second gives problems, all of which can be solved by use of the data in the first part. For the more difficult problems, hints are given and, in certain instances, there are references to the literature. Many of the problems are taken from the problem sections of such journals as Matematicki Vesnik, American Mathematical Monthly and Mathematical Gazette.

Y. L. L.

25 [7].—C. J. TRANTER, *Bessel Functions with Some Physical Applications*, Hart Publishing Co., Inc., New York, 1969, ix + 148 pp., 24 cm. Price $10.00.

I quote the first paragraph from the author's preface: "The classic work on Bessel functions is G. N. Watson's monumental treatise. This great work was completed in 1922 and therefore lacks references to developments in the subject during the last forty-five years. Its high standard of rigour and great size also make it somewhat forbidding to the scientist who is only interested in applications to physical problems. I have consequently attempted in the present book to provide a short up-to-date account of Bessel functions which will be useful to the increasing number of scientists and engineers who encounter these functions in their work."

The volume is divided into eight easily read chapters. The chapter titles are indicative of the material covered and are as follows: 1. The solution of Bessel's and associated equations. 2. Some indefinite integrals, expansions and addition