Theory of Optimum Aerodynamic Shapes, A. Miele, editor. Academic Press, New York, 1965. xix+455 pages. U.S. $16.50.

Subtitled, "Extremal Problems in the Aerodynamics of Supersonic, Hypersonic, and Free-Molecular Flows", this book is a collection of papers by the following authors: A. Miele, G. Drougge, R. E. Pritchard, C. Ferrari, R. T. Jones, A. H. Lusty, Jr., G. V. R. Rao, K. G. Guderley, J. V. Armitage, W. D. Hayes, D. G. Hull, J. D. Cole, A. J. Eggers, Jr., E. Large, A. E. Bryson, Jr., G. G. Chernyi, A. L. Gonor, G. R. Saaris, R. Bellman, Hao Sung Tan.

Stability of Motion, by Wolfgang Hahn. Springer-Verlag, New York Inc., 1967. U.S. $19.80.

It is a common and often disreputable practice among technical book reviewers to quote at length from the books they review. However, every so often a truly first rate book is written on some topic and, in this reviewer's opinion, the author, who laboured over the manuscript, can express the purpose of the book more clearly than this hack, who is reviewing the book just to save $19.80. Professor Hahn's book is indeed a first rate introduction to the theory of stability of motion and I shall let him explain its purpose himself. The following is quoted from the preface:

"The theory of the stability of motion has gained increasing significance in the last decades as is apparent from the large number of publications on the subject. A considerable part of this work is concerned with practical problems, especially problems from the area of controls and servo-mechanisms, and concrete problems from engineering were the ones which first gave the decisive impetus for the expansion and modern development of stability theory.

In comparison with the many single publications, which are numbered in the thousands, the number of books on stability theory, and especially books not written in Russian, is extraordinarily small.

Books which give the student a complete introduction into the topic and which their applications to practical questions are completely lacking (sic). I hope that the book which I hereby present will to some extent do justice to this double task. I have endeavored to treat stability theory as a mathematical discipline, to characterize its methods, and to prove its theorems rigorously and completely as mathematical theorems. Still I always strove to make reference to applications, to illustrate the arguments with examples, and to stress the interaction between theory and practice.

The mathematical preparation of the reader should consist of about two to three years of university mathematics. Here and there a few fundamental concepts of the theory of metric spaces are needed, but I have formulated the arguments in such a way that the reader can usually find an interpretation in n-dimensional Euclidean space. On the whole I limited the selection of materials mainly to the stability of motions in Euclidean space, particularly since the majority of applications are concerned with such motions. But I have stated the basic definitions of stability and proved a number of criteria in a general form, and pointed out take-off points for further investigations, as for instance in the theory of differential equations and difference equations."

Richard Datko, McGill University.

Nonlinear Programming, by H. P. Künzi and W. Krelle, in collaboration with W. Oettli. Translated by F. Levin. Blaisdell Publishing Co., Waltham, Mass. 1966 xiv + 240 pages. U.S. $8.50.

Since the appearance of Kuhn and Tucker's basic paper in 1951 (in the Proceedings of the Second Berkeley Symposium on Mathematics, Statistics, and Probability) research in nonlinear programming has been going at a fairly rapid rate. However, in contrast to the well-developed theory of linear programming which has resulted in several excellent monographs and texts, few connected accounts on the status of nonlinear programming have appeared. The present book, which would appear well suited both as a reference and text, is one of the first to fill this gap.