



## Management Science

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## European News

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## EUROPEAN NEWS

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*Editor: Peter Mark Pruzan, Institute for Mathematical Statistics and Operations Research, Technical University of Denmark, Kgs. Lyngby, Denmark.*

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### **MC/E Seminar on Systems Analysis and the Computer**

A Management Centre/Europe seminar on systems analysis was held in Brussels, Belgium on August 1-3, 1966. Topics covered included: Organization and management of the data processing and systems function, data systems analysis, documentation and reports, implementation and conversion to data processing operations, current developments in EDP systems and their impact on management.

For further details, contact Management Centre/Europe, 62 Rue Royale, Bruxelles 1, Belgium.

Reported by Peter Mark Pruzan

### **O.R. Seminar in Germany**

A seminar on Operational Research Methods and Applications was held in Bad-Godesberg from July 18-25, 1966. The seminar was organized by the International Association of Students of Economic and Commercial Sciences.

Reported by Peter Mark Pruzan

### **Seminar in Turkey on Decision Problems in Agricultural Development**

A seminar on Decision Problems in Agricultural Development was held at Ankara and Uludağ, Bursa, Turkey, from 12th to 23rd September under the auspices of the NATO Committee for Scientific Affairs. The seminar aimed at treating the problems connected with decision theory and its applications in agricultural development with particular emphasis on investments in irrigation and drainage projects and their management. Transportation and general economic problems in connection with the development of an agricultural region was also taken up. The panel consisted of: M. Beckmann, N. Buras, R. Clement, R. Dorfman, R. M. Hagan, A. Jensen, M. Kendall, L. J. Mosterman, K. Özal.

For further details contact the organizers of the seminar, Professor, dr. Korkut Özal, Middle East University, Ankara, Turkey, and Professor, dr. Arne Jensen, Institute of Mathematical Statistics & Operations Research, Technical University of Denmark, Lyngby, Denmark.

Reported by Peter Mark Pruzan

### **U.S. and Czechoslovak Scientific Exchange**

The U. S. National Academy of Sciences and the Czechoslovak Academy of Sciences announced recently the beginning of a three-year exchange program, providing for visits ranging from one month to one year by individual scientists of the two countries to lecture, exchange professional views, and conduct research.

The new program is the fourth to go into effect this year between the U. S. Academy and one of its sister institutions in Eastern Europe; earlier, similar arrangements were concluded with the Council of the Academies of Yugoslavia, the Polish Academy of Sciences, and the Academy of the Socialist Republic of Romania. The U. S. Academy also participates in an exchange program with the Academy of Sciences of the U.S.S.R.

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## B O O K R E V I E W S

*Editor: Philburn Ratoosh, Center for Research in Management Science, Stephens Hall, University of California, Berkeley, California 94720.*

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DREYFUS, STUART E. *Dynamic programming and the calculus of variations*. New York: Academic Press, 1965, \$9.00, 248 pp.

Dynamic programming provides a unified and intuitive approach to the calculus of variations. Dr. Dreyfus presents this approach with signal clarity in an eminently readable book. The book's tone is casual and provides a quick and easy introduction to the calculus of variations. Only a background in elementary differential equations is needed to grasp the concepts. This reviewer highly recommends the book to anyone desiring a brief but meaningful discussion of that branch of mathematics known as the calculus of variations.

The question of whether a practicing management scientist or operations researcher should read the book is harder to answer. In the first paragraph of the preface reference is made to finding "the underlying rules of behavior in economic, military, social, and biological processes." Except for this first paragraph at no other place in the book is there any discussion of these processes. In fact, at no place in the book is there any example relevant to management science. The book will most likely disappoint the management scientist seeking to learn how to apply either the calculus of variations or dynamic programming to his problems. However, it must be emphasized that any such disappointment is not necessarily the fault of the book. The book does not purport to teach applications or even how to apply theory.

Perhaps one reason why the book lacks value to the practicing management scientist or operations researcher is that very few management science applications of the calculus of variations or of optimal control theory, which is also discussed in the book, have appeared in the literature. This is not to say that no such applications exist, but that so far they have been sparse. The calculus of variations, of course, is an optimization technique and as such is related to linear or non-linear programming. The key difference is that the calculus of variations seeks a function to maximize a criterion, usually an integral criterion, while programming seeks a finite dimensional vector that optimizes a function. Certainly finding a function is more difficult than calculating an  $n$ -dimensional vector. Obtaining solutions to even moderately complex problems in the calculus of variations or optimal control theory is often an extremely arduous task. On the other hand, linear pro-