PUBLICATIONS

The publications section is intended to serve the need for information on the various forms of published material concerning mathematical programming and related subjects. Contributions of books for review, signed book reviews, bibliographies on special subjects, titles of technical reports and doctoral dissertations should be sent to the Publications Editor: Professor Richard W. Cottle, Department of Operations Research, Stanford University, Stanford, California 94305, U.S.A.

(Although it is not our policy to invite the author or editor of a book being reviewed to comment on the review, it seemed appropriate to make an exception in this case. The reviewer gave his kind consent to this arrangement. – R.W.C.)

Proceedings of the Princeton Symposium on Mathematical Programming, Edited by Harold W. Kuhn, Princeton University Press, Princeton, New Jersey, 1970, 620 pages.

According to the editor of these proceedings, 1947 was the year of the birth of mathematical programming. This would imply that one-eighth of its lifetime was spent waiting for the belated appearance of this volume, which contains complete versions of thirty-three papers which were presented at the Princeton Symposium in the fall of 1967, a complete version of a reprint, and abstracts of most of the other papers. The lateness of this publication is so notable that it would simply be dishonest to sweep this point under the rug. Clearly there is a suggestion of insouciant neglect about publishing a volume of this nature so late that of the four major conferences devoted to mathematical programming which followed the one in Princeton (Keele, Bandol, Madison, and The Hague), the proceedings of three of them were in print *before* this volume. The lateness of appearance suggests that publication of the papers was a mere extraneous formality – something done perfunctorily for the record, so to speak. Moreover, the late date raises

an obvious economic concern: the consumer might well have cause to wonder whether or not the volume has been outdated. This does not appear to be the case. The explanation for this, partially, stems from the fortunate fact that research in mathematical programming is more a manifestation of random motion than of any concentrated effort on a few problems. This reflects, first, the applied emphasis of the discipline, and, second, the fact that the discipline has become quite broad — broad enough to tolerate a considerable amount of self-styling (although it must be conceded that selfstyling can often lead to unfashionable results). In any case, it is gratifying to report that most of the papers in this volume present new contributions which do not appear to be subsumed by later works.

The thirty-three complete papers are grouped into the following eight parts and appear in alphabetical order by author in each part:

Part I   Large Scale Systems (4 papers)
Part II   Programming Under Uncertainty (5 papers)
Part III   Integer Programming (6 papers)
Part IV   Algorithms (4 papers)
Part V   Applications (4 papers)
Part VI   Theory (3 papers)
Part VII   Nonlinear Programming (5 papers)
Part VIII   Pivotal Methods (3 papers)

These headings are slightly misleading. Although Part VII is called nonlinear programming, almost all of the papers other than those in Parts I and III deal with nonlinear programming problems. Also, although there are only three papers in the section under algorithms, at least fourteen papers can be counted which are directly concerned with algorithms for problem solving. As one might suspect, many of the contributors to these Princeton meetings have also contributed to the proceedings of the Keele, Bandol, Madison, and The Hague conferences. However, in many ways this volume differs considerable from the others. Conspicuously missing from this volume are the numerous survey papers one has become accustomed to seeing at other meetings, although a 1965 survey of integer programming, written for *Management Science* by Michel Balinski, is reprinted in full in this volume. Also missing are papers on penalty function techniques. It is difficult to understand why the two penalty function papers, of which only the abstracts appear, were not published in full. One of these papers was by Fiacco and McCormick, the other by Murray. Finally, except for a

paper by Ben-Israel, there is a noticeable lack of emphasis on unconstrained optimization. On the other hand, the Princeton volume is fairly strong in large scale systems, stochastic programming, integer programming, and complementary pivot theory, including papers in these areas by Abadie, Dantzig, Kirby, Williams, Balas, Balinski, Zoutendijk, Lemke and Cottle. There is also considerable reporting on applications, particularly if one considers the abstracts.

On the whole, these proceedings provide a valuable reference and their appearance is an important contribution to the mathematical programming literature. However, the reader should possess a certain amount of aesthetic tolerance. The print is not easy to read. The format is not attractive.

F. J. Gould

Comments

There can be no quarrel with the basic point made in the review above: the Proceedings of the Princeton Symposium on Mathematical Programming were very late in appearing and I bear the entire responsibility. However, it should be noted that a positive lesson was learned from this experience. After twenty years of informal symposia and erratic publication (there is no record of the symposium in London in 1964), the decision was taken to found a society to arrange future meetings and to publish the journal Mathematical Programming. Thus, in the future, no one will be confronted with the problem that faced me in September of 1967, namely over 400 registrants returned home, over 90 papers to process for publication and no institutional resources to help with the job.

This occasion gives me the opportunity to solve another problem. Every paid registrant at the Princeton symposium is entitled to a free copy of the Proceedings (and more than 350 have already been mailed). Multiple mail enquiries have left a number of registrants still not located. Their names follow:

S.R. Alpern, J.C. Arinal, J.O. Beamer, L. Benson, A.R. Blenk, Verle Brown, M.L. Chambers, D.W. Clark, K.E. Cross, H. Dahlbeck, R.H. Fariss, L. Feigin, M.J. Garvey, Jr., J.R. Hemsley, S. Hitotumatu, B. Hull, Miss D.I. Hsiung, R.N. Hutton, K. Hoshi, J.F. Allen, P.L. Kadakia, P. Kall, J.P. Kohli, Raymond M. Kramer, J.L. Kreuser, S.C. Lockhart, B. Malamud, Y. Oishi, J.L. Parker, N.S. Prasad, J.D. Reiss, J. Rentzler, E.V. Schuman, J. Schwartz, T. Tromba, Emily Turner, A. Vagts, R.T. Wainwright, W.G. Welter, T.R. White.

Anyone knowing the address of any person on this list should send it to: Mathematical Programming Symposium, Box 37, Princeton, N.J. 08540, U.S.A. A copy of the Proceedings will be mailed *promptly* upon receipt of the address.

Harold W. Kuhn