

OPERATIONS RESEARCH

An Annotated Bibliography

by

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Volume 4



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PREFACE

This volume continues the series Operations Research An Annotated Bibliography to include material published through 1961, including references and annual additions to material previously published, and follows essentially the same plan. The criteria for inclusion has been that the author or editor has indicated that the work concerns Operations Research or that it has been cited in support of such work as fully detailed in the preface to the preceding volumes. This includes all articles from all operational research journals contained in the list of abbreviations.

The intention remains to include all articles on or related to operations research, liberally construed to include the various equivalent terms (not all generally so accepted). Related specialties such as cybernetics, linear programming, queueing, and the like, already the subjects of separate bibliographies, are in general omitted except where actually used in operations research, as are purely mathematical derivations and proofs unless given a solution to a specific operational research problem or type. Some exceptions have seemed desirable.

The abstracts aim to present in condensed form an adequate indication of the author's objective, nature of the problem, approach adopted, the mathematical or other techniques used or suggested, and the results obtained. This provides sufficient information to select for direct consultation the papers pertinent to the interest of the reader whether professional or layman.

Readers and authors will confer a favor by calling attention to any errors or omissions noted so they may be corrected.

James H. Batchelor

Chris N. Athans

Saint Louis
June, 1963

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EXPLANATION

Helps To The User

Entries are in the following form:

AUTHORS' FULL NAME(S) - Title of article or Book
(translation of title) (Publication data of separates)
Periodical references to serials
Abstract. Complex mathematical formulas are usually omitted for simplicity. They are to be found in the original article. Abstracts in other than English or French are usually translated. Number of references
Reviews, comments, and other annotations.

The contents of the volume are arranged in three sections: subsequently published additions to entries in the previous volumes; abstracts 8320 through 9838 comprising the body of the work; and an index. Following the index is a list of errata applying to this and previous volumes already published.

Subsequently published additions to entries in volumes 1 through 3 are arranged in numerical order, using the same serial number of the original entries to which the additions belong.

Entries beginning with 8320 are arranged alphabetically by primary author, journal or institution. Diacritical marks in foreign languages have mainly been eliminated.

The index, arranged alphabetically, contains separate entries for secondary authors; titles of books, articles or papers (omitting the definite or indefinite article); subject; and entries descriptive of the content, which may be helpful.

Authors of abstracted articles listed in the index are made in all capital letters. Reviewers are in lower case letters, unless the reviewer is also an author, in which case the entry is made in all capital letters.

Titles of articles are identified through underscoring, while subject matter of the index is not underscored.

Since the additions are in three separate alphabetical groups as alphabetized in Volumes 1, 2 and 3, through using a continuous numerical sequence, it is felt to be advantageous to the user to list all authors of these additions, together with the titles of the articles, in this index.

To locate a particular known article, search the index in the following manner:

1. Title of the article
2. Name of one of the multiple authors
3. Some principal word of the title

To find an unknown article, or explore an area, select a probable subject or related subjects and search the index.

The index is in a single alphabetical order showing authors, titles and translations of titles, and other index subjects. --
This usually will locate quickly the reference desired.

ABBREVIATIONS

APFO	Ablauf - und Planungsforschung (Operations Research) (Germany)
BCORS	Bulletin of the Canadian Operational Research Society
BCRO	Bolletino del Centro per la Ricerca Operativa (Italy)
BORSA	Bulletin of the Operations Research Society of America (Supplement to the Journal of the Operations Research Society)
CCERO	Cahiers du Centre des Etudes de Recherche Operationnelle (Brussels)
IAOR	International Abstracts in Operations Research
IJASTM	International Journal of Statistical Abstracts, Theory and Method
JORSJ	Journal of the Operations Research Society of Japan
MR	Mathematical Reviews
MS	Management Science
na	Not available
NRLQ	Naval Research Logistics Quarterly
ORA	Operations Research Association (Bangalore) News Letter
OR JORSA	Operations Research The Journal of the Operations Research Society of America
OR/MS	Operations Research/Management Science
ORMS (JUSE)	Operations Research as a Management Science (Japan Union of Scientists and Engineers)
ORQ	Operational Research Quarterly

RBSGRO-BTWBOO	Revue Belge de Science de Gestion et de Recherche Operationnelle - Belgisch Tijdschrift Voor Wetenschappelijk Bedrijfsbeheer en Operationeel Onderzoek
RFRO	Revue Francaise de Recherche Operationnelle
RRO	Revue de Recherche Operationnelle
UFO	Unternehmensforschung (Operations Research)

ADDITIONS TO ENTRIES IN PRECEDING VOLUMES

OPERATIONS RESEARCH

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Interview and comment by William B. Wolf - Chapter I. Barnard (1886-1961), in Journal of the Academy of Management, Dec 1961, 4:3:167-173

1661 FRIEDRICH HANSSMANN - Determination of optimal capacities of service for facilities with a linear measure of inefficiency

OR JORSA, Oct 1957, 5:5:713-717

Comments by Anthony Mediate, Stanley Zions in OR JORSA, Nov-Dec 1961, 9:6:900-901. Presents a corrected version of Table I and some other observations.

1740 I. N. HERSTEIN, J. W. MILNOR - An Axiomatic Approach to Measurable Utility (P-319 The Rand Corporation, Aug 12, 1952) 10 pp

2424 R. DUNCAN LUCE, HOWARD RAIFFA - Games and Decisions: Introduction and Critical Survey (John Wiley & Sons, Inc., New York, 1957) 509 pp \$8.75

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Behavior) (Physica Verlag, Würzburg, 1961) xxiv + 668 pp DM 65.00

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Review by K. Pracher in UFO, 1959, 3:2:94

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4821 W. E. DUCKWORTH, J. K. WYATT - Rapid statistical techniques for operational research workers

ORQ, Sep 1958, 9:3:218-233

- Metodi statistici rapidi per: ricercatori operativi

(Traduzione del G. I. Rossi) *Rivista di Ingegneria*, Dec 1959, -:12:1-8

An Italian translation of the original article.

4874 JOSEPH H. ENGEL - Operations research for the U. S. Navy since World War II

OR JORSA, Nov-Dec 1960, 8:6:798-809

Presents a summary of the major trends in the U. S. Navy's operations research program. Reviews World War II history briefly and the establishment of the operations evaluation group - MIT, which has provided services to the Navy in its fleets, evaluation units, and in the Office of the Chief of Naval Operations, with the problems considered increasing in scope and complexity. Concludes, from 16 years of experience, that a centrally organized group having close ties with an academic institution can provide valuable advice on military questions with the necessary flexibility to handle long-range, as well as emergency problems.

4877 STEPHEN ENKE - Economics and operations research: a symposium, followed by An Economist Looks at Air Force Logistics

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Journal of the Society for Industrial and Applied Mathematics, Dec 1959, 7:4:413-424

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Biometrika, Dec 1959, 46:3-4:420-425

Review by G. Newell in MR, Jan 1961, 22:1B:99

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Review by J. W. Grove in Public Administration, Summer 1960, 38:-:184-185

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Biometrika, Dec 1959, 46:3-4:400-411

Abstract by D. G. Kendall in MR, Apr 1961, 22:4B:524

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ORMS (JUSE) Oct 1956, 1:3:24-25 (in Japanese)

An increasing number of out-patients have recently come to have a longer wait than ever on every stage of their treatment in hospitals. Hospital management calling for better service to patients, the reduction of waiting hours, is very important. The usefulness of the queueing theory as applied to this subject is discussed, and findings presented by Dr. Bailey and Mr. Yoshitake are introduced.

5285 TAROW INDOW - OR-style control of psychological test scores

ORMS (JUSE), Oct 1956, 1:3:6-11 (in Japanese)

A mathematical method which yields any desirable form of distribution of test scores by selecting an appropriate set of items (each of which is answered correctly or incorrectly) is illustrated, and its possible application to operations research in personnel administration is discussed.

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Corrections by L. V. Kantorovich in Doklady Akademii Nauk, SSSR, 1958, 118:1054

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256 pp paper \$4.00

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Review by Daniel Teichroew in The Journal of Business, Apr 1960, 32:2:183-184

5856 TAKEO MURAKAWA - How to calculate capital asset investments

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ASME and NMTBA models are used in the metal working industry. Cost comparison and capital recovery methods as well as MAPI models are generally used in the industry

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ORMS (JUSE), Dec 1956, 1:4:10-15 (in Japanese)

The possible distribution of ore production by grade at various dates in the future is obtained by grouping ore quantities and qualities by unit period in the past, and ore production and the effects of investment in exploitation in the future are forecast.

5951 YOSHITSUGU OHMAE - Determining the checking period in equipment maintenance

ORMS (JUSE), Aug 1956, 1:2:25-26 (in Japanese)

In a number of equipment, any breakdown cannot be found until checking is done. The method of determining the checking period for such equipment so that checking cost and loss due to breakdown may be minimized, is developed on the basis of probability theory. Considers the utility of priority checking for breakable equipment.

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Abstract by Y. Suzuki in IJASTM, 1961, 2:1:7-8
- 6242 MAURICE SASIENI, ARTHUR YASSPAN, LAWRENCE FRIEDMAN - Operations Research--Methods and Problems (John Wiley & Sons, Inc., New York, 1959)
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A German translation of the original.
- 6303 L. S. SHAPLEY - Equilibrium points in games with vector payoffs
NRLQ, Mar 1959, 6:1:57-61
Review by P. Wolfe in MR, Jan 1961, 22:1B:99
- 6429 EIICHI SUZUKI - Weather forecast and OR
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Several case studies in the actual utilization of weather forecast (warning against early frost, etc.), are presented. Discusses optimal procedures in connection with the socially uncertain information, such as weather forecast. The suitability modified information theory and LP are very suggestive for this purpose.
- 6447 TETSURO TAHARA - Life of salary-earners in the light of monthly installment sales statistics
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- 6690 J. WOLFOWITZ - Strong converse of the coding theorem for semi-continuous channels
Illinois Journal of Mathematics, 1959, 3:4:477-489
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- 6860 ARJAN BHATIA - A mathematical model for production scheduling in the aircraft industry

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Journal of Industrial Engineering, Sep-Oct 1960, 11:5:383-388

Develops a mathematical model for the generation of different schedules and for the analysis of the effects of production scheduling on manpower requirements and in-process inventory.

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Comment by William W. White in OR JORSA, Mar-Apr 1961, 9:2:274-276