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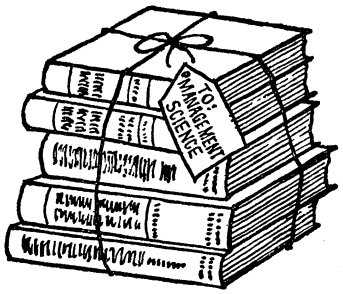

BOOK REVIEWS

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On Book Reviews

Book reviews in professional journals might fulfill different functions and it is not obvious which particular ones they ought to fulfill. The difficulty of determining a proper role for book reviews is exacerbated for a journal such as this one, which covers a broad spectrum of knowledge and which has a fairly diverse group of readers. No single statement of a philosophy underlying book reviews can possibly satisfy everyone. Still, there should be some advantages in stating the intentions of the new book review editor of this journal. The following statements represent the editor's position:

1. All books of direct interest to a sizable segment of the readers ought to be reviewed. While this is the objective, it is obviously unattainable in practice. In particular, publishers cannot be relied on to send relevant books to the journal for review. Large numbers of books of importance to management science have not been reviewed in the journal in past years. The editor will attempt to locate and to have reviewed all relevant books.

2. No books will be reviewed or listed as received if they are not of direct interest to a major segment of the readers. The fact that a publisher sends the book for review is surely not sufficient reason.

3. Books are to be reviewed solely from the point of view of the readers of the review. Reviews are *not* for the benefit of the author of the book reviewed. This entails the following consequences:

   a. Lists of printing and other minor errors should not be part of a review. It is the author's responsibility to prepare an errata sheet for his book, not the reviewer's. Anyone who has ever dealt with printers knows that it is nonsense to assume that there is any relationship between such errors and the quality or usefulness of the book. On the other hand, the readers of a review will assume the good faith of the reviewer. He does not need to accumulate Eagle Scout points by listing errors.

   b. Minor substantive errors should not be part of a review. Even grand-

masters in chess miss an occasional mate in two. Errors are relevant if and only if, in the opinion of the reviewer, the usefulness of the book is adversely affected by their presence. A review is not a game of oneupmanship between the author and the reviewer.

c. The table of contents of the book should not ordinarily be part of the review. It is not necessary for the reviewer to comment on each section of the book. It is the publisher's responsibility to provide a prospectus for the book. Interested readers of the review have a variety of ways in which they can get more detailed information if they so desire.

d. A review should be a conscientious attempt on the part of the reviewer to assess the major merits and deficiencies of a book; to relate the book to the needs of the readers of *Management Science*; to compare and to contrast the book, when appropriate, to other works in the same area, and to reach a value judgment as to the likelihood that some specified segment of the readers will want to use or own the book.

e. The review should be concise. Its length should bear some relationship to the reviewer's assessment of the importance of the book.

KLÍR, J., AND M. VALACH, *Cybernetic Modelling*. Princeton, New Jersey: Van Nostrand Company, 1967, $11.40, 437 pp. (Translated from the 1965 Czech edition by P. Dolan, and edited by W. A. Ainsworth.)

Cybernetic Modelling is an up-to-date, well written and translated introduction to cybernetics and some of its applications. The authors' definition of their subject matter is representative of the current consensus among cyberneticians. For them, "Cybernetics is a science dealing, on the one hand, with the study of relatively closed systems from the viewpoint of the interchange of information with their environment, and on the other hand with the study of the structure of these systems from the viewpoint of the information interchange between their elements." The book is addressed to scientists working in diverse fields, particularly biologists, engineers, and psychologists. The use of mathematics is minimal, although most of the book requires from the reader a certain mathematical maturity in order to follow and enjoy the discussion.

The book is divided into three parts. The first introduces the basic concepts of systems, information, and modelling. The definition of cybernetics and the cybernetic approach to the study of systems are discussed, and different abstract and physical aids to modelling are presented. Digital computers and Boolean logic nets receive particular attention as modelling aids. The second part consists of a brief introduction to the study of biological systems from the cybernetic viewpoint. It is addressed to engineers, but biologists unfamiliar with cybernetics will find it interesting. The last part of the book is devoted to some studies in cybernetic modelling, with emphasis on the analysis of higher types of system behavior and modelling of living organisms by inanimate systems. Perception and its disorders in man and machine are discussed, and a long chapter is devoted to the treatment of language as a means of communication between them. The design and operation of computer visual sensors are discussed in a separate

chapter. The book is concluded with an analysis of the relation between living and highly organized inanimate systems.

The applications of cybernetics presented are mainly related to biology, psychology, and linguistics. Other applications, for instance, to sociology, economics, and management science are not discussed. But at the current stage of development of cybernetics, it would certainly be impossible to discuss all its applications in a single volume. Workers in different fields will be able to use the general concepts provided and to adapt without difficulty many of the applications suggested. (Incidentally, also in 1965 an introductory book on economic cybernetics was published in the same language by O. Kýn and P. Pelikán, under the title *Cybernetics in the Economy*; a brief summary of this book was published in English by the authors in *Czechoslovak Economic Papers*, No. 5, 1965, pp. 119–128.)

The authors are to be congratulated for their contribution to the literature. Together with Ashby's classics—which it complements—*Cybernetic Modelling* provides a first-rate introduction to the subject.

E. R. Arzac
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WILDE, D. J. AND C. S. BEIGHTLER, *Foundations of Optimization*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967, $12.50, 480 pp.

The authors have put together a very useful and well-organized sequence of expository material on the techniques of optimization, and have also contributed some new material. A few years ago, a great deal of this subject matter might have been given some such title as "The Calculation of Constrained Extrema." The advent of linear and nonlinear programming, however, has justified a more modern point of view and a more current terminology.

The classical techniques are skillfully blended into the latest results in linear programming, and attention is devoted to empirical approaches and multivariate problems. Dynamic programming and network flow are treated in considerable depth and breadth. There is also a very interesting chapter on polynomial inequalities.

This appears to be a very worthwhile upper-division or graduate textbook (problems are given at the end of each chapter) on the topic, especially since the authors have consciously attempted to emphasize "clarity and plausibility." Nonetheless, the authors have maintained a high level of mathematical maturity throughout—this is definitely not in the category of management-oriented "how-to-do-it."

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CATEORA, PHILIP R. AND LEE RICHARDSON (eds.), *Readings in Marketing: The Qualitative and Quantitative Areas*. New York: Appleton-Century-Crofts, 1967, $4.25, 462 pp.

COX, KEITH K. (ed.), *Readings in market research*. New York: Appleton-Century-Crofts, 1967, $3.95, 386 pp.

Readings in Marketing (*RM*) and *Readings in Market Research* (*RMR*) are collections of journal articles which are intended to be supplementary texts for managerial marketing and marketing research courses. These two volumes will be a welcome sight to any instructor who has struggled to get a sufficient number of journal reprints put on reserve for his students. *RM* contains forty-three articles and *RMR* has thirty-two. The mere collection of the seventy-one articles (four appear in both) into two readily accessible volumes makes these two books very useful additions to the marketing literature.

Of course it is not feasible to review, or even mention, all of the contributions. Therefore to give the reader some idea of the coverage we will list the title of one article from each area. *RM* contains: "The Concept of the Marketing Mix," "Who'll Boss the Computer?" "Anthropology's Contribution to Marketing," "The Significance of Social Stratification in Selling," "New Criteria for Market Segmentation," "Linear Programming for Merchandising Decisions," "Practical Media Models—What Must They Look Like?" "Bayesian Decision Theory in Pricing Strategy," and "The Future Challenges Marketing." Eighteen of the articles are from the *Journal of Marketing* or the *AMA Proceedings*.

RMR includes: "Put Research into Marketing Decisions," "Sampling in Market Research," "How GM Measures Ad Effectiveness," and "Behavioral Models for Analyzing Buyers." Twenty-four of the thirty-two articles are from either the *Journal of Marketing* or the *Journal of Marketing Research*.

These collections of readings are just that—the editors have done very little extra work. *RM* has a five very short (approximately 200 words) descriptions at the beginning of each section. *RMR* has a twenty-five word description above each article. However, this reviewer feels that the editors have done a good job in the selection of articles.

These two volumes will be extremely useful to marketing personnel in industry who do not wish to hunt through many different journals to obtain a knowledge of the current thinking in marketing. Marketing teachers and students will find *RM* and *RMR* very handy supplementary texts.

Donald G. Morrison
Columbia University

HAGA, ENOCH, *Automated Educational Systems*. Elmhurst, Illinois: The Business Press, 1967, $15.00, 343 pp.

The stated purpose of this collection of papers is "to present to school administrators, educators and students in colleges of education, an overview of where we stand today in planning and implementing automated systems for both administrative and instructional applications." My opinion is that the book will not clarify the subject for those involved in either the administrative or the instructional areas of education because it exemplifies two general weaknesses of the published work on computer applications:

1) The quality and depth of information communicated is uneven, telling more than we need or want to know about some things and not enough about others. For example, we are given detailed procedural outlines

for organizing and staffing educational data processing centers but little direction on what data should be collected and stored there.

2) At the same time a wide range of potential computer functions are lumped together with no linking or interpretive comment. The implication that the casual reader is most likely to draw from such a pot pourri—that all computer applications are equally useful and feasible—is a false and dangerous one. It simply does not follow that because automating the payroll or class scheduling has been found to raise the efficiency of administering a school, the efficiency of computer-based instruction is similarly established. There is need for greater clarity about what things we can now handle well and what things are still in the earliest stages of development and experimentation.

Part I of the book, "Concepts and Patterns," combines two types of papers. The first four are a defense of electronic data processing. The argument for using computers in certain areas of education now seems beyond dispute, and R. E. Smith's exposition of "Ten Values of the Utilization of Computers" is clear and convincing. However, the formulation of the currently fashionable "total systems" concept, which constitutes whatever unifying theme the book possesses, struck me as weak. Of course, conversion of existing procedures on a piecemeal basis, without taking account of the structure and needs of the school or school system in question, is to make less than full use of the potentialities of high speed data processing equipment. On the other hand, the educator is unlikely to "take the bold strides necessary to actually develop and implement a total information system for education" without a much more sophisticated and specified model than is presented here. One fears that total information system may be one of those concepts that everyone feels compelled to use and support but that is seldom translated in terms of the specific components and functions of real-life educational systems.

The second four papers present recommendations for organizing educational data processing centers and information services at the national, state and regional levels. (One wonders why after the very clear exposition of the regional center by Robert Howe, a second four page "case" for the same kind of center is also included.) Again, one cannot argue with the need for such centers. Lorne H. Woollatt, author of the paper on state information centers, sums up the present situation precisely: "At the present time, educators do a less than adequate job of reporting to the public about schools; in addition, legislators, administrators and researchers are hampered by a lack of related, reliable and timely data." Likewise, coordination and routinization of procedures for collection, processing and disseminating information are clearly called for, and these papers include what appears to be a sensible set of procedures for carrying out these activities. What one wishes for is more consideration of *what* information is to be collected, processed and disseminated. The Woollatt paper contains the only proposed list and it illustrates the source of our inability to do honest evaluations of students' progress in most schools. As Peter Schrag discovered in attempting to collect relevant information in the Boston public school system:

> **Every major school department issues mountains of statistics on enrollment, on the number of teachers and students, school lunches served, classes for the handicapped, costs of transportation, attendance and truancy, and on almost everything else that does not relate to actual performance. But to get the mean reading scores for a particular school or district, to determine accurately the number of dropouts and to learn what they do after they leave school, even to discover how well a particular school does in placing the graduates of its vocational programs—to learn these things is like dealing with the secret police. (Peter Schrag, *Village School Downtown*, p. 178-179.)**

Increasing the flow of information which does not answer questions teachers and other users are asking will only compound our ignorance about the efficiency of our schools' performance, and will discourage more educatoral decision-makers from trying to incorporate statistical data into their judgments and planning.

Part II, "Applications and Techniques," is the more interesting section of the book to read. The first papers make clear that a well-designed data-processing service can take over a whole series of clerical and technical tasks that formerly took up a great amount of the school administrator's time and energy. The pair of papers co-authored by Orland F. Furno, on automated pupil accounting procedures and scheduling, serve a double function. By laying out in flow diagram form the sequence of activities required, along with a number of actual sample record forms, the papers also allow the reader to consider the more general issue of what is gained and lost by automating a given administrative procedure. (For example, in the case of scheduling, the advantages clearly seem to outweigh the problems; in fact, the computer really allows greater flexibility with respect to change of course choices, class balance and allowing students to exercise section preference.) On the graduate level, the course in computer-based instruction developed by Gloria and Leonard Silvern is well described and points to another promising area that has not been given the attention it deserves. More examples of the actual curriculum materials developed by the Silverns would have been helpful.

One can only second Merle W. Wood's plea for adding courses in data processing at the high school level. In an age in which jobs in this field are going unfilled while thousands of youngsters are either killing time in school or are already unemployed dropouts, purely practical consideration should lead us to offer students a view of this whole new area of the labor market. Wood also shows how such courses can be developed with a minimum of equipment and other expenses.

Though the point is nowhere made as such, the papers as a whole illustrate the great diversity in the level of development of the different areas of computer applications to education. In clerical and accounting areas, the value of automated procedures is clear. In the instructional area, the teaching of programming and machine operating skills should be much more extensive than it now is. In the academic curriculum—as the absence of papers in this book testifies and as a display of educational "hardware" and "software" such as the annual conference and exhibit on education and training sponsored by the American Management Association makes clear—we are still in the most primitive stages of development.

A final comment is that the book is ridiculously overpriced. With books of the generally high level of Don Bushnell and Dwight Allen's *The Computer in American Education* available at $3.95, $15.00 for a 343 page book of much lesser quality seems a poor investment.

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BROWN, ROBERT G., *Decision Rules for Inventory Management.* New York: Holt, Rinehart and Winston, 1967, $9.95, 398 pp.

This is an attractive book. Dr. Brown's extensive experience as Director of Inventory Control Studies for Arthur D. Little, Inc., is reflected in the notably successful problem orientation of the book. Mathematical arguments are offered when necessary. Generally no more than calculus is needed to follow them. But no one should be dissuaded from reading the book because of lack of calculus. The text which supports the arguments is a model of clarity. Dr. Brown deals with a variety of sophisticated lot size formulations, forecasting problems, quantity discounts, centralized safety stocks, control systems, and a host of other kinds of inventory problems. His approach to these questions is unique and his book has a pleasantly distinctive flavor.

Dr. Brown has chosen to write his book around the case history of a company, including character studies of key individuals, occasional dialogue, and so forth. Tastes differ concerning this kind of presentation. As Sir John Herschel said in a review of Quetelet on probabilities (*Edinburgh Review*, July, 1850): "The objection is general against all such artifices of communication as letters—dialogues—catechisms, etc., if the subject be a scientific one and the object of the work didactic. They are like pebbles in the bed of a stream, which may make it sparkle and please the eye and ear when the thought is but loosely engaged. But the welling waters of scientific lore should be clear, glassy, and unrippled, offering their inmost depths to a quiet and contemplative gaze, and neither distracting by murmurs nor dazzling by irregular reflections." Sir John, as usual, had a point.

But whether one likes or not the case approach, this is an excellent book with flair and intellectual style. Practitioners will certainly want to read it and teachers will want to consider it for a text.

David W. Miller
Columbia University

Quantitative Sports

COOK, EARNSHAW, *Percentage Baseball.* Cambridge, Mass.: The M.I.T. Press, 1966, $3.95 (paperback), 417 pp.

MEADE, GEORGE P., *Athletic Records: The Whys and Wherefores.* New York: Vantage Press, 1967, $3.75, 190 pp.

Mr. Cook argues persuasively for the thesis that any first division club could

take the league pennant if it would eliminate the sacrifice bunt, keep its eight most productive players in the lineup 90% of the time, and pinch-hit for its pitchers. In the process he presents an unparalleled array of statistics about baseball. Buried therein are numerous fascinating Markovian decision problems which would make superb classroom examples.

Mr. Meade presents a completely engrossing account of the evolution of track records and of the attempts to predict them. The subject is a superb example of the forecasting problem since both longitudinal (the evolution of a specific record over time) and cross-sectional (comparisons with other records at the same time) analyses are possible. Mr. Meade's exposition clearly identifies the relevant changes in exogenous variables.

Sports enthusiasts will want these books and so will teachers who are looking for ways to motivate reluctant students.

ANGRIST, STANLEY W. AND LOREN G. HEPLER, *Order and Chaos, Laws of Energy and Entropy*. New York: Basic Books, 1967; $5.95, 237 pp.

This is an excellent non-mathematical book on the laws of thermodynamics and their applications. The authors have a fine flair for simplifying abstruse ideas. They write with style, verve, and wit. Their book is full of apt quotations, good examples, and fascinating biographical facts. Granted the numerous attempts to extend the notions of entropy and redundancy to the analysis of social and institutional problems, this book should be useful for those who need to know something about the origins of the ideas in question.

SNODGRASS, THOMAS J. (ed.), *SAVE Proceedings*, Vol. II (National Conference, Society of American Value Engineers, Chicago, April 24–26, 1967). Chicago: Robert J. Mayer & Co., 1967, 296 pp.

This book has the intellectual interest of a picture of somebody else's graduating class. If there are any nuggets they are well buried. Forget it.