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BOOK REVIEWS

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Books on Cost-Benefit and Cost-Effectiveness Analysis

The development of the theory and practice of cost-benefit and cost-effectiveness analyses and related analytical techniques is of major importance for management scientists. Cost-benefit analysis, of course, is fairly old but cost-effectiveness analysis is quite new. Essentially, cost-benefit analysis is a way of evaluating projects where it is necessary to take a very broad view and a very long view. Usually, cost-benefit analysis is considered to be confined to instances where both the costs and the benefits can be expressed in dollars, although often only with great difficulty. There are many fascinating problems. For example, it is extraordinarily difficult to avoid double counting of benefits. Anyone who is unfamiliar with the extensive theory and practice of cost-benefit analysis would profit from reading the excellent survey by R. Prest and R. Turvey: "Cost-benefit Analysis: A Survey," *The Economic Journal*, Vol. 75 (1965), pp. 683-735. A particularly good set of examples of cost-benefit analyses can be found in: Robert Dorfman (ed.), *Measuring Benefits of Government Investments* (Washington, D. C., The Brookings Institution, 1965). In this book the techniques of cost-benefit analyses are applied to projects as diverse as outdoor recreation, preventing high-school dropouts, urban renewal, and syphilis control.

Cost-effectiveness analysis has become famous because of the insistence with which Secretary McNamara enforced its use in the Defense Department. A major distinction between cost-effectiveness analysis and cost-benefit analysis is that for the former it is generally the case that only the costs can be expressed in dollars; the benefits cannot be. This leads to a whole set of problems about the definition and measurement of an appropriate index of effectiveness. Anyone who is unfamiliar with cost-effectiveness analysis might read: R. N. McKean, *Efficiency in Government Through Systems Analysis* (New York, John Wiley & Sons, Inc., 1958), and, Charles J. Hitch and Roland N. McKean, *The Economics of Defense in the Nuclear Age* (New York, Atheneum, 1966). Both of these books are excellent and each is highly relevant to the operations researcher. Indeed, in the latter book the authors state in their preface: "We

hope, however, that operations researchers will find here the economic concepts and analysis which are essential to their craft . . .”.

It seems clear that the continued development of these, and related, analytical techniques is of interest to the readers of this journal. The increasing involvement of operations researchers in the evaluation of public projects is sufficient indication of this fact. However, even the analyst concerned only with standard kinds of OR projects will find the careful analysis in these areas to be both interesting and useful in his own work. The following books in these areas have recently appeared.

GOLDMAN, THOMAS A. (ed.), *Cost-Effectiveness Analysis*. New York: Frederick A. Praeger, 1967, 231 pp., \$13.50.

These are the papers given at a symposium sponsored by the Washington Operations Research Council. The book provides a generally good introduction to the subject of cost-effectiveness analysis. There is an excellent paper on measures of effectiveness by Mr. Niskanen where, among other things, he discusses the relationships among the classical theory of the firm, cost-benefit analysis, cost-effectiveness analysis, and classical operations research. There are two papers on cost estimation, one by Mr. Hatry and one by Mr. McCullough. Then there are various papers on applications of cost-effectiveness analysis. Several deal with defense in one form or another but there are also papers on the “war on poverty” and on metropolitan transportation systems. This is not an outstanding collection of papers but most of them are worth reading. The book can be recommended to anyone interested in becoming familiar with cost-effectiveness analysis.

McKEAN, ROLAND N., *Public Spending*. New York: McGraw-Hill Book Co., 1968, 179 pp., \$8.95.

Professor McKean is one of the major contributors to the theory and applications of cost-benefit and cost-effectiveness analyses. In this book he is dealing with a much broader question than any specific problem or technique. Namely, he is considering how public-spending choices are made and what instruments might be used to influence the choices. There is a superb exposition of cost-benefit analysis in his Chapter VIII, “Economic Calculus to Increase Efficiency,” and this book can be recommended simply for that exposition. However, the whole book is a pleasure to read and my knowledge of the process of government was very considerably enhanced by reading it. The insight which this book gives into the logic which underlies major public-spending activities is really extraordinary. Professor McKean’s attitude toward many of the obvious imperfections in the process is perhaps best summarized by his quotation of Maurice Chevalier’s observation about growing older: “There are many things wrong with it but it is better than the alternative.” But the author does have many suggestions for improving the process. This book is highly recommended as a demonstration of the power of an urbane and informed analysis of an extraordinarily complex set of phenomena.

ROTHENBERG, JEROME, *Economic Evaluation of Urban Renewal*. Washington, D. C.: The Brookings Institution, 1967, 277 pp., \$6.75.

This is a top-notch example of cost-benefit analysis. Most of us are directly familiar, in one way or another, with the problems of central-city slums. Therefore, it is fairly easy to relate Professor Rothenberg's careful analysis to one's own knowledge and opinions. It is extremely instructive to see how difficult it is to disentangle the relevant costs and benefits and how hard it is to measure them satisfactorily when they have been identified. One can only admire the dexterity with which the author accomplishes these goals. The exposition is clear and cogent throughout. Professor Rothenberg does not burke the difficulties nor does he hide the necessary assumptions, approximations, and qualifications. Nonetheless, when all the problems of this kind of analysis are duly taken into account the most impressive conclusion which remains is the importance of undertaking cost-benefit studies and the value of the conclusions which can be drawn from them—despite all the difficulties. I suspect that this is exactly what the author wanted to show. Recommended as an excellent example of a cost-benefit analysis.

McKEAN, ROLAND N. (ed.), *Issues in Defense Economics*. New York: National Bureau of Economic Research, 1967, 286 pp., \$7.50.

These are the papers given at a Universities-National Bureau Conference on the economics of defense. This book, despite the possibilities implied by the title, is not primarily concerned with questions of cost-effectiveness. Most of the papers are of little interest to the readers of this journal. However, there is a typically ingenious paper by Professor Schelling on "The Strategy of Inflicting Costs" which is very much worth reading. His discussion of the relationship of costs and suboptimization is most instructive. For example, he says "Costs are intended to reflect the payoffs left out of our local analysis." In addition, there is a paper by Professor McGuire, "The Structure of Choice Between Deterrence and Defense," which is a good example of the way in which economic theory and game theory are currently being used in analyses of high-level strategic alternatives.

HINOTE, HUBERT (comp.), *Benefit-Cost Analysis for Water Resource Projects: A Selected Annotated Bibliography*. Knoxville, Tenn.: Tennessee Valley Authority, 1967, 105 pp.

In the United States a very large proportion of the early applications of cost-benefit analysis were made in support of one or another water resource project. Much of the theoretical elaboration of cost-benefit analysis was developed in this context. A major reason for this was the River and Harbor Act of 1927 which gave the United States Army Corps of Engineers the responsibility for preparing plans for improving major rivers for flood control purposes. As a result, cost-benefit analyses of water resource projects are of greater general interest than might be otherwise assumed. This selected annotated bibliography,

prepared under the auspices of the Tennessee Valley Authority, is, therefore, a welcome addition to the literature on cost-benefit analysis. The annotations are excellent and the bibliography has been carefully arranged in a natural logical structure so that it is easy to determine which references are relevant to a particular interest. This bibliography can be recommended to anyone who is seriously interested in the subject of cost-benefit analysis.

Numerical Methods for Computers

HART, JOHN F.; E. W. CHENEY; CHARLES L. LAWSON; HANS J. MAEHLY; CHARLES K. MESZTENYI; JOHN R. RICE; HENRY G. THACHER; CHRISTOPH WITZGALL, *Computer Approximations*. New York: John Wiley & Sons, 1968, 343 pp., \$17.50.

This excellent book will find a place in the library of everyone who has occasion to use approximations for computer subroutines for calculating mathematical functions. This includes just about everyone who uses computers for applied mathematical purposes. The book is a successor to the book by Cecil Hastings (*Approximations for Digital Computers*, Princeton University Press, 1955). No book will ever replace Hastings' book as a demonstration of a kind of mathematical magic in the choice of approximating forms. But in every other regard the present book has taken a giant step forward.

After preliminary chapters on subroutine design, methods of computing functions, least maximum approximations, and the choice and applications of approximations, there is a chapter on the use of the tables and another summarizing the major properties of the functions for which approximations are given. Chapter 7, with 151 pages, is devoted to the tables of coefficients for the approximations. The functions approximated are square root, cube root, exponential and hyperbolic, logarithm, trigonometric, inverse trigonometric, Gamma, log Gamma, error, Bessel, and complete elliptic integrals. To illustrate the comprehensiveness of these tables, consider the Gamma function. The precision index is $-\log_{10}(\text{max error})$. The range of the approximation for the Gamma is (0,1). Polynomial approximations are given for each degree from one to nine, with corresponding precision indexes going from 1.06 to 9.89. Then 32 different approximations by rational functions (ratio of polynomials) are given for different combinations of degree in the numerator (0 to 13) and in the denominator (1 to 12). The precision indexes here range up to 24.53. Surely there is an approximation here to meet every need.

Great care was exercised in preparing the tables. To ensure that the huge number of coefficients given—often to 25 and more significant digits—would be error free, a procedure was developed so that data could be transferred from the computer to the printed page without manual intervention. The usefulness of the book is further enhanced by the inclusion of a carefully coded bibliography giving other published approximations not included in this book. Considering everything, how could a book be better done than this one? Very highly recommended.

JAMES, MERLIN L.; GERALD M. SMITH; JAMES C. WOLFORD, *Applied Numerical Methods for Digital Computation with FORTRAN*. Scranton, Pa.: International Textbook Co., 1967, 514 pp., \$10.50.

This is a very good textbook on numerical methods for digital computation. There are two initial chapters on FORTRAN. Then there are chapters on finding roots, solving simultaneous linear algebraic equations, numerical integration and differentiation, numerical integration of differential equations with initial values, differential equations with boundary values, and partial differential equations. The methods presented in each chapter are judiciously selected from the large number available. Each method is presented clearly with sufficient argument to demonstrate why it is appropriate, a flow diagram is given, and a sample problem is solved by means of a FORTRAN program which is always given. My first impression was that the material on numerical integration is weak since only the trapezoid rule and Simpson's rule are given. However, upon second consideration I realized that the authors are right here, as elsewhere. The real reason for the wide variety of methods for numerical integration is the great need for alternatives when dealing with integral equations. Since integral equations are not covered in this book, there really is no reason to include other methods for numerical integration. The exposition is always clear. Many problems are given but no answers. The book is very heavily slanted towards engineers. All of the examples and problems come from engineering. This may well limit the usefulness of the book for readers of this journal. With this proviso, the book can be recommended as a good textbook in numerical methods for digital computation.

DORN, WILLIAM S. AND HERBERT J. GREENBERG, *Mathematics and Computing: with FORTRAN Programming*. New York: John Wiley & Sons, Inc., 1967, 595 pp., \$8.95.

This fine elementary textbook is of the kind which surely will be the basis of first year college mathematics courses in the future. In an integrated package the student learns both basic mathematics and computer programming. But the arrangement of the mathematics is dictated by the natural approach to using the computer. The resulting sequencing is very attractive and is a big improvement over many of the excessively abstract approaches to elementary mathematics which are currently in vogue. The present book is intended for an easy first-year college course. It covers linear equations, linear inequalities and linear programming, algorithms and iteration, the elements of calculus, logic and switching circuits, and probability. I would have preferred somewhat more mathematics—in particular, more calculus. However, that would make it a different book and it must be emphasized that this book has been done very well. The exposition is uniformly clear and the organization of the material is excellent. There are lots of problems and selected answers are given. This book can be highly recommended as a text at the indicated level. It can also be strongly recommended as a self-study text for the numerous persons—many

graduate students, for example—who want to reestablish their elementary mathematics and who also need to learn programming.

RAILSTON, ANTHONY AND HERBERT S. WILF (eds.), *Mathematical Methods for Digital Computers*, Volume 2. New York: John Wiley & Sons, Inc., 1967, 287 pp., \$11.95.

This excellent book is a worthy successor to Vol. 1, which is one of the standard reference works dealing with numerical analysis on digital computers. However, the book is for experts in the field of applied numerical methods rather than for occasional users. Therefore, a lengthy review is not appropriate for this journal. The format follows that of Vol. 1. Each method discussed is given a fairly complete mathematical discussion followed by extensive flow diagrams and, often, FORTRAN programs. The volume by no means covers the subject. Rather, the methods not covered in Vol. 1 and new discoveries of the last five or so years are included here. Persons who have used Vol. 1 regularly will want to own this volume.

FORSYTHE, GEORGE AND CLEVE B. MOLER, *Computer Solution of Linear Algebraic Systems*. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1967, 148 pp., \$6.75.

This is an intensive treatment of an important problem of computation: the solution of a linear system of equations with a dense matrix. The main method of solution considered is Gaussian elimination. Linear algebra is presupposed. All of the necessary theory is developed and there is a complete analysis of round-off error. The authors give computer programs in FORTRAN, ALGOL, and PL/1. The exposition is very clear and there are a number of exercises for the reader. This is an excellent book on a specialized but important subject.

HEMMERLE, WILLIAM J., *Statistical Computations on a Digital Computer*. Waltham, Mass.: Blaisdell Publishing Co., 1967, 230 pp., \$7.50.

After I finished reading this book it was clear to me that it wasn't written for the use of anyone I have ever known. Therefore, I tried to reconstruct logically a portrait of a possible user. Reference to the title suggests that the author is dealing with three subjects: statistics, numerical methods, and computers. The contents of the book seem to confirm this suspicion. Presumably the author is aiming his book at some subset of persons who are in a state of innocence regarding one or more of these subjects. But this cannot be the case.

Consider the three subjects in order. The only statistical theory discussed is multiple regression and analysis of variance (one chapter each) and principal component analysis and factor analysis (20 pages). No one who did not know these techniques thoroughly before reading this book could possibly understand their importance or use from this presentation. And of all the rest of statistics—including endless computer applications—there is not a trace.

There is a good deal of material on numerical methods. However, the methods are presented almost in handbook style—indeed, so tersely as to verge on the

epigrammatic. Thus, the chapter on numerical methods of approximation, interpolation, and integration has 25 pages. No one who did not already know numerical methods could follow the author's presentation of this subject.

Finally, there is the computer. I can find neither rhyme nor reason in the author's approach. Occasionally he gives a short FORTRAN program, sometimes a flow diagram. Generally, he leaves it to the reader to work out programs for the methods he describes. Throughout he assumes, here as elsewhere, that the reader has already the knowledge which his book is presumably written to provide.

I conclude that this book is not intended for anyone since whoever can read it does not need to.

Management Science

MORRIS, WILLIAM T., *Management Science: A Bayesian Introduction*. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1968, 226 pp., \$7.95.

This is a good book. Professor Morris has tried to develop a comprehensive framework for management science, based on a Bayesian foundation. He starts at the beginning and works his way through to the end in a solid, methodical, well-organized way. His Part I deals with the basic logic of learning and decision. Here he develops the logic of scaling preferences and making consistent decisions, the worth of information, and related topics. Part II is devoted to applications. There is a chapter each on capital investment planning, inventory problems, bidding decisions, learning in binary data systems, and sequential decisions. In each of these areas the author endeavors to develop and apply the Bayesian ideas about worth of information, optimal expenditures on information, and so forth. This part is concluded with an interesting chapter on some organizational considerations from a systems point of view. Part III includes three insightful chapters on modeling, intuition, and implementation.

There is never any doubt that the author has much experience, and many valuable insights can be found throughout the book. Generally, the examples have been chosen as reasonable approximations to reality rather than for their mathematical simplicity. Therefore, a fairly good knowledge of calculus will be needed to follow most of the chapters on applications. Quite a few problems are given. This book can be recommended for consideration as a textbook in the Bayesian argument for students with calculus. It can also be recommended to practitioners, who will be interested in the Bayesian approaches developed in the chapters on applications. And most of us can surely profit from reading the chapters on modeling and intuition.

ROBINSON, PATRICK J. (Dir.), *Promotional Decisions Using Mathematical Models*. Boston: Allyn and Bacon, Inc., 1967, 330 pp., \$9.75.

This book is essentially a presentation of four models developed for the analysis of one or another aspect of promotional decisions. Each model is presented in considerable detail and with a good deal of actual data by its originators.

Kuehn and Rohloff present a model for analyzing the relative effectiveness of

different deals. This includes studying relative rates of trial and conversion in terms of the external characteristics of the deal (brand, package size, and so forth); the relative profitability of different deals; the relative trial and conversion rates in terms of the environment of the deal (life cycle, size of deal, and so forth); and analyses of these relative rates in terms of the characteristics of the families buying the deal.

Frank and Maasy undertake to measure sales-promotion impact on consumers, classified by purchasing and socioeconomic characteristics. Some of their conclusions suggest that the concept of brand loyalty needs some rethinking.

Green and Sieber undertake to discover how triers and adopters of a new product differ from nontriers and nonadopters in terms of demographic, socioeconomic, and personality characteristics. The discriminant function which they develop predicted trial and adoption behavior about 75% of the time.

Finally, Becknell and Hinkle study the effects of advertising medium, size of advertisement, copy, and so forth, on response and conversion rates for coupon replies to print media advertisements. I found this study particularly interesting since it is based on an unusually large amount of data. They found that with constant space unit the relative importance of the other factors was, in descending order, medium, copy, month, and position. One particular result which is of considerable interest is their finding of a large negative correlation between inquiries and conversions.

Each of the studies is presented fully, with plenty of discussion and explanation. Future possible directions for research are usually indicated. This is generally an attractive format and we can hope that there will be future books like this one. Anyone involved in the analysis of promotional decisions will surely want to own this book.

Coloquio Hispano Frances Sobre la Investigacion Operativa en el Desarrollo Economico. Madrid, Spain (Serrano 123): Instituto de Investigacion Operativa y Estadistica, 1967, 255 pp.

This is a collection of papers given at a conference held in Madrid in October, 1965. All of the papers are in Spanish or in French and most of them deal with operations research or related kinds of quantitative analysis. The majority of the papers are not distinguished but a few are worth mentioning. Alamo has a good exposition of some reliability theory in "Distribucion de la Vida en Servicio de Ciertas Instalaciones Industriales." Allais develops a most interesting model of the demand for money in a lengthy paper, "Les Effets Hereditaires et Relativistes en Recherche Operationelle." He has truly notable success in fitting his model to data from a diverse variety of countries and periods. His basic idea of developing his model in terms of a psychological time with a specified correspondence to physical time ought to be useful in other areas. Finally, Steinberg presents an approach to the problem of assessing the effectiveness of advertising campaigns in "Peut-on Prevoir les Resultats d'une Campagne Publicitaire?" The approach is straightforward but it appears to be a useful one. The cited articles and one or two others are worth reading.

General

BORCH, KARL HENRIK, *The Economics of Uncertainty*. Princeton, N. J.: Princeton University Press, 1968, 227 pp., \$8.50.

This is an excellent book but the title may be a little misleading. The book certainly is about economics and uncertainty but it is also about so much more that the title is an understatement. In particular, one of the main strands of Professor Borch's exposition is the implications of Bernoulli's expected utility hypothesis. He develops these so magisterially and finds so many useful insights in the process that I am now convinced that I never previously understood the subject—despite having given it a good deal of attention. There are three superb chapters on the implications of game theory which include discussions of Nash and Shapley values. Then there are two top-notch chapters on the objectives of firms and the problems associated with taking survival as the main objective. And for good measure, there is a chapter on group decisions.

Throughout the book the author's interest is always in the realistic economic implications of the theories he is surveying. His skillful intertwining of theory, experiments, and fact is extremely effective. The author uses whatever mathematics he needs and this includes some integral equations when he deals with survival as an objective. However, the majority of the book can be easily read with minimal mathematics, say a year of calculus. Professor Borch deserves congratulations for writing such a high quality and interesting book in this important area. It is far and away the best presentation I have read of this subject. The book is very strongly recommended to all quantitative analysts.

FISK, GEORGE (ed.), *The Psychology of Management Decision*. Lund, Sweden: CWK Gleerup Publishers, 1967, 309 pp., \$13.00.

These are the papers given at the Second Symposium of The College of Management Psychology of TIMS at Philadelphia and Vienna in September, 1965. The quality of these papers is remarkably high. Almost all of the papers are excellent. Each one takes an inherently interesting question and treats it in exemplary style.

Professor Soelberg considers the implications for organization theory of the structure of individual goals. He suggests that an important part of making decisions is the "confirmation" process: the need to construct a decision rule to explain why the particular alternative that has already been implicitly chosen, in terms of the decision-maker's individual goals, is the "best solution." One implication of his argument is that organization theory ought to pay more attention to stability of organizational membership rather than to organizational mobility. Professor Hamburg develops an interesting and potentially important amalgamation of statistical decision theory and benefit-cost analysis for choosing among alternative projects. Professor McWhinney gives a most interesting paper on aspiration levels and utility theory. He reviews the aspiration level theories associated with Lewin, McClelland, Siegel, and Simon and then develops an ingenious eclectic theory of his own. Mr. Vazsonyi has an

excellent lengthy paper which surveys the problems of information management and argues for the need for man-machine systems, rather than purely automated systems, to resolve them. Included is an interesting comparison of the areas where computers and where men excel. Messrs. Garrett, McClure, and Schnitzer present a most interesting approach to computer simulation of learning and decision processes in poker. There are two papers which report experiments based on the prisoner's dilemma game. The first, by Professors Dencik and Wiberg, analyzes the effect of social attitudes on strategic thinking. The second, by Professors Keenan and Hoverland, analyzes the effect of personality in a management game structured as a prisoner's dilemma.

No invidious distinctions were intended by citing the above papers in preference to others. The papers not mentioned here are well worth reading. This book is strongly recommended to everyone involved in the analysis of managerial decisions.

CHURCHMAN, C. WEST, *Challenge to Reason*. New York: McGraw-Hill Book Co., 1968, 223 pp., \$5.95.

This is an important and provocative book. It must be described as "philosophical" but in the best sense of the term. Professor Churchman has taken for his theme the use of reason and rational procedures for the improvement of systems such as organizations and society. His argument is complex, closely knit, and well organized. Hence, it cannot be adequately summarized here. However, a few strands of the argument can be indicated. The author argues that we are incapable of dealing with total systems; hence, we are sub-optimizers. From this he deduces that in reality we cannot even define what we mean by speaking of "good management." Along the way he refutes the idea that incrementalism—removing visible defects—is a viable alternative conceptualization of good management. Analogously, he discusses what we mean by "great" scientists and concludes, I think rightly, that they are simply great managers of the scientific enterprise and that the previous conclusion holds here likewise. Thus, it follows that we cannot define what we mean by progress since any improvement depends on the total system, which we do not know. No elite can determine what constitutes an improvement: "There are simply no 'experts' in the planning of human societies." In this context Professor Churchman gives some well-merited castigation to social scientists. However, he further concludes that a "well-informed public" also cannot be successful in determining total system values.

The above argument constitutes a thorough assault on the usual conception of the rational approach to system improvement. Obviously, Professor Churchman is committed to the reasoned approach to life. Therefore, he does present alternatives and they are insightful and humanistically oriented. He maintains that "Reason has to do with the way in which human beings understand what human life means." Rationality means looking at the world from many viewpoints and rational decision-making includes determination of goals as well as

actions. Inquiry must be an integral part of life and "reason" cannot be separated from emotion on a pretense of an "objective" analysis. The author concludes with a most interesting contrast between realism and idealism in action in approaches to system improvement and with a short chapter on the aesthetics of large systems. This excellent book is highly recommended. The quantitative analyst ought to read this book in simple justice to society, if for no other reason.

THAYER, LEE (ed.), *Communication: Concepts and Perspectives*. Washington, D. C.: Spartan Books, 1967, 440 pp., \$22.50.

These are the papers and discussions from the Second International Symposium on Communication Theory and Research, sponsored by the University of Missouri in March, 1966. The twenty contributors and twenty-five invited participants came from twenty different disciplines and included some top-notch thinkers: Kenneth Burke, Gardner Murphy, Karl Pribram, Geoffrey Vickers, D. M. MacKay, Warren McCullough, and Jerome Rothstein among them. All of these people gathered together to consider the phenomena of human communication from a variety of cross-disciplinary points of view.

The resulting papers and discussion simply cannot help but be worth reading. However, it is fair to state that the papers are not generally as exciting as one might have anticipated. Some, of course, are very interesting. Kenneth Burke, in a paper on "Dramatism," is, as always, extremely stimulating. His comments on Marshall McLuhan are pointed and perspicuous. The paper by William Shockley, "Articulated Science Teaching and Balanced Emphasis," has a lot of important things to say about science education in particular and any kind of education in general. Herbert Menzel's paper, "Can Science Information Needs be Ascertained Empirically?", reports on a number of ingenious studies concerning scientific information needs. And Jerome Rothstein gave an overview of the papers. It is too bad that he was thus circumscribed but he does it in his inimitable way—always managing to suggest marvelous intellectual discoveries and new interrelationships just over the horizon. So, this is a book well worth reading. The subject is of tremendous importance and the contributors all deserve to be heard. It is too bad that the price of this book is so surprisingly, and prohibitively, high.

ARANGUREN, J. L., *Human Communication*. New York: McGraw-Hill Book Co., 1967, 251 pp., \$4.95

Professor Jose Aranguren is primarily a philosopher. He was Professor of Ethics at Madrid University for many years. In this attractive little book he studies human communication in terms of the transmitter, the medium of transmission, the message, and the receiver. His primary concern is with the humanistic consequences of communication. His book is infused with his wide acquaintance with the strands of contemporary thinking in philosophy and humanism. The book provides an excellent introduction to the great variety of

ways of thinking about communication and its consequences. The book can be recommended to those who would like to broaden their horizons.

GEORGE, CLAUDE S., *The History of Management Thought*. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1968, 210 pp.; cloth \$7.50, paperback \$3.95.

Within the short compass of this book, Professor George has managed to compress a lot of the history of management thought. He starts at the beginning and that means the ancient civilizations. More of the management philosophy of the ancient Egyptians, say, survives than one might imagine. Almost half of the text deals with management thinking before Taylor. All of the famous contributors are included. Generally there is a sketch of the person's life followed by a summary of his major contributions to management thinking. The exposition is clear and the organization of the material is good. A 24 page bibliography, arranged chronologically, is a useful addition to the book. This is a good short history of management thought and the book should be of interest to any management theorist or practitioner.

ORR, WILLIAM D. (ed.), *Conversational Computers*. New York: John Wiley & Sons, 1968, 227 pp., \$8.95.

This is a not overly interesting collection of generally brief articles about a most important subject: time-sharing interactive computer systems. The book is intended for the non-specialist. There are articles on problem-solving, instructional, retrieval and query, and graphical conversation modes. Certainly some of the already existent possibilities which are discussed are fascinating. For example, Sketchpad, which transforms rough free-hand sketches on the face of a TV-type display tube into neat finished lines. However, most of the articles seem to be either too brief to be satisfying or too detailed to be interesting. If you know nothing about current developments in interactive computer systems you will probably find it worth looking at this book.

WASSERMAN, PAUL (Managing Editor), *Who's Who in Consulting*. Ithaca, N. Y.: Graduate School of Business and Public Administration, Cornell University, 1968, 395 pp.

This book might be subtitled: the personal identification of each person who functions as a consultant and who was known to the editors to function as a consultant and who was sent a questionnaire and who filled it out and returned it. The result has so many lacunae as to render the whole effort dubious. However, this is small loss because who needed this book anyway? I suspect that books like this one are intended to be sold to unsuspecting libraries and to the persons listed in the book. Therefore, I suggest that you urge your library not to buy this book. Maybe if it is a financial catastrophe people will stop squandering social resources on such nonsense.

Late Summer Reading

SOBEL, ROBERT, *The Big Board: A History of the New York Stock Market*. New York: The Free Press, 1968, 395 pp., paperback, \$2.95.

Almost any kind of history of the New York stock market is bound to be interesting. But when the history is done with the verve and skill which Mr. Sobel demonstrates the result becomes irresistible. This is an entertaining, fascinating, and instructive book. All the heroes and villains, the bulls and bears, the booms and busts, the corners and panics, the swindles and steals, the manipulations and regulations are here. Don't miss it!

WINICK, CHARLES E., *The New People*. New York: Pegasus, 1968, 384 pp., \$7.50.

Professor Winick is one of our contemporary polymaths. Along with numerous other areas of which he is an intellectual master, he has specialized in analyzing all kinds of off-beat and deviant behavior. Further, he is a leading authority on the various manifestations of our popular culture. In this book he has brought all of this knowledge to bear in order to demonstrate the proposition that in contemporary American society sexual identity has become completely blurred and that a kind of neuter or androgyne dominates our self-awareness. He draws his examples from every part and aspect of our lives and culture in a truly virtuoso manner. You may disagree with some of his argument and I think that some of his examples can be alternatively interpreted but you cannot help finding his book extremely stimulating. Highly recommended.