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BOOK REVIEWS

SCARF, H. E., GILFORD, D. M. AND SHELLY, M. W. (eds.). *Multistage inventory models and techniques*. Stanford, California: Stanford University Press, 1963, $7.50, 225 pp.

This volume, the first in the Office of Naval Research Monograph Series on Mathematical Methods in Logistics, presents four "winning papers" in a competition sponsored jointly by ONR and TIMS, and three expository papers by members of the judging committee. The theme for the competition was the title given above, but only one of the published competition papers and two of the expository papers are devoted to multistage inventory models in the usual sense. The committee broadly interpreted the theme to include dynamic programming models (i.e., multistage decision models) even if for a single commodity, and the distribution of inventories among a number of related agencies.

The papers included are given below:

1. DONALD L. IGLEHART, "Dynamic Programming and Stationary Analysis of Inventory Problems"
2. KLAUS HERMANN DANIEL, "A Delivery-Lag Inventory Model with Emergency"
3. DONALD GROSS, "Centralized Inventory Control in Multilocation Supply Systems"
4. ARTHUR F. VEINOTT, JR., "Optimal Stockage Policies with Non-stationary Stochastic Demands"
5. G. HADLEY AND T. M. WHITIN, "An Inventory-Transportation Model with N Locations"
6. RONALD A. HOWARD, "System Analysis of Linear Models"
7. HERBERT E. SCARF, "A Survey of Analytic Techniques in Inventory Theory."

Dr. Iglehart's contribution, which is first in the table, was declared the award winning paper by the judges. It treats a single commodity, the demands for which in consecutive time periods form a sequence of independent random variables. Holding and storage costs are charged at the end of each period, there is no lead time, and excess demands are backlogged. Iglehart develops the dynamic programming solutions and the stationary solutions to the problem and shows the relationships between the two solutions.

K. H. Daniels extends previous work of Barakin to treat an n period single commodity inventory model with regular and "emergency" orders allowed. The emergency order can be of any size up to a maximum value; the regular order has a one period lead time, the emergency order has a zero lead time.

The third paper by D. Gross treats the problem of distributing inventories among a number of warehouses, where decisions are made centrally for the entire system, based on data available to the central controller. Trans-shipments (i.e., shipments between warehouses) are allowed. An analytical solution for the two location problem is given, and an iterative procedure for n locations is developed.

This is the only competition paper to treat an aspect of multistage inventory problems.

In the fourth, and last, of the contributed papers, A. F. Vienott, Jr. treats the problems of dynamic inventory problems in which the demand distributions from period to period do not form a stationary series, and there is a lead time of n periods. The problem treated here can thus be considered an extension of Iglehart's problem.

Three of the papers, then, can be considered as contributions in the field of dynamic programming and owe much to the work of Bellman and Arrow, Karlin and Scarf.

The three expository papers are well worth the price of the book. The first, by G. Hadley and T. Whitin, treats an n location two-stage inventory system with trans-shipments allowed, and produces an ordering and allocation rule.

R. Howard's paper on system analysis of multistage systems contains much material published elsewhere, but includes new material on treating flows of "matrices" (e.g., multi-commodity). It is an excellent review of the use of electrical feedback network analogs in inventory theory.

H. Scarf's paper is just about the best brief survey of analytic techniques in inventory theory. Although few techniques are studied in detail, most are described and comparisons of assumptions, solutions and range of validity are made. Scarf notes the frequency with which the square root law (Wilson's Q) appears as a solution, or approximate solution, to the more complex inventory models. Those applying inventory theory should not infer that the square root law is always valid; but it appears to be a reasonably good first approximation.

This volume is the first in a series and sets a high standard for the volumes to follow. It is unfortunate that the stated theme was broadened so that the title of the book is not a good description of the contents. The inclusion of expository papers on the subject by the judges or invited contributors makes for a balanced volume and makes the volume a more meaningful contribution to the literature.

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LEVITT, THEODORE. *Innovation in marketing: new perspectives for profit and growth*. New York, New York: McGraw-Hill Book Co., 1962.

This book is, in the main, a collection of essays previously published by the author. Despite this and the inevitable redundancy which generally characterizes such a compilation, the collection succeeds in conveying a coherent and, in this reviewer's opinion at least, important argument. This argument is, in essence, that marketing "... does not get the continuing and systematic planning and experimental support that is lavished on other business functions. It is the neglected stepchild of most modern corporations. . . . All it gets is money for more advertising and 'sales push'."

The chief reason for this neglect, Levitt urges, is that the top managements

of most business firms, including many in which scientists occupy the high executive positions, are sales rather than marketing oriented. Their focus is on their need ". . . to convert their product or service into cash . . . (and not on) the idea of satisfying the needs of the customer by means of the product or service and by the whole cluster of customer-getting value satisfactions associated with creating, delivering, and finally consuming it". But a business exists only if it can get and keep customers. Consequently, it ". . . must learn to think of itself not as producing goods or services, but as *buying customers*, as doing the things which will make people want to deal with it". The principal source of the current neglect of marketing and marketing planning as opposed to selling resides, therefore, in the failure of top executives to comprehend and adopt a true customer-orientation.

To be sure, it has become fashionable in marketing circles to praise the so-called "marketing concept" which has as one central tenet consumer orientation. However, in Levitt's view which is substantiated by this reviewer's experience, adherence to the "marketing concept" is far more verbal than operational. The evidence lies in the continued, almost exclusive interest of marketing departments in transient and expedient policies and procedures rather than in the quest for new marketing methods and strategies, in the search for gimmicks rather than substantial marketing innovations. Virtually all companies still depend on chance and the course of events to produce new marketing and distribution ideas. They have still made no organizational provision for systematic and programmed long-range planning for marketing innovations which will better serve both the present and future requirements of their customers.

Levitt is fully aware that consumer-orientation is only a necessary but not a sufficient condition for a firm's survival under conditions of accelerating social and technological change. In addition, this orientation must be made operational. It must be implemented. To this end, he suggests two organizational innovations. The first is the creation of a "Blue-Skies Committee", a task force consisting of carefully selected people known for imaginativeness, audacity, cosmopolitan interests and competence which is to report to a top manager, preferably the chief executive. The job of this committee is to continually monitor the firm's external environment and ". . . to make a suggestive outline of how the forces at work in this environment are likely to affect the company." In addition, the committee is also ". . . to suggest how the company might plan to respond to and capitalize on these forces." In short, the "Blue-Skies Committee" is to be responsible for trying to understand the customer and the society within which he does and will function in the future.

The second organizational innovation Levitt suggests is the establishment of a "Marketing Development Department", a full-time, high level group (reporting to the marketing or executive vice-president) whose specific assignment is to create . . . new ways of distributing and selling existing (products). Building on the suggestions of the "Blue Skies Committee", this department is to develop new marketing policies and procedures as well as detailed plans for the actual field-testing of new marketing schemes.

In all then, Levitt's theme is that there is a marketing view of the business process which is the *sine qua non* for survival since a firm's survival is determined ultimately in the marketplace. The failure to recognize, adopt, and implement this view has led, in general, to the relative neglect of the marketing function, and more particularly, to a virtually complete absence of long range marketing planning. No one who is acquainted with marketing operations in American industry can, I believe, deny these charges or their significance. But it is not only top managements who are at fault. Management scientists, too, have woefully neglected marketing, as any audit of *Management Science* or *Operations Research* will quickly reveal. Certainly, marketing problems are neither so well structured nor so readily programmed as production or logistics problems. However, in this reviewer's opinion, the payoff from systematic and rigorous investigation of strategic marketing problems promises, for this reason, to be all the greater. We need, therefore, not only the organizational provisions for planned study of markets and marketing, such as Levitt suggests, but also greater interest and activity on the part of management scientists.

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