tion. Thus, he exhibits a thoroughgoing belief in the need for free competition among a "sufficient number of independent firms" in order to increase efficiency in marketing. Two widely recognized arguments for monopoly and oligopoly, and against rigorous competition, are discussed: long-term growth of productivity through technical progress and economies of large-scale operation. The first is rejected outright on the basis that public research institutions can be expected to undertake much of the important technical research in marketing and promote its use by marketing firms. When large-scale economies are so great that there is a place ultimately for only one or a few firms if marketing costs are to be minimized, direct controls are admissible, but solutions ". . . retaining the main elements of a competitive system" are most desirable.

Generally, structural criteria are advocated as a basis for government action to ". . . eliminate restraints on competition, such as restrictions on entry of new firms and immobility of factors of production." When large firms dominate the market, countervailing power, promoted by positive public action, is indicated to insure vigorous competition.

A wide gap necessarily remains between Professor Allen's prescriptive theory of what could be and what is in the way of public policy in agricultural marketing. The width of this gap must stand as a measure of the book's success. Only to a very limited degree does the author question the adequacy of the perfectly competitive model for normative policy purposes. It is supplemented with the basic idea of countervailing power and not much else. We may agree with the author that there ". . . are situations where market forces can be made an effective and adequate rationalizer and others where they cannot," but we would like to have a better basis for prediction in specific cases. What forms of government action can best insure freedom of entry and mobility of resources, thereby thwarting restraints on competition? When large-scale economies clearly justify fewness on the marketing side, how can farmer bargaining power be increased consistent with efficiency of the overall production-distribution system and general consumer welfare? Little is found in this book to answer these and many other important questions which arise when attempting to implement policy objectives as broad and general as those established by this author.

L. B. FLETCHER

University of California

Fundamentals of Forestry Economics, William A. Duerr. New York: McGraw-Hill Book Company, 1960. Pp. xii, 579. $9.50.

The second text in forest economics to appear within the year establishes quite a milestone for this newly developing field of study. The au-

thor draws heavily upon research experience with the U. S. Forest Service as well as upon his more recent activities as Professor of Forestry Economics at the State University of New York College of Forestry at Syracuse University.

Economists will almost surely raise the question, "What special characteristics set forestry apart from other productive efforts—why forestry economics?" Professor Duerr answers this by citing five peculiarities of timber production: 1. The product, timber, is also the productive mechanism; 2. An exceptionally long production period is usually involved; 3. The rate of return on capital is modest; 4. Forestry capital (the investment in growing stock) dominates the cost of timber growing; 5. This capital is highly versatile, both production- and time-wise. He further claims (citing Vaux) that "the special field would still emerge because of the great importance of the forest industry and because of its peculiarities in respect to organization, institutions, techniques, and terminology."

After introducing his subject, Professor Duerr divides it into four parts. Under "The Firm's Supply of Forest Products" he treats principles of production theory: production functions, cost curves, short run and long run supply curves, etc. He stresses application of marginal analysis to a variety of timber production problems, including that of multiple product management. The next section, "The Market for Forest Products," covers elementary demand theory and a rather detailed treatment of timber marketing. The last two sections are called "Institutions of the Forest Economy" (tenure, taxation, credit, and insurance) and "Operation and Planning of the Forest Economy," where the discussion ranges from the world's timber resources to regional planning and its application to public forestry problems.

There is much to commend this text to those teaching economics to undergraduate forestry students. Basic principles are developed through examples drawn from the timber industry. The technical terminology employed is either that of forestry or is carefully explained. Though some might believe the production-supply aspects are overemphasized to the detriment of demand, the treatment parallels the weight accorded production by most forestry curricula. An exceptional effort is made to encourage a broad view on the part of students normally inclined to retreat from exposure to the social sciences. One device to achieve this end is that of raising questions throughout the text—questions designed to "provoke reflection and original thinking." Others might include his treatment of "centers of influence" and topics such as advertising, programming, and regional planning. The range of material covered is extremely broad.

The economist looking for a specialized treatment of forestry problems

will be disappointed by this book. Peculiarities presumed to characterize timber production are not made a focal point for theoretical development, nor is evidence presented to show that forestry is peculiarly affected by organizational, institutional, or technical factors. What Duerr has done, essentially, is to write a textbook of economics for forestry students. It is within the reference framework of such a text that the book should be judged.

A major difficulty is that the approach to principles is often indirect and unnecessarily complicated. One might also wish that a more prosaic illustration had been selected to introduce marginal costs. The varying input is in terms of men, and men are peculiarly indivisible. Perhaps more serious is the fact that in trying to keep his presentation at an almost nontechnical level (from the economist's viewpoint) some errors have been allowed to creep in. Under the *Elasticity of Demand,* for example, the author states, "It is not only the position and general orientation of the demand curve that concerns us, but also its shape and tilt. The tilt *at any point or interval* on the curve is referred to as *elasticity of demand. . . .*" He goes on to correctly define elasticity in terms of a ratio of percentage changes but nowhere corrects the implied identity of slope and elasticity.

Numerous "rules" are announced in boldface type—a geometric rule of the total, of the average, etc.; first and second rules for price elasticity; a rule for best combination; and many others. Such rules may aid a student's memory, but tend to detract from the principle being discussed. And, though the author's effort to jar forestry students into an awareness of the role of power blocs in modern society is sincere and much appreciated, one might question whether a text of this type should present an individualistic viewpoint of issues.

To conclude: This book is a major contribution to forestry, presenting economic principles in a form particularly suited to forestry students. The illustrations and examples are well designed to hold their interest. Many forestry-school teachers have been looking for just this kind of text. It should have an excellent reception.

G. R. GREGORY

The University of Michigan

Introduction to Mathematical Statistics, Robert V. Hogg and Allen T. Craig. New York: The Macmillan Company, 1959. Pp. lx, 245. $6.75.

This is an excellent book, consistent in content and development with intended usage at the senior or beginning graduate level for majors in statistics. It is a theory book about mathematical statistics and provides few bridges for specific applications.