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Book Reviews

Strategies of American Water Management

By Gilbert F. White, University of Michigan Press, Ann Arbor. 155 pages. 1969. $5.95.

This work is an important contribution to the science of water management, particularly if considered in tandem with Alternatives in Water Management, issued in 1966 as Publication 1408 by the National Academy of Sciences and the National Research Council. Professor White chaired the committee which prepared the "Alternatives" report and this book on "Strategies" seems to be a personal extension of the NAS/NRC report. "Alternatives" elucidated a viewpoint that water resource and other natural resource development efforts involve multiple goals which can be competitive, complementary, or in some cases supplementary. Goals of water development, such as improved water quality, are intermediate ends and alternatives to such larger goals as an improved quality of life.

In "Strategies," White carries this line of reasoning a good deal farther and not only provides a framework for evaluating where we are in the science of water management, but also charts some intellectual directions for the future. From his discussion I gather that enlightened policies for the enhancement of our total environment as it involves water are more the products than the basis of a rational approach to conceiving multiobjective and multimeans plans. This is to say that the balancing of objectives and alternative means for their accomplishment will yield scientifically defensible, politically supportable, and concrete yet flexible policies. I regard policy as pertaining to a general course of action, but not to each individual action itself. This appears to be consistent with White's considering as strategies the alternative operational methodologies for responding to the water environment in order to meet specified aims. If so, strategy and policy are synonymous. The Nation's problem is to choose and implement the correct strategies. Success requires, hopefully in decreasing order, a careful analysis of the alternatives, some statemanship in catering to opposing views, and a degree of luck.

White goes on to describe and discuss six types of strategies that have historically dominated or now characterize American water planning. He defines each in terms of the nature of the development opportunity posed in different circumstances. These include: (1) Single-purpose construction by private managers, an example being farm water supply; (2) single-purpose construction by public managers, with navigation and project irrigation being examples; (3) multipurpose construction by public managers considering multiple means, the example being our current preoccupation with comprehensive planning rather than with a comprehensive strategy for planning; (4) single-purpose action by public agencies using multiple means, illustrated by flood control; (5) the broadened options provided by including research as an additional management tool, with vegetation/streamflow studies, saline water conversion, and weather modification the primary examples; and (6) a possible (but lacking, according to White) comprehensive strategy involving multiple purposes and multiple means, including research.

A particular advantage of this classification is its utility for gaining a quick understanding of historical and current water planning efforts in the United States. A weakness is the old question of whether the defined and illustrated types are mutually exclusive. For example, providing farm water supplies is increasingly a problem of choosing among alternative means, such as choosing private wells rather than rural domestic water systems drawing from ground water, natural streamflow, or reservoir storage.

The way White introduces "research" into our kit of planning tools is interesting. He discusses research into weather modification as a method of increasing the number of major options for a "grand design" approach to water development in selected areas. But he also tends

to equate research and development on weather modification and other major technological advances with research into such more mundane, but significant questions, such as water conservation, that can contribute toward scientifically rationalizing all six of his strategy types. Accordingly, I interpret his six types of strategies to be more cumulative than different, a belief which tends to be confirmed by the way his thinking and the book evolve.

Of special interest to agricultural resource economists is the role assigned to economics in his intellectual model. He regards economic optimization as an important factor in water management and planning decisions, although individual managers assign varying degrees of importance to that factor as well as to others (i.e., estimates of the water resource, recognition of available technology, and concern with spatial linkages). He feels that looking at economic optimization as only one of many factors involved in decision-making makes his model distinctive, especially when paired with the observation that all factors are profoundly influenced by social institutions. He, perhaps, is interpreting economics too narrowly. Modern economics as the science of analyzing the consequences of alternative decisions can indeed balance, or at least ordinally rank, variables other than quantitatively expressed benefits and costs, and need not disregard the side conditions posed by sociological and institutional constraints.

This book demonstrates the power of introspective and authoritative reasoning to clarify social alternatives. It is recommended as both a history and a futuristic analysis of water resource development and management in the United States.

George A. Pavelis

The Rise of American Cooperative Enterprise, 1620-1920

By Joseph G. Knapp. Interstate Printers and Publishers, Inc., Danville, Ill. 532 pages. 1969. $8.95.

Joseph Knapp, retired Administrator of the Farmer Cooperative Service and long-time civil servant, has shown his keen insight into the beginnings of cooperative endeavor in the United States. In a carefully documented narrative, he discusses in specific terms how farmers formed agricultural cooperative associations to find markets, reduce costs of farming, or protect themselves from "land sharks."

In the post-Civil War years, farmers' organizations--the Grangers and Alliances--fostered cooperative efforts. While few of the organizations survived, the movement exerted an influence on improving marketing and merchandising methods, lowering margins, curbing credit abuses, raising quality standards, and increasing economic and business knowledge. At the same time, specialized producers in areas of concentrated production were seeking to solve problems through cooperative enterprises. By the end of the century, many of these independent self-help associations were gaining strength. These included not only marketing associations but also groups interested in purchasing, irrigation, and insurance services.

The first two decades of the 20th centrury gave further impetus to the cooperative efforts and provided firm foundations for later operations. New rural forces, economic, technical, and social, each played a part, with the country life movement serving as a stimulant. The evolution of a Federal farm loan system under the Rural Credits Act of 1916 was another benchmark. Meanwhile, in the Department of Agriculture, the new marketing specialists were studying the field and rendering some assistance. State educational and marketing agencies also strengthened the movement; and farmers' organizations, especially the Farmers' Union, the Grange, and the emerging Farm Bureau Federation, played an active role. In this era of growth, federations of producers spread from local communities into large geographic areas, with marketing control as a feature at times.

Sometimes, cooperative purchasing was an associated development of cooperative marketing, with supply activities emerging from necessity--typified by the Cooperative Grange League Federation Exchange (G.L.F.), that in 1963 merged with the Eastern States Farmers' Exchange to form Agway, Inc.

Meanwhile, other forms of cooperative enterprise were increasing in strength. Farmers turned to cooperatives for crop and livestock improvement, for insurance, irrigation, and

telephone services. The cooperative store movement was characterized by vigorous experimentation in wholesale and retail operations in a rapidly changing business environment. Smaller businessmen found that they could meet many problems in their competition with mail-order houses, department stores, and chainstores through this approach. Other segments of the community employed cooperation "as a supplement or partner to other forms of business organizations, whenever it could perform services not otherwise available."

By 1920, Knapp found, farmers and other cooperators had learned many general, organizational, and operational lessons on "how cooperatives could serve them, on what cooperatives could and could not accomplish, and on how to form and operate cooperative associations."

"The Rise of American Cooperative Enterprise" is a valuable and unique contribution to the cooperative approach to economic activity. Knapp's brief introductions to the five major parts of the study provide birdseye views of the periods and unifying elements to chapters that otherwise are at times separate units. A number of the chapters have summaries that are a valuable device and a useful quick reference tool. The final chapter, with its 41 lessons farmers and others had learned from the cooperative movement by 1920 when about 27 percent of our people were gainfully employed in agriculture, is a fitting conclusion to this detailed interpretation of the early history of cooperation.

Vivian Wiser

Rural Sociology--Its Origins and Growth in the United States

By Lowry Nelson. University of Minnesota Press, Minneapolis. 221 pages. 1969. $6.75.

This volume can legitimately lay claim to being the most thorough yet succinct--and certainly readable--history of rural sociology as a social science discipline. In recent years--at annual meetings, in the Journal of Rural Sociology, and elsewhere--there has been much concern and discussion about the future of what Nelson considers an "indigenous discipline." This relatively small volume helps to put the discipline in proper perspective. In the reviewer's opinion, it goes far toward confirming the historical contribution, the current vitality and future prospects, and the inherently pragmatic and utilitarian quality of this particular social science. The book is certainly not an epitaph; nor is it an overly idealized account of the inception and development of this problem-oriented social science.

The volume includes 12 chapters that encompass a review of the "gestalt" out of which the discipline arose, an absorbing account of the developmental phase, and a consideration of current problems and perspectives. The narrative includes biographical references--most of which are brief--to the more prominent figures who have contributed substantially to the development of this field of social science. Of considerable interest is an appendix that contains "memoirs" of some of the distinguished and better known rural sociologists.

The chapter on perspectives and problems does a creditable job of assessing some of the strengths and weaknesses attributed to rural sociology. The same chapter identifies some of the challenges that face further development of the discipline. Its potential for further substantial contributions to the study of social change and the sociology of development--particularly as applied to the international sphere--is appropriately emphasized.

This work should certainly be of interest to all those concerned with the teaching of rural sociology. It should have considerable appeal, also, to the various "practitioners" in public and private enterprise for whom rural life--here and abroad--still is a major focus of concern.

Ward F. Porter

Agriculture in the Australian Economy

Edited by D. B. Williams. Sidney University Press, Australia. 336 pages. 1967. $8.50.

Australia's rising importance as a supplier of agricultural products for the growing markets of Asia has been responsible for increased interest in her agricultural capabilities and makes

this book about agriculture in the Australian economy particularly timely. The book, covering the most important aspects of Australian agriculture, consists of a series of reviews written by leading authorities in their fields. It was planned as a single project and was published to mark the first occasion when a conference of the International Association of Agricultural Economists was held in Australia, in August 1967. It is an excellent comprehensive source book covering all facets of Australian agriculture, but as the editor states, the reviews were not intended to be the type found in professional journals. A generous supply of maps, illustrations, figures, and tables is included.

As background, A. G. L. Shaw presents a resume of the history and development of agriculture, from the early settlers facing a difficult and strange environment to the present when technology has helped the Australian domesticate his environment, though many problems remain. B. R. Davidson finds that the importance of export markets in Australia's economy has led to a high degree of specialization in the economic structure of Australian farms, particularly those producing wheat and sheep. Intensive farming, though becoming more profitable, is limited by the high cost and scarcity of labor, high cost of fertilizers, and distances to markets. C. M. Donald, in a chapter on innovation in agriculture, describes Australia's main problems--infertility of soils and limitations of rainfall--and the methods used to cope with them, including use of fertilizers and legumes to build up soil, development and conservation of water resources, and development of plants and cereals suited to low rainfall.

P. C. Druce discusses the Commonwealth Government organizations concerned with administering agricultural policy and conducting research, also the areas where the States have prime responsibility--land settlement, production, and provision of services (including extension and education). G. D'A. Chislett analyzes the major national producer organizations, what they accomplish, and how they are slowly adapting to changing conditions. He also considers policy planning for the future.

D. H. McKay finds that the farm sector contributes a relatively small and declining proportion of the Gross Domestic Product and employs a small and declining proportion of the work force, though still providing the bulk of the export income. F. H. Gruen, L. E. Ward, and A. Powell, in evaluating changes in supply of agricultural products, find that the growth in total farm output has been rapid since the early 1950's, but the effects of the severe 1965/66 drought may be evident for some years, causing a slackening in rate of growth.

K. O. Campbell considers the changing emphasis in land policy. Earlier policy favored closer settlement (land redistribution), but with advances in agricultural technology, extensive agricultural systems have been found to be more conducive to economic growth in Australia. H. P. Schapper, considering rural labor, states that while production and land area of rural holdings have increased, the farm work force has declined. Important reasons are increased mechanization and growth of contracting services (e.g., aerial spraying, seeding, dusting, and top dressing).

A. W. Hooke finds that since the level of farm investment affects so many aspects of the economy, the Australian Government has adopted a variety of measures (budgetary, monetary, and price stabilization) to increase this level. F. G. Jarrett discusses the role of credit in Australian agriculture, considering changes in sources of farm credit and changes in credit policy as related to agriculture.

E. S. Hoffman describes the great increase since 1946 in number and scope of dryland and irrigation development projects. This has involved heavy public investment, and choices must be made between devoting resources to irrigation development and applying them to dryland technology. There has also been important development of transport facilities.

F. H. Gruen and G. C. McLaren discuss changes in food consumption and reasons for these changes. R. M. Parish describes the marketing of agricultural products and the functions of the marketing boards (nine Commonwealth commodity boards engage in or regulate export trade), concluding theat greater efforts are needed in marketing research.

J. N. Lewis discusses the economic background underlying agricultural price policy, the institutional problems in formulating programs, the objectives of the price programs, the emphasis on stabilization, and methods of price support programs and the levels of protection they

achieve. In the final chapter, S. F. Harris analyzes Australia's agricultural trade and trade policies, considering the main aims of the trade policies and the need for a new approach.

Geraldine W. Abbott

Population and Food Supply

Edited by Sir Joseph Hutchinson. Cambridge University Press, American Branch. 144 pages. 1969. $4.95.

Only recently has the dismal prediction of an unabating increase in world population jarred governments into taking serious steps to resolve the problem. This book consists of eight lectures given at the University of Cambridge, England, by scholars devoted to understanding the problem of food supply and fertility.

J. M. Thoday reasons that the retarding influence preventing developing countries from raising their standard of living is primarily the population explosion which thwarts investment. One should also be mindful that overcrowding leads to bellicose desires for new lands. As an interesting historical case in point, Thoday suggests that the major objective of the Crusades in the Middle Ages was to get land for Western Europe's increasing population rather than to reclaim land for religious motives.

A. S. Parkes lists the factors concerned with population growth, such as control of infectious diseases and substantial increase in food supply (there is little evidence that rises in population are due to increases in biological fertility). He takes the pessimistic view--at variance with Malthus' hopes--that families will not restrain themselves in the interest of population control.

It has been calculated that the agricultural potential for feeding the earth's population ranges from 47 billion people on American standards to 157 billion people on Asian standards. P. T. F. King contends therefore, that it is technically feasible to feed the growing world population, although it may take proportionately more and more of our resources simply to maintain the per capita level of food production; consequently, food prices may rise. Furthermore, larger and larger populations may not be economically unfavorable: It is cheaper to produce a large volume of goods than a small one, and large populations mean large markets.

Historically, great famines have preceded or followed violent social upheavals, wars and revolutions. Recognizing this fact, A. Leslie Banks warns that there is danger that punitive measures may be introduced by governments under pressure. There is always a temptation for coercive measures and behavioral regimentation to justify aims for survival.

Man's dietary needs and available food supply are discussed by R. J. Carpenter and B. H. Farmer. New developments in nutrition science and food technology may prove useful in providing cheaper food as traditional nourishment becomes scarce for poor people. This can be accomplished provided full advantage is taken of these developments through increased education.

William Allan states that population growth itself produces conditions which make the problems of agricultural development and food supply difficult. This is one of the main reasons why agriculture has so often failed to play the part it should in the transition from stagnant to expanding economies. A general rule is that national living standards are inversely proportional to the ratio of employment in agriculture to total employment. Poor countries have an estimated 80 percent of their labor force in agriculture, compared with 7 percent in the United States.

Despite the pessimistic population trend, there are hopeful signs. It is possible to increase the world's food supply substantially. Western countries have the technology to bring the rest of the world into a position of food surplus--though political skills will be needed to put the technology into practice. However, the basic fact will always remain that in the long run it will be necessary to stabilize human population as agricultural production cannot increase indefinitely.

The lectures do not leave one with the impression that all is dark for the future. The world's attitude toward birth control and the possibility of maintaining a balance between population and food supply are changing for the better. The intensive popularization of the problem is beginning to bring results.

Jack Ben-Rubin

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Modern Breeds of Livestock

By Hilton M. Briggs with the assistance of Dinus M. Briggs. Macmillan Co., New York. 3d ed. 714 pages, illus. c. 1969. $12.95.

In his preface the author states that this third edition has been prepared with the express purpose of reviewing current developmental changes in our breeds of livestock. Some breeds have made notable progress and are growing in prominence while others have become less important.

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