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BOOK REVIEWS

The Northern Myth. By B. R. DAVIDSON. (Melbourne: Melbourne Univ. Press, 1965.) Pp. 282, 63/-.

The author begins by examining the supposed defence argument for settling Australia's North. We are all amateur strategists now; and, as the documents prepared by staff officers are never released for public discussion, so we will continue to be. In this capacity, the reveiwer feels bound to agree with the author. There is no getting away from the facts that the Japanese invaders advanced with appalling rapidity in Malaya, with its settlements, roads and water supplies; but could not cross the Owen Stanley Range.

There may, however, be something in the political as opposed to the strictly defence argument, namely that what *appears* (blown up by the rhetoric of politicians) to be being done in the North matters more than the reality. There may be something in this argument. Most of the Northern projects, however, as the author shows, are so inordinately costly that Australia really is better advised to spend her limited investment resources elsewhere.

So much for politics and defence. We now turn to the economics. The reviewer, who has tried unsuccessfully to detect the smallest error in the abundance of tables presented, cannot withhold his admiration for the superhuman effort which must have gone into collecting so large a body of accurate information; and also for the clear and trenchant style in which the book is written. With all the author's more forceful propositions he agrees. But he does think that the author has been too wholesale in his condemnation, and that a limited amount of carefully designed agricultural and pastoral development, both in tropical Queensland and in the Northern Territory, might be practical and remunerative.

Freights and tariffs being what they are, the author shows that a settlement on the Northern coast would be less costly if it obtained supplies from, and sold its produce in Japan. Politically, of course, no Australian Government would support such an idea.

His criticism of the sheltered sugar industry (with the Commonwealth guaranteed price in the external market, as well as the guaranteed internal price) is fully justified. But he does not seem to see how this protection has created rents and land values. Nor does he consider the marginal cost of producing sugar, which can be low. If marginal costs were properly taken into consideration, more sugar would be produced in the tropics and less in southern Queensland—a conclusion which the reviewer once stated to a Comission of Enquiry (the consequences were most alarming). It is true that both tobacco and peanuts are produced at high cost; but there is some hope that these costs could be considerably reduced if they were produced on a larger scale, even in the Northern Territory. Rice costs have also proved high, and the Humpty-Doo experiment was a monument of how not to do things, in every respect. The author, however, is unduly pessimistic about possible improvements in rice yields, and overstates milling, transport and selling costs.

On cattle, he follows Beattie's fruitful study, but fails to follow his

sensible and practical suggestions for improving a business which is still often conducted by extremely primitive methods. He seems unaware of the present highly remunerative prices for beef, and believes that the fifteen-year beef agreement with Britain was an instrument for keeping prices up, when in fact it was the reverse. He says flatly that sheep numbers in Queensland cannot be further increased, because drought losses show that the country is already over-stocked, without a word about possible improvements. Also he is rather muddled in stating his case against the practicability of fattening cattle on cultivated fodders, both in Queensland and the Northern Territory.

The Commonwealth Government made things worse in the Northern Territory by enacting land laws which (unlike those of Queensland) made the holdings too large, favoured absentee speculators, and discouraged permanent improvements.

All these qualifications, however, add up to no more than a proposal for cautious pastoral and agricultural extension. This, however, is of little or no interest to politicians and engineers, both of whom have an itch for the grandiose, at enormous expense, in someone else's money. The Ord Project certainly comes under this heading. So does the Burdekin Dam in Queensland, which here is not condemned strongly enough. The reviewer had to contend with the Queensland Government, which was asking for Commonwealth money to build this dam as a matter of national importance, on the grounds that a satisfactory rate of return on the capital would be shown (believe it or not) by the *gross* product of the land to be farmed—as if not only the farmer's labour and efforts, but all his equipment, fertilizers, transport, etc., were economically costless. Equally ignorant statements are being made in support of irrigation proposals to this day.

One should no doubt expect both politicians and engineers to behave in this way, and so be on one's guard against them. One also gets used to State Governments doing what this book convicts Western Australia of doing, namely of issuing a highly misleading prospectus inviting farmers to settle in the Ord irrigation area, without informing them about marketing and transport difficulties.

But what one does not expect is that C.S.I.R.O., which enjoys a high prestige among all Australian countrymen for its accuracy, thoroughness and integrity, should have kept secret all information about costs on the agricultural trials which it has been conducting in the North and refused to disclose them when the author of this book specifically requested them.

COLIN CLARK *Agricultural Economics Research Institute, Oxford.*

Agricultural Synthesis—The Farming Year. By A. N. DUCKHAM. (London: Chatto and Windus, 1963.) Pp. 525, 75/- stg.

Duckham's *Agricultural Synthesis* is a fascinating book. It should be read by some agricultural economists, and all members of the profession ought to make the effort to at least glance through it. Where else could you see a list of references which include Heady, *Agricultural Production and Resource Use,* and a translation (lose one point) from the original

Greek of Hesiod's *The Work and Days, Theogony and the Shield of Heracles*?

Professor Duckham is evidently a Professor of Agriculture, with a wide, deep and scientific knowledge of agriculture. *Agricultural Synthesis* starts with some speculation on the pre-history of agricultural development. The seasonality of agricultural production is then contrasted with the seasonality of man's demand for food. Duckham next turns his attention to soil, climatic and weather factors as they affect the seasonality of production. This is followed by a section on crops and grasses, which shows that seasonality of production results because: "The annual output of pasture and tillage crop depends upon the rate of working (Net Assimilation Rate); the size (Leaf Area); and the length of the productive period (Duration) of its photosynthetic system."

The seasonal food requirements of livestock and patterns of production complete the technical section of Duckham's book.

In Chapter 12 he then deals with "Integration and Efficiency: A Bio-energetic Approach". The approach of this chapter can be gathered from the following two quotations:

> "The inadequacy of economic measurements helps to explain why agricultural economists are increasingly seeking to use biological or husbandry measurements (e.g. gallons per acre, pounds of meal per dozen eggs) in tackling farm management (planning) problems. But such empirical husbandry measurements are, in their turn, of limited use to the scientist or to those of us who believe that one of the main technical problems of modern agriculture is the integration of the agricultural sciences."

and

> "What then can we use? The answer seems to be energy. Firstly, because energy changes are the basis of all changes—agricultural or otherwise. 'Energy is in fact that which moves; it may be called the primary cause of all change, and energy can be transformed into matter or heat or light . . .' Energy is likely to prove the only common scientific denominator of the many sciences with which agriculture is concerned."
>
> "Secondly, energy changes can, in theory at least, be measured quickly and with precision. Energy can be expressed in absolute, constant and internationally understood terms. It should, ultimately, be of great value not only in integrating agricultural sciences but also as a measurement on the husbandry side of farm management."

Duckham then turns his attention to Dating Control Theory, which can be summarized:

> "Ability to control the events of the farming year is shown, by some practical examples, to be largely influenced
>
> (i) by their predictability,
> (ii) by the duration of husbandry dating tolerance,
> (iii) by the resources which are, or can be made, available on the farm.
>
> "The higher the predictability and the larger the dating tolerance, then the less are the resources needed to achieve a given degree of control. In the sections which follow, the components of this principle and the theoretical aspects of their interactions are examined in more detail."

Attention is then given to work loads and finally to programme planning.

Agricultural Synthesis provides two warnings; the first is the extreme difficulty of attempting to provide an intelligible synthesis on the basis of technical information, and the second is the size of the questions begged when economists say "for a given production function".

WILFRED CANDLER *Massey University, Palmerston North, N.Z.*

Investment in Australian Economic Development, 1861-1900. By N. G. BUTLIN. (London: Cambridge Univ. Press, 1964.) Pp. 477, 60/- stg.

It has become obligatory to pay tribute to Professor Butlin for his pioneering researches into the dark ages of Australian economic history, particularly, of course, since the publication of his volume of statistics. One outcome of his contributions has been to render most previous interpretations antiquated. He has provided a quantitative foundation for a re-interpretation of Australian development. This is both admirable and necessary.

In his first volume Professor Butlin gave us the skeletal statistical framework. In the present volume, complementary to the first, we have a good deal of the meat of historical development between 1860 and 1900, a thorough account of the role of investment in the making of the Australian economy. In due course we are promised a new interpretation of this period—in the form of "a proper analytical appraisal of economic growth." The latter, presumably, will be an extension and elaboration of the introductory chapter of the present volume, and on this showing it seems likely that Butlin's re-evaluation of the economic changes of the period will help to exorcise some of the less credible elements of existing text-book interpretations. Yet this said does not preclude the impression that a definitive synthesis of the process of development in Australia is a far distant prospect. Butlin's first two volumes are distinguished strides forward.

Most of the themes are now familiar, the painstaking thoroughness is not. With a judicious blending of statistical and literary evidence, Butlin leads us persuasively to his conclusions, conclusions which are significant in themselves and in their implications. He tells the story of the transformation of the Australian economy, one of rapid, sustained and stable growth followed by collapse and reorientation in the 1890's. It is a comparative analysis of investment in the prominent sectors of the economy, with proper and critical regard given to the crucial role of governmental finance and investment—"an exceptional experiment in government intervention". The uniqueness of the Australian experience is given due emphasis. There is a particularly good account of the institutions which mobilized capital, internally and externally. It will be interesting to see what historians of economic imperialism make of Butlin's strictures on the flow of British capital to Australia. Yet more interesting is the keen analysis of the structural weaknesses which developed concomitant with the growth of the economy. Tracing the essential chronology of the steps towards the depression, Butlin picks out the relevant determinants, and presents a rationale of the apparent inevitability of the

events in the early 1890's—domestic imbalance, sectoral and external disequilibrium. Part of the explanation is couched in terms of the deterioration of the criteria of investment during the 1880's: "the sheer disregard of probable yields", and indications that "the very large proportion of total Australian capital formation was not undertaken for purposes of profit, was dominated by long term considerations and was comparatively unresponsive to market conditions". Clearly this is something of an imponderable element in the economic development of Australia. This book is much more than a recitation of statistics, and the validity of the interpretation does not depend exclusively on their veracity.

Perhaps in his final chapter on "Readjustment" Professor Butlin might have given a more comprehensive account of the form that reorientation took in the years following the depression. Further, it would have been of interest to know who the men were who undertook investment decisions, and the kinds of motives that actuated them. As it is they are lost within inscrutable "institutions". Their anonymity is an affront to the curious. But we should be thankful for what we have received. It will be unwise to speak of Australian economic history without reference to this weighty work.

E. R. RICHARDS *University of Adelaide.*

Land Use Policy and Problems in the United States. Edited by HOWARD W. OTTOSON. (Lincoln: Univ. of Nebraska Press, 1963.) Pp. viii + 470, $6.

This review of the course of land policy and speculations on future trends and unresolved issues in land use in the U.S.A. is divided into five sections: Historical Background; Social Influences; Past, Present and Future Demand for Land; Control of Land Resources (and the conflict between private and public interests in land use); Implications for Future Land Policy (including consideration of land policies in European countries and possible applications of the American system to underdeveloped countries).

In a collection of papers from eighteen authors with widely differing professional backgrounds, presented at a Centennial Exposition to mark the 100th anniversary of the signing of the Homestead Act, it is probably inevitable that there should be both repetition and lack of integration which may render sections of the book somewhat tedious to the reader. But paraphrasing another reviewer of this book, the trouble lies not so much in editing and conference planning as in lack of definition of the common basis of a very mixed bag of problems with "land" in their titles.[1]

On the positive side the various authors traverse the historical course of U.S. land settlement policy formation and the interplay of social, political, and economic factors in its evaluation. They provide valuable insights to understanding of these phenomena in both the United States and overseas. The excerpts which follow illustrate one thread of discourse running through many of the papers.

"We can recognise that the interior of the U.S. between 1815 and

[1] A. A. Schmid, *Journal of Farm Economics,* Vol. 46, No. 3, August 1964, page 700.

1862 furnished a prime instance of the undeveloped area . . . intense in its resources . . . its greatest need was a tremendous dose of capital. A lot flowed in as land-sales proceeds but . . . had the politicians genuinely desired to promote farm making . . . they would have raised the price of land, lengthened the term of credit, and even advanced development credit . . . There was nothing wrong in principle with credit sales. The trouble was that the credit term was too short and the price too low. It enticed speculators . . ." (pp. 9-11).

"The Homestead Act was the culmination of a series of moves intended to end the policy of using the public lands as a source of revenues to the government . . . giving land freely to anyone . . . Homestead made possible the fast growth of the west and all the problems this brought with it" (pp. 28-42).

"The price of the farm was . . . work and doing without . . . largely our farms could not be reproduced from wild land at present prices, wages and standards" (p. 68).

"But sufferance . . . was made easy by the faith that, within a few years of diligent industry and thrift, debtor operators . . . would wind up as absolute sovereigns of a Jeffersonian freehold" (p. 124).

"Technological progress has pushed back the limits on farm size . . . and increased the potential demand for farm land . . . effective demand . . . for farm land depends only on the buying power of a small proportion . . . of high income farmers who are making the large farms larger, urban people who are making investments, and a few beginning farmers who are risking much to gain a foothold in the occupation of farming" (pp. 192-193).

"The growth in part ownership, partnerships, and corporations would appear to indicate that larger farms favour dispersion of ownership and concentration of control. The implications of this . . . will be particularly noticeable in the relatively under-developed markets for resources in agriculture that have been historically small, local, and individualistic" (pp. 428-429).

The closing note is provided by congressman Wayne C. Aspinall—

"With all due respect to [his] dedication to service . . . the government employee has a narrow field of responsibility and speaks from his particular vantage point . . . conceptually, it is up to all land economists to think in terms of overall programmes . . . people from the study and classrooms . . . should take some action to make certain that the prinicples outlined on a proposed land policy are brought to attention . . . and related to specific pieces of legislation being considered . . . possibly tempering the sometimes exaggerated hopes and fears [to ensure] a well balanced, moderate land use policy".

E. J. WARING *Australian National University, Canberra.*

Applied Statistical Decision Theory. By H. RAIFFA and R. SCHLAIFER. (Boston: Division of Research, Harvard Business School, 1963.) Pp. 356, $9.

Introduction to Statistics for Business Decisions. By R. SCHLAIFER. (New York: McGraw-Hill Book Company, 1962.) Pp. 382, $7.75.

The speculative element which is usually an essential part of a book

review is absent on this occasion. The books under consideration are now established as the cornerstone of a significant departure in the use of statistics to support a course of action. Here I want to describe, in rather a cavalier manner, the essentials of the approach to decision making problems that is proposed in *Applied Statistical Decision Theory,* and then to see how this approach is modified in *Introduction to Statistics for Business Decisions.*

The framework on which Raiffa and Schlaifer's method is based is the description of any decision making problem in terms of a state space, an act space, an experiment space and an outcome space. This means any decision problem can be characterized by the elements which are members of these four spaces, and by the probability distributions defined over the state and outcome spaces for any given experiment. Another integral part of their approach is a utility function. This function assigns a "utility" or value to each point in the joint space produced from the four component spaces defining any decision.

Using this framework it is possible to give the reader an indication of what the authors accomplish. Only a minimal use of the terminology developed in these works will be made here as an unusually large part of the book is devoted to explaining the authors' use of symbols and the precise meaning of their terminology. Analysis of decision problems is easiest when there are only a small number of elements at discrete points in each space and the probability distributions have therefore mass only at these discrete points. A pictorial representation of such a problem is the familiar decision tree. This simplified space is a convenient way of expositing the two main forms of analysis the authors use.

Suppose that the experiment is fixed and that a certain experimental outcome has occurred. The outcome and a prior probability distribution are conjoined to produce a posterior distribution over the state space. This posterior distribution and the utility function are sufficient to determine an optimum act (i.e. terminal analysis). Incorporation in the framework of an experiment space suggests that we can expect statistical decision theory to aid us in our choice of appropriate experiments. Preposterior analysis is the means developed for this choice. It involves terminal analysis for each possible outcome of each experiment. The probability distribution over the outcome space of each experiment is used to produce an expected value which is the choice criterion employed to select the optimum experiment.

The most important section of *Applied Statistical Decision Theory* establishes the conditions that allow one to carry out terminal and preposterior analysis in a decision situation closer to reality. There would then be many elements in each space and the probability distributions are defined for a continuum of points in the relevant spaces. Analytic solutions are feasible if:

1. the experimental outcome can be described by a sufficient statistic of fixed dimensionality (i.e. the dimension of the sufficient statistic does not depend on the sample size), and
2. the prior measure over the state space is a conjugate of the conditional measure on the sample space.

A strict definition of a conjugate prior distribution is not possible in this review. It is sufficient to think of it as one which when joined to the sample likelihood produces a posterior of the same form as the prior,

but with parameters some simple function of both the prior and sample parameters. The authors catalogue a wide variety of sampling situations with their associated sufficient statistics and conjugate distributions over the state space. The important restriction that arises from these conditions is that the physical nature of the process involved dictates a certain distribution over the outcome space and this in turn dictates the form that the prior distribution must take to facilitate analytical work. This implies that the dictated prior distribution must be rich enough to depict any proposed prior situation.

A major simplifying assumption is introduced in the second part of the book. The utility function which is defined over all four spaces is assumed to be additive. This means that the "value" for any point can be regarded as the *sum* of the utility associated with the couplet in the act-state space and the utility associated with the couplet in the experiment-outcome space. The additivity assumption is later allied with a further specification as to the functional form of one of the additive parts. The function referring to the act-state space is assumed to be linear in the state variable for each possible act. As a result of these assumptions quite tractable formulae are established for performing terminal and posterior analysis and for evaluating the characteristics of these analyses for a wide conspectus of prior and sample distributions. Further, if we assume that the act and state spaces are identical, then the form of the utility function associated with the act-state space does not have to be constrained to a linear function of the state variable to obtain tractable formulae for the solution of posterior and terminal analysis.

The final section is devoted to developing some of the raw material on which the previous two parts are based. A variety of distributions are studied and their likelihood, sufficient statistic, conjugate prior distribution and partial expectations are presented.

The book makes an important contribution at two levels. It establishes a logical framework for Statistical Decision Theory and develops the necessary methodology. A battery of formulae applicable to a wide variety of situations is then developed which will be a recurrent asset for those working in applied areas.

Introduction to Statistics for Business Decisions is an emasculated version of the joint work. Professor Schlaifer has made their approach to decision-making much more accessible by providing a book which assumes no previous statistical or mathematical background. The author discusses in detail the *introductory material* on which their methods are based. In direct contrast to this detail he is forced to abruptly produce appropriate formulae when he presents solutions to actual decision making problems. (A comment in the Introduction refers the interested reader to *Applied Statistical Decision Theory* for the development of these formulae.)

I have no doubt that the readers the author is attempting to reach would gain nothing from a detailed presentation of the developments of these formulae. However, a better intuitive grasp of the meaning of these formulae could be obtained if a simple exposition of the overall framework of decision-making had been included. A modification of the first chapter of *Applied Statistical Decision Theory* would be most beneficial.

The discussion of statistical decision rules is skilfully presented in such

a way that it guides the thoughtful reader to compare it with traditional methods of hypothesis testing. The reader of *Applied Statistical Decision Theory* would be well advised to refer to the section on this topic in Professor Schlaifer's book.

These books would be a valuable influence on their readers even if they only stimulated them to place their decision problems in the proposed framework. The foundations for other more sophisticated analyses are logically laid but it is not sufficiently stressed how crucially the decisions made will depend on the possibility of producing an acceptable prior distribution and utility function.

R. D. TERRELL *Australian National University, Canberra.*

Linear Programming and Extensions. By G. B. DANTZIG. (Princeton Univ. Press, 1963.) Pp. 625, 125/-.

As would be expected, this is an excellent book. As to whether it is a suitable text-book will depend on the level of instruction being aimed at. If used as a text-book, numerical examples, in addition to those supplied by Dantzig, will probably be needed.

Although *Linear Programming and Extensions* is written throughout at the same high, but not arid level, most readers will probably feel that the last seven chapters are much more difficult than the first 21. This is because the last quarter of the book deals with material with which few agricultural economists would be familiar.

The more or less familiar material in the first 21 chapters deals with the historical development and economic interpretation of the programming problem, the simplex method and its extension to parametric programming, and transportation and assignment problems in both their graphical and algebraic forms. Abundant expository material on these subjects is already available to, and well known by, agricultural economists. Dantzig's book provides the perspective and continuity one would expect from a man who has been associated with many of the most important developments in this field since its inception.

Chapters 22 and 23 deal respectively with "Programming with Variable Coefficients", and "A Decomposition Principle for Linear Programmes".

"Programming with Variable Coefficients" refers to a problem where the elements of the vector P_j may be selected as any elements of a convex set. For instance, the elements a_{1j}, a_{2j}, a_{3j} of P_j may be defined only as having to fulfil, say, the restraint $a_{1j} + 2a_{2j} + 3a_{3j} = 2$.

The "Decomposition Principle" involves taking advantage of the structure of the appropriate linear programming problem to define "master" and "slave" programmes. The "master" and "slave" programmes are then solved iteratively until mutually consistent shadow prices and quantities are obtained. This latter section also deals with integer and quadratic programming. Questions, many of which would not normally occur to the reviewer, appear at the end of each chapter.

In short, *Linear Programming Methods and Extensions* is a book which most lecturers and graduate students in farm management, and some agricultural economists, could profitably buy.

WILFRED CANDLER *Massey University, Palmerston North, N.Z.*

Studies in the Australian Capital Market. Edited by R. R. HIRST and R. H. WALLACE. (Melbourne: Cheshire, 1964.) Pp. 469, 50/-.

This book brings together studies in ten more or less distinct areas of the Australian capital market, ranging from stock exchange and new issue markets through the specialized institutions of life and non-life insurance, superannuation, hire purchase, savings banking, housing and agricultural finance, development finance and the short-term money market, and concluding with chapters on company finance and trade credit.

The editors themselves have contributed three chapters. (Hirst on Development Institutions and the Short Term Money Market, and Wallace on Savings Banks.) Other chapters have been contributed by their colleagues or former colleagues at the University of Adelaide (Mathews, Grant, Jarrett, Harcourt and Schneider) and two others—Hill of the Reserve Bank (Housing Finance) and Runcie of the University of New South Wales (Hire Purchase).

The studies focus on areas of financial activity where growth and development have been most marked during the post-war period. The opening chapter by Mathews gives a quite detailed description of stock exchange functions and procedures, along with some discussion of vexed regulatory issues and perfunctory reference to investment companies, unit trusts and mutual funds. In subsequent chapters the various institutional sectors recognized are described in detail and set in historical perspective, with statistics of financial structures and flows presented and analysed. Schneider's chapter on Trade Credit is necessarily more discursive, reflecting the inadequacies of statistical data available in this field. A largely conventional survey of company finance completes the package.

Thus the book provides comprehensive descriptive material over quite a wide range of financial activity and should prove a useful reference text for students and others desiring to gain a basic understanding of the operations of financial institutions other than trading banks.

One can quibble about overlapping and gaps in coverage and digressions from the central theme within the various chapters. Also, for readers with a special interest in finance for agriculture, Jarrett's chapter on "Agricultural Credit—Pastoral Finance Companies" will perhaps be found less than satisfying as a result of strictures the author apparently faced in endeavouring to describe and analyse the role of the pastoral finance companies with a minimum of overlapping into discussion of other inter-related sources of agricultural credit.

Overall, however, if one accepts that the editors conceived this book as an initial bringing together of basic material in a field relatively bare of authoritative texts, then it must be judged a useful and timely contribution.

The most disappointing aspect, which the editors freely confess, is the book's failure, apart from some brief comment in the preface, to consider the significance of trends in relative sizes and patterns of growth of the main financial institutional groups or to offer any critical appraisal of the lines along which the Australian capital-market complex is developing. Some individual contributors have attempted assessments of performances within the sectors they describe and, in a few instances, pointed to shortcomings and inadequacies. However, no attempt is made

to round off the studies by bringing these together. It is to be hoped that these challenges will not remain unaccepted.

D. R. PARR *Reserve Bank of Australia, Sydney.*

Water Resources Use and Management. Proceedings of a Symposium held at Canberra by the Australian Academy of Science, 9-13 September 1963. (Melbourne: Melbourne Univ. Press, 1964.) Pp. 530, £10.10.0.

Consisting of the forty major papers presented at a water-use symposium, this book marks a significant milestone in the study of Australia's water resources. The symposium was the most comprehensive gathering of its kind held in Australia, and the papers provide a very good review of the present state of knowledge of Australia's water resources and the various disciplines associated with their use and management. A small section comprising four papers is devoted to socio-economic problems, an innovation which is long overdue in this field. However, the inclusion of these papers only serves to emphasize that in comparison to the research which has gone into the technical aspects of hydrology, economic planning of water resources has received only scant attention.

The price of this book is likely to limit sales to libraries and to those having a special interest in water resources. Those specializing in one of the fields of hydrology would probably find the book of most value, although there are sufficient papers of a general and descriptive nature to provide a useful introduction to water resource development in Australia. The standard of papers is generally very high, but there are a few which present elementary information of a very general nature and not related specifically to the Australian scene.

The water resource economist will be mainly interested in Section D: Socio-Economic Problems.

In the papers by R. K. Linsley and J. R. Burton will be found an introductory treatment of the economic planning of water resource development. Burton spells out, in elementary fashion but with comprehensive documentation, the steps involved in the hydro-economic planning process, and makes a special plea for the application of this planning process in the development of Australia's water resources. Linsley limits his paper to a review of six major barriers to effective planning of water projects and suggests possible solutions. He contends that we are reasonably well equipped with analytical techniques to achieve a high order of optimization provided these barriers can be overcome.

K. O. Campbell's paper is mainly concerned with policy considerations in public irrigation development. In his opinion such development should be evaluated from the standpoint of its potential contribution to national economic growth. He suggests that governmental expenditure on the extension of irrigation areas in Australia is probably not as socially desirable as other forms of national investment because shortage of water is now less of a constraint on national growth than it has been in the past. Campbell also makes a plea for the wider recognition of the

usefulness of quantitative economic analysis in the appraisal of investment projects.

A. L. Tisdall's paper traces the historical development of irrigation in Victoria and describes in fairly broad terms the sociological and economic implications of this development. He claims that irrigation has been very effective in decentralization of population and in increasing production.

The discussion on this section of the symposium reveals some mixed feelings regarding the value of an economic assessment of water resource development. There is still the attitude on the part of some people that because Australia is a relatively dry continent, all available water resources should be developed at any cost. There is also, it seems, a reticence to concede that an economic assessment provides information which is vital to any rational decision to proceed with a water resource project, whether or not the final decision is based on welfare considerations as distinct from the strictly profit motive. The economic assessment surely provides a measure of the "cost" of achieving such social objectives as decentralization or land settlement.

There are also a number of descriptive papers in other sections of the proceedings which are of interest to water resource economists, but they are rather too numerous to mention here in detail. They are mainly in Section A: The National Outlook and that part of Section C which deals with Operation and Management.

Some general comments on the layout of the book: many of the papers have useful bibliographies; an index would have been a useful refinement which one might have expected in a "luxury priced" volume. The layout of the book is attractive and the diagrams clearly displayed.

GEORGE MASON *N.S.W. Department of Agriculture, Sydney.*

Economics: An Australian Introduction. Edited by J. McB. GRANT and A. J. HAGGER. (Melbourne: Cheshire, 1964.) Pp. 296, 27/6.

As the editors explain in their preface, "the small size of the Australian market imposes a substantial handicap on local [book] manufacturers". In an attempt to overcome this the device was adopted of having a number of contributors (G. C. Firth, A. Hocking, and A. W. Vout as well as the editors themselves) write on different topics, the intention being that a book "designed to provide an introduction to economics for Australian students" should emerge. Regretfully, this reviewer is not convinced that the book is entirely suitable for the beginning student of economics.

As is often the case in a work of this nature, too much is being attempted within the confines of a small space. The authors never seem to have decided clearly the *level* of exposition which they wished their contributors to attain. One's sympathies are with the student, who, after some pages of very elementary language ("if a borrower is required to pay the lender £5 for the use of £100 for one year, the interest rate is 5 per cent per annum" p. 50) is suddenly plunged into a morass of detail and intricate analysis. This happens in several of the chapters. Nor did the authors decide satisfactorily whether this book was to be

read as a whole—as an elementary text—or as a collection of "readings" on various topics. The former *seems* to have been the intention, to judge from the cross references given from one chapter to another, but the major impression one gathers is that of a somewhat haphazard compendium of journal articles. This impression is reinforced by the fact that the reader is continually having to readjust his standpoint: at one moment he is studying the historical evolution of part of the economic system, the next he is analysing an abstract model of that same system. It might be argued that history and theory *should* go hand in hand, but the jumps are made so suddenly and so frequently as to make the reader feel rather like a grasshopper.

Unlike Gaul, "the book is divided into four parts". The first deals with the institutional background of Australian economics (labour and capital markets, banking system, government finance); the second outlines microeconomics; the third discusses Australia within the context of an international setting; and the fourth introduces the student to macroeconomics.

A few points of detail should be mentioned. The beginning student would find the section on elasticity of demand (p. 109) difficult to follow as a result of too much being crammed into a few sentences. (Incidentally, since sales of the book will mainly take place after the introduction of decimal currency, might it not have been a good idea to have quoted numerical examples here and elsewhere in decimals?) The section devoted to "price makers" seems insufficiently expanded when compared with the space given to "price takers". And would it not have been useful to have included diagrams of all the cost curves in the former section corresponding to those in the latter? In the event, the one diagram included in Chapter 8 prevents the showing of monopoly profit through the absence of an average total cost curve. It is expecting too much of the student, therefore, that he should be faced with a sentence like "It should be noted that the profit equals the gross revenue . . . minus the total variable cost and the given fixed cost (which is not shown in Figure 8.1)".

Some topics are dealt with in more than one section whereas a more rigorously planned textbook would have put them in close juxtaposition. For example, government activities are dealt with in Chapter 5 of the Institutional Section, and "Collective Allocation" dealt with in Chapter 9. Again the Sterling Area is dealt with in the same way in both Chapters 10 and 11.

In the Foreign Exchange chapter the theoretical explanation of an equilibrium price (five pages) is sandwiched awkwardly between historical and current aspects of monetary events and policy.

Phraseology is not always felicitous: for example, one sentence on pages 205-6 in a particularly difficult section concerning index numbers contains 116 words! Index numbers receive detailed treatment but it may be doubted whether the student can reasonably be asked to master their intricacies in a course of this nature. It is unfortunate, too, that the particular example chosen reveals negligible differences between Paasche, Laspeyres and Fixed-weight index numbers so that the student is rendered somewhat sceptical of the concluding sentence that "nevertheless, since they can, on occasions, differ significantly the index problem cannot be ignored".

The student of agricultural economics will find little in the text which can be regarded as directly relevant to his own special interests. It is true, however, that a farm is used as an example of a firm in perfect (or pure) competition and a few words are devoted to economic rent and the market for land.

One might, finally, take issue with the authors over a number of detailed facts or dogmatic expressions of opinion. And occasionally, one is amused by sentences like "[in Australia] inflation was fairly slow; the rate of increase of the index averaged only about 6 per cent per annum over the period and the highest figure was less than 25 per cent"!

The attempt to provide Australian students with a first text in economics which would relate to local conditions was laudable but in this reviewer's opinion Australia still awaits its Samuelson.

DEREK T. HEALEY *University of Adelaide.*

Disguised Unemployment in Underdeveloped Areas. By Y. S. CHO. (Berkeley: Univ. of California Press, 1963.) Pp. 157, $3.75.

Over the last decade there has been considerable discussion amongst economists of the question of surplus labour in the rural sectors of underdeveloped nations. Some writers have claimed that these surpluses are an important feature of the rural employment pattern, and in the face of the scarcity of developmental finance, the constructive use of this labour could make an important contribution to the overall economic development of these countries. It has been variously advocated that idle labour could be better and more fully utilized on the farm, on capital projects within the rural sector, or as part of programmes of industrialization.

The discussion in the literature has ranged over three major aspects of labour surpluses: (1) nature and causes; (2) magnitude (under various *ceteris paribus* assumptions); and (3) how they can be reduced and constructively used.

With regard to the first aspect, there has been considerable confusion, arising from a proliferation of different concepts and terms. All too few examinations of the problem were accompanied by or tested by empirical investigations which would enable a choice to be made between them and the operationally less useful weeded out. Only lately has there been any accumulation of empirical studies which reliably indicate the actual employment conditions in these underdeveloped countries.

Yong Sam Cho considers all three of the above aspects of the labour surplus problem in his book. Briefly, he first provides a critical review of the literature and offers an alternative conceptual framework based on technical and sociological characteristics of underdeveloped societies. He then makes a case study of the rural sector of the South Korean economy, taking a sample of rice farmers for illustration. Total available labour is estimated using various assumptions concerning the nature of the work force and of farming, household and social activities. He calculates actual employment of labour amongst the sample farmers. Actual employment is then set against labour available to obtain a measure of underemployment both on a monthly and annual basis. With these figures as data, Cho uses his conceptual framework to show what this underemployment means for development programmes. In the light of

his results and of other social and economic realities of South Korea, he proposes a programme which could reduce the surplus by offering greater employment opportunities and which could assist in general economic development.

In his review of literature Cho is particularly critical of the concept "disguised unemployment" commonly used to characterize surplus labour. Writers in the field, including Cho, have recognized that due to certain social institutions commonly encountered in underdeveloped societies, e.g. the extended family system, there is little overt unemployment such as is found in urban industrial areas of advanced economies, and typically, individuals are at least nominally incorporated into the labour force. Some writers claim that in many cases the marginal productivity of labour has been reduced to close to zero, and that a proportion of the labour force could be regarded as being "unemployed", but in a "disguised" sense. Cho disagrees, claiming that no work is done unnecesarily, i.e. which adds nothing to total output. Furthermore, he suggests that although productivity is low, it is seldom close to zero. This is because as population pressure builds up in rural sectors with a relatively constant total output, per capita consumption levels fall. As this happens, the physical working capicity of labourers is reduced and this is reflected in fewer working hours. Consequently, additions to the work force take over some of these hours. There is of course a diminishing marginal productivity of labour, but the downward trend is only gradual. The labour force will be found to work short hours and so workers can best be described as "underemployed" and furthermore their idle hours will be quite "visible" to the observer.

On the question of causes, Joan Robinson who who was one of the earliest writers in the field claimed that surplus labour arises from a decline in effective demand which drives labour to seek occupations which are inferior in a productivity sense. The Navarettes later refined Joan Robinson's demand thesis by suggesting that this type of unemployment arose partly from fluctuations in foreign demand for primary products (*cyclical*). Cho, on the other hand, claims that changes in demand for primary products probably make no great impression either way on the already serious employment conditions in rural industries. In addition, he points out that operationally it is not a simple matter to classify occupations as regular or inferior.

The Navarettes gave two other causes of underemployment. One is the willingness of workers to work at existing wage rates (*structural*). This Cho suggests is nothing more than the effects of seasonal fluctuations in demand for agricultural labour. The second was the failure of capital and other means of production to expand at the same rate as the labour supply (*underemployment of expansion*). Cho dismisses this category with the rather irrelevant observation that it is not peculiar to underdeveloped countries.

Cho sees underemployment as the result of two sets of factors which he broadly terms *technical* and *social* (tradition-directed). Technical underemployment can arise through lack of capital (including land) and technology in relation to labour, an inelasticity of demand for and supply of native commodities, and through the seasonal nature of agricultural operations. This type of underemployment he considers to be involuntary. Tradition-directed underemployment is seen to be a con-

sequence of local customs and traditions, attitudes to knowledge, and lack of inventiveness and enterprise which all tend to weaken economic motivation and resource mobility. Cho considers this to be a voluntary type of underemployment which can only be reduced by severe social change, e.g. by totalitarian methods. Assuming that development programmes do not attempt anything so basic as a change in social organization, only that part of underemployment which derives from technical factors will be potentially available for development purposes.

The author provides no convincing explanation of the way technical and social factors operate to cause underemployment, nor does he satisfactorily show why underemployment caused by social factors should be so stubbornly ineradicable in the face of improved economic opportunities. He is particularly uncomfortable with the seasonal factor which does not seem to fit neatly into either category. At one point it is included as a cause of technical underemployment, while at another he states that "technical underemployment is true surplus labour when it is non-seasonal", while at yet another point he claims that "a certain amount of seasonal (or technical) underemployment exists under the traditional social arrangement as well".

The calculations of the employment situation in South Korean agriculture are probably the major contribution of this book. It was shown that some 30 per cent of the total annual available labour time was unutilized. However, this was quite unevenly distributed within the year. In peak periods of activity there were actually labour shortages so that there was in fact no part of the labour force which was idle for the whole year. By contrast unutilized labour was as high as 78 per cent of the available supply in one month of slack agricultural activity.

In his calculations Cho distinguishes two categories of workers: family members and permanent wage labourers. The latter group was considered to be free of traditional influences so that any underemployment within it would be due purely to technical factors. It was found that for South Korea there was in fact a substantial amount of unutilized labour time for this group, though somewhat less than for family workers. This proportion was used to separate out the technical from tradition-directed underemployment for the agricultural labour force as a whole. By this calculation, almost two-thirds of the unutilized labour was tradition-directed and was thus voluntarily idle labour and only about one-third represented idle labour which could be mobilized in a development programme.

Those who might be sceptical of Cho's estimates of the proportion of idle labour which could be mobilized, will probably still find much that is useful in the basic calculations of underemployment since these were obtained quite independently of the conceptual framework.

The author's development programme is largely fashioned around the magnitude, timing and availability of unutilized labour in South Korea's rural sector. He urges that since seasonal underemployment is substantial, there is considerable scope for reducing it with local community projects which are cheap on finance but which offer scope for the investment of labour on an intensive scale, e.g. irrigation, dam building reafforestation, etc. The limited finance required could be obtained by reallocating agricultural commodity subsidies now given to producers and from a rent tax on absentee landlords. He argues against labour withdrawal from

agriculture for, say, urban industrialization on several grounds. First, since there is no labour idle all the year round, and because it is not easy to reduce peak labour requirements in agriculture, any reductions in the labour force would reduce agricultural output. Second, he argues, rather flimsily, that investments in agriculture should have priority anyway since the returns on investment are high in agriculture relative to other industries. Finally, he notes also that there is already unemployment in urban areas and a faster urban drift could exacerbate the situation.

R. T. SHAND *Australian National University, Canberra.*

PERSONAL NOTES

Mr. R. Byron, formerly temporary lecturer in the Department of Economics, University of Western Australia, has accepted a temporary lectureship in the Department of Economics, University of Adelaide.

Mr. P. C. Druce's position in the Division of Marketing and Agricultural Economics, N.S.W. Department of Agriculture, has been reclassified from Principal Economics Research Officer to Deputy Chief.

Mr. J. V. Graham has resigned from the N.S.W. Department of Agriculture to join a private farm management practice in New Zealand.

Dr. F. G. Jarrett of the University of Adelaide will spend the year 1966 on study leave in the Department of Economics, University of Minnesota.

Mr. J. Phillips, formerly employed by the Australian Wool Board, and Mr. R. Coutts, a graduate of the University of New South Wales, have joined the economics research staff of the Division of Marketing and Agricultural Economics, N.S.W. Department of Agriculture.

Dr. M. Polasek has returned from Queen's University, Canada, to a Senior Lectureship in the School of Social Sciences at the University of Adelaide at Bedford Park.

Mr. C. D. Throsby has been granted a further year's leave from the N.S.W. Department of Agriculture to accept, temporarily, a position as Lecturer at the London School of Economics.

Mr. A. Watson has joined the Department of Economics, University of Adelaide, as Wool Research Fellow.

Mr. I. R. Wills has accepted a Research Assistantship in the Department of Agricultural Economics, University of Illinois, commencing November 1965.

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