

UNIVERSAL
LIBRARY

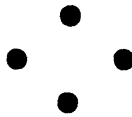
OU_164212

UNIVERSAL
LIBRARY

OSMANIA UNIVERSITY LIBRARY

Call No. 630
In 39 R
Accession No. 7146 P. G.
Author Indian Society of Agricultural Econ.
Title Readings in agricultural economics
1950
This book should be returned on or before the date last marked below.

READINGS
IN
AGRICULTURAL ECONOMICS
NATURE AND SCOPE



THE INDIAN SOCIETY OF AGRICULTURAL ECONOMICS
Esplanade Mansions, Mahatma Gandhi Road
Fort, Bombay.

**COMMERCIAL PRINTING & PUBLISHING HOUSE,
46, ARMENIAN ST., MADRAS-1.**

CONTENTS

S. No.

Page Nos.

SECTION A

ROLE OF AGRICULTURE IN NATIONAL ECONOMY

1. Agriculture in Modern Life	—O. E. BAKER ...	17
2. Agriculture in Modern Life	—RALPH BARSODI ...	19
3. Agricultural Fundamentalism	—JOSEPH H. DAVIS ...	21
4. Farm Prosperity	—WALTER W. WILCOX ...	28
5. The Nation's Stake in the Good Life on the Farm	—HOWARD R. TOLLEY ...	31
6. The Importance of Agriculture in an Industrialised Economy	—Committee on Parity Concepts U.S.A. ...	33
7. The Land Problem one aspect of the Economic Problem	—ARTHUR P. CHEW ...	35
8. National Agricultural Programmes	—F. A. O. ...	37
9. Agriculture in an Unstable Economy	—THEODORE W. SCHULTZ ...	38
10. Modern Capitalism, Rural Economy and Industrialisation	—FRANK M. TAMAGNA ...	42
11. Agrarian Backwardness and Economic Dependence under Colonial Policy	— <i>Australian Institute of International Affairs</i> ...	46
12. The Agrarian Background	—E. STUART KIRBY ...	48
13. Agriculture in Syria	— <i>United States Syria Agricultural Mission</i> ...	50

SECTION B

DEFINITION AND SCOPE OF AGRICULTURAL ECONOMICS

1. History of Agricultural Economics	—H. C. TAYLOR ...	55
2. Agricultural Economics in Scotland	—WILLIAM E. HEATH ...	64
3. Agricultural Economics in Italy	—GIUSSEPPE MEDICI ...	68
4. The Economics of Agriculture	—R. COHEN ...	73
5. Definition and Scope of Agricultural Economics	—B. H. HIBBARD ...	75
6. Agricultural Economics as Applied Economics	—A. W. ASHBY ...	77

S. No.		Page Nos.
7.	The Objectives and Methods of Agricultural Economics —BUSHROD W. ALLIN ...	81
8.	Land Economics as a Social Science —ROLAND R. RENNE ...	87

SECTION C

RESEARCH IN AGRICULTURAL ECONOMICS

1.	What the Policy Maker Needs —ALEXANDER LOVEDAY	93
2.	Some Considerations in Building a Curriculum for Agricultural Economics Majors —AUSTIN A. DOWELL ...	96
3.	Training for Men Contemplating Work in the Field of Agricultural Economics —C. L. ALSBERG ..	101
4.	The Training of Agricultural Economists —HOWARD E. CONKLIN ...	107
5.	Research in Land Economics —LEONARD A. SALTER JR.	111
6.	Quantitative Research in Agricultural Economics —TRYGVE HAAVELMO ...	117
7.	The Field of Research in Land Tenure —GEORGE S. WEHRWEIN ...	122
8.	National Farm Survey of England and Wales— <i>Ministry of Agriculture and Fisheries, United Kingdom</i>	129
9.	Economics Division, Canadian Department of Agriculture —J. F. BOOTH ...	144
10.	Bureau of Economics, U. S. D. A. ..	151

APPENDIX A

Major Fields of Research of the Bureau of Agricultural Economics, U. S. D. A. ...	153
---	-----

APPENDIX B

Bibliography ...	160
------------------	-----

FOREWORD

Agricultural Economics in India has as yet received scant attention both in the Universities and in the Government Departments of Agriculture. Prof. Ashby, Director, Institute for Research in Agricultural Economics, University of Oxford, who visited this country in the winter of 1949-50, underlines this sad neglect in his report of his tour impressions when he says 'Having regard to (a) the area of agricultural land, (b) the size of the agricultural population, (c) the importance of agriculture in the national economy—its actual and potential contributions to national wealth—I am appalled at the small provision made for investigation and research in Agricultural Economics . . . Recognising that India is a relatively poor country, it is still true that in comparison with other applied sciences of agriculture, Agricultural Economics has been starved.'

Early in 1949, the Society decided to bring out a series of volumes entitled *Readings in Agricultural Economics*, with a view to presenting important contributions of experts on the various economic problems of agriculture. The objective was to popularise the subject in India and to provide useful research material from sources not easily accessible to students and research workers in Agricultural Economics. The problems selected for this purpose, in the first instance, are (1) Definition and Scope of Agricultural Economics, (2) Rehabilitation of Backward Areas, (3) Agricultural Prices and (4) Rural Sociology.

The present volume is intended to serve as an introductory background to those that are to follow. It seeks to define the scope of Agricultural Economics and emphasises the need for developing it. We are conscious of our great limitations in attempting this ambitious task and we do not claim that we always had access to the best material on the subject. We, however, do hope that students of the subject will appreciate our bringing together in one volume contributions of leading agricultural economists on the problem.

The compilation of this volume was undertaken by the Society's Office itself. The work of compilation was mainly done by our Research Secretary, Mr. B. S. Mavinkurve and to him goes the credit for a discriminating selection of extracts and their skilful presentation as also for the brief and cogent Introduction.

We are grateful to the Commercial Printing and Publishing House, Madras, for printing this Volume free of charge. This arrangement was made through the good offices of Dr. B. Natarajan, the Economic Adviser to the Government of Madras. We are also grateful to Prof. K. C. Ramakrishnan and Shri C. L. D. Prasada Rao for helping us with proof corrections.

We are grateful to the Reserve Bank of India for their grant which has facilitated the compilation and publication of this volume.

MANILAL B. NANAVATI,

President.

*The Indian Society of Agricultural Economics,
Bombay, 1st November 1950.*

INTRODUCTION

The Economic Depression of the 'thirties took world agriculture by surprise. In most of the countries, it found the economist inadequately acquainted with the dynamics of agricultural economics and the Governments ill-equipped with tools to avert the disaster or even to mitigate its effects. Consequently, the effects of the depression were more widespread, more intense and prolonged in agriculture than in other sectors of world's economy.

The depression, however, was not entirely sterile, for, the numerous problems it presented before the economists and the Governments provoked a good deal of fruitful thinking which, ultimately, led to a fuller development of the science of agricultural economics. Not that agricultural problems were entirely ignored by economists prior to the depression; but they were only dimly visualised and superficially treated as more or less unimportant off-shoots of the general economic problem. The problems of agriculture which the depression presented, however, could not but compel the special attention of the economist and the Government. For one thing, it was found that, for the purpose of economic progress, the building up of a secure and efficient agriculture was as important as industrialisation and urbanisation, and that if national economy as a whole had to advance, a stable agriculture was an indispensable basis. In other words, it was realised that the state of agriculture had a vital bearing on the general economic well-being and progress of a country, irrespective of the proportion of the people dependent on this occupation. Secondly, it was found that owing to the peculiar characteristics of agriculture, its problems did not always yield to the same methods of analysis; very often, they called for remedial measures different from those applicable to other sectors of economy. These developments further revealed that to draw up plans for agricultural reconstruction, it was necessary to study agricultural problems intensively and, for that purpose, to define the various fields of investigation and also to evolve suitable methods and techniques for conducting research in this subject.

We give in this volume extracts on each of the three points mentioned above, viz.:—

- A. The Place of Agriculture in National Economy
- B. Definition and Scope of Agricultural Economics
- C. Research in Agricultural Economics

We should like to note that literature on each of these points is vast and we cannot pretend to claim that these extracts cover all the best material available; all that we have tried to do is to present together view-points of different experts on the respective subjects. Such a presentation, as will be evident from the following summary, would greatly facilitate a proper synthesis of the literature on these subjects and also, we hope, stimulate interest in agricultural economics, particularly in those countries of the East where agriculture largely determines the wealth and welfare of millions of people.

SECTION A: PLACE OF AGRICULTURE IN NATIONAL ECONOMY

The extracts in this Section show the place which agriculture should occupy in national policies for economic reconstruction, in highly industrialised countries as well as in those which are predominantly agricultural.

To begin with, we have four extracts which discuss, from different standpoints, the theoretical issues relating to the place of agriculture in the general set-up of modern economy. According to BAKER, the increase in the world's population has been made possible by a great increase in agricultural production. The agricultural revolution preceded, and its development made possible, the industrial revolution. In spite of this, the farming community has failed to share with other economic groups the increased amenities and luxuries which scientific advancement has provided. This, however, is due to defects in the distribution of income and wealth. In Baker's opinion, therefore, the farming people could enjoy more of the comforts and pleasures of life with a suitable improvement in agricultural production and in the pattern of life of the farming community.

RALPH BARSODI generally supports Baker's view. His main thesis, however, is that agriculture is, inherently, more a way of life than a "business." He, therefore, shows annoyance at the widely current notions that efforts should be directed to adjust agriculture to modern society which is "predominantly scientific, mechanical, industrial, commercial and urban." He pleads for a restatement of the issue regarding agricultural rehabilitation and asks us to consider how far modern life should be adjusted to what is inherent and inescapable in the art and science of cultivating land. For, "It is possible . . . that there is not only something wrong with modern agriculture but that there is also something wrong with modern life."

While the above two extracts seem to take the orthodox view that agriculture is *par excellence* the fundamental industry and that farmers are, in a peculiar sense and degree, of basic importance to society, DAVIS takes us to the other extreme that economic progress, broadly viewed, tends to be accompanied by a decline in the relative importance of agriculture. He decries in severe terms "agricultural fundamentalism" which tries to secure for agriculture "equality with industry", to raise farm prices to their "fair exchange value", and to ensure that agriculture shall get its faith, because it not only obstructs general progress but often operates "fair share" of the national income. He challenges the soundness of this faith, because it not only obstructs general progress but often operates contrary to the interests of farmers themselves. "To-day, agriculture is not uniquely basic, and the prosperity of a nation depends largely on other factors than the work of those who till the soil."

WILCOX in discussing the constituents of farm prosperity steers cautiously between the two extreme view-points referred to above viz., agricultural fundamentalism on one hand and the new school of thought decrying it as "orthodox", on the other. He is on the side of Davis when the latter attacks the exaggerated notions about the general economic welfare being dependent on the farmer's economic welfare. He refutes

the view (e.g., Baker's) which gives greater importance to agriculture on the ground that the agricultural revolution preceded or even facilitated the industrial revolution. Farming in Wilcox's opinion, can claim priority over other lines of work, but those who argue that it is more important as a generator of income in modern society than other occupations have failed to understand the true nature of modern economic society. At the same time, however, he would not agree with Davis when the latter emphatically asserts that a nation's prosperity depends "largely on other factors than the work of those who till the soil." Wilcox strikes the mean between these two extreme tenets when he says: "An efficient agriculture . . . contributes much towards a high national income and the economic well-being of the nation—but the same can be said for each of the other groups." Agriculture along with all other industries which make up an economy is greatly affected by what happens in the other parts of the economy.

So far about theory. Subsequent extracts deal with the place of agriculture in national economy with special reference to some countries both in the West and in the East. In America, for instance, TOLLEY, (Chief of the Bureau of Agricultural Economics, U.S. Department of Agriculture), assigns to agriculture a status equal to that of other sectors in America's economy, though only 25 per cent of the country's population is dependent on cultivation. KARL BRANDT concedes that the centre of gravity of American economy has shifted in the course of the "Industrial Revolution" away from the farm and the farm population. All the same, he affirms that America's roughly six million farms are "a vital part of the arterial system of circulation through which flow the goods and services of the national economy."

CHEW, (Special Agricultural Writer, Office of the Information, U.S. Department of Agriculture), points out that the city man's stake in the welfare of agriculture is greater now than it used to be. Depression and unemployment drive rural people to urban areas and thereby create problems of housing and sanitation, necessitate increased taxation and cause ill-feeling between immigrants and residents. "The agricultural problem is not a separate thing walled off entirely from matters of urban concern and of such a nature that the city dweller can tackle it or leave it alone. He cannot detach himself from it." The solution to these problems, says Chew, lies in the hands of the cities themselves and he points out the way to it.

While the authorities mentioned above emphasise that agricultural development has an important bearing on economic progress, the F.A.O. MISSION FOR POLAND appears to hold that the converse is also true. According to the Mission's Report: "Because of the complex biological and economic nature of farming, major decisions of the Government, in whatever field of activity, almost invariably exert a large influence on agricultural production and on the welfare of the rural people." The Mission also recommends that the interests of agriculture and of agricultural people should be as well safeguarded as are those of any other industry or group.

Prof. SCHULTZ brings out still more vividly the close relationship of agriculture with the rest of the economy. There are, he says, two

bridges over which most of the economic traffic between farm and non-farm people passes. "One of these, if it had the capacity to clear the load it is expected to carry, should keep in comparative balance for the two sectors of the economy the utilization of resources and, consequently, their earnings. The other bridge has carried the traffic associated with business fluctuation and its attendant instability. Most of the farm problems during the inter-war years arose from the way that traffic was handled on the non-farm side of the two bridges. In other words, the basic causes for the farm problems—the low earnings of most farm people and the great instability of income from farming—are not WITHIN agriculture but elsewhere in our economy."

Coming to the East, TAMAGNA (of the International Secretariat of the Institute of Pacific Relations) points out that the economic and social history of the times preceding World War I, had effects on the economy of the East different from those it had on the economy in the West. This point is very significant and deserves close study. In Europe, the decline and disappearance of the privileged classes in land relieved agriculture of parasitic landowners and gave rise to a new class of independent farmers. Technological progress and industrial revolution absorbed the growth of population and provided the means of raising the standard of living. In the Far Eastern countries, on the other hand, there was disintegration of the traditional economic system and the social structure but the transition from the feudal economy to modern capitalism was never fully achieved. Industrial development in these countries, therefore, was not a product of changes in the pattern of consumption and a rise in consumer demand but an imposition upon the existing rural economy attained by a process of "capitalization of human resources drawn from the excess manpower on land." Industrial objectives are set constantly higher than existing productive capacity would allow; consequently, the economy is set in a state of instability and the growing industry lives parasitically on the rural economy. Agriculture thus comes to be regarded as important to national economy mainly, if not solely, because of its ability to support an expanding population at prevailing standards, making thereby available additional manpower at low cost to industries. This "forced" industrialization has been responsible for inadequate attention to agriculture in these countries. "Even more significant, the possibility of diverting the interests of absentee landlords and merchants from land and local speculation to industries and nation-wide trade is scarcely envisaged, or perhaps regarded as hopeless." The author suggests that commercialization of the national economy, particularly of the rural economy, may help these countries to achieve a genuine industrial advancement in a given period of time.

This extract is followed by three others bearing on some of the South-East Asian countries, viz., Malaya, Korea, Burma, Indo-China, Indonesia, China, Japan, Syria. The extract from the *Report by the Australian Institute of International Affairs, on Dependencies and Trusteeship in the Pacific area*, shows that defective exploitation of resources in Dependent countries has resulted, not only in agricultural backwardness but also in

economic dependence of some of these countries. This enables us to appreciate KIRBY, who, in the following extract, cautions the present policy-makers in Japan that in their zeal to develop Japan's industry and exports, they should not ignore the vital importance of agriculture in the country's economy. According to him, no solution of the Japanese problem is possible without a solution of Japan's agrarian problem in particular.

Finally, we have quoted the *Report of the United States' Syria Agricultural Mission* pointing out that in Syria—a more or less typical agricultural country of the East—about 70 per cent of the people directly depends on agriculture while most of the others are engaged in the processing and trading of agricultural produce. Practically all Syria's exports are raw or slightly processed agricultural products. Even "Syrian culture is dominated by the agricultural way of life."

These extracts reveal that agriculture, though looked at from different angles has a vital bearing on the economic life of every nation. Experience in the last three or four decades during which the world has passed through booms, depressions and wars has shown that, both in the West and in the East, the importance of agriculture in national economy must receive due recognition if future policy is to reconcile exploitation of resources to maximum economic and social welfare.

SECTION B: SCOPE AND DEFINITION OF AGRICULTURAL ECONOMICS

The first three excerpts in this section trace the development of Agricultural Economics in the U.S.A., England, Germany, Scotland and Italy. Writing about the first three of these countries, TAYLOR gives a brief sketch of the agricultural situation and of the State policy relating to agriculture during the last two decades of the 19th century, as these stimulated thought on the part of farmers' organisations, political economists in the Universities, the leaders in the agricultural colleges and experiment sections, men of letters and social reformers. Here we see the humble beginnings of Agricultural Economics. The evolution and development of Agricultural Economics as a unified science, in Scotland and Italy in more recent years are narrated in the two subsequent extracts. WILLIAM HEATH points out how the beginnings of Agricultural Economics in Scotland, or for that matter throughout the United Kingdom, lie in the studies of farm accounts of the late nineteen-twenties. These accounts were considered as an aid to the correct understanding of farmers' problems. With the outbreak of the recent war and the increasing importance of agriculture as a supplier of food-stuffs for the nation, there was a corresponding increase in the importance of investigations regarding agriculture and problems relating to agricultural production and marketing. The war-time land legislation and controls thus considerably widened the part which Agricultural Economics played in furthering the objectives of agricultural industry. Writing about Italy, GIUSEPPE MEDICI explains how Agricultural Economics in his country is develop-

ing from a mere "mechanical and unvaried repetition of statistical data into a positive science.

Against this background of the development of Agricultural Economics, we present some excerpts which establish a claim for the economics of agriculture a separate place among branches of knowledge and, further, define the term "Agricultural Economics" both in its theoretical and applied sense. Agriculture, COHEN tells us, is the oldest occupation in the world and, even to-day, it is numerically the most important "business" as nearly two-thirds of the world's population is dependent on it for its living. She discusses the various points at which the economics of agriculture and the economics of industry diverge and thereby establishes a claim for an independent economic theory for agriculture.

Prof. HIBBARD discusses the definitions given by Professors Ely, Taylor and Gray. While one definition is broader than another, Prof. Hibbard steers clear through the differences between them which are more apparent than real and, finally, gives a comprehensive definition of his own. In his view, Agricultural Economics should include within its purview not only subjects directly connected with the exploitation of land but also those which indirectly influence the economic activity on the farm and the well-being of the farm population, as, for instance, tariffs and their effects, interest rates, credit, co-operation and marketing.

Prof. ASHBY explains elaborately and in clear-cut terms, the "applied" side of Agricultural Economics. According to him, Agricultural Economics is concerned not merely with natural forces, but has also a good deal to do "with 'values' or assessment of phenomena or 'facts' by human or social standards." It provides assumptions, theories and principles governing agriculture with the purpose of providing society with the means of decent living at the least cost or on most economical lines. In other words, the basis for its claim as an "applied science" is that it is a methodical pursuit of knowledge of economic processes, organisations and their results, for the purpose of stabilising, adapting or modifying them to secure maximum human welfare under given conditions.

ALLIN throws further light on Ashby's thesis that Agricultural Economics is an applied science. Discussing the objectives and methods of Agricultural Economics, Allin attacks the 'line fence' conception, or the notion that the scope of Agricultural Economics should be restricted to those things which could be acted upon by the individual farmer within his own line fence. According to him, the objectives as well as methods of Agricultural Economics have changed with the changing problems. Cost analysis for individual farms has developed into a wider research in land economics for the purpose of evolving "directional measures" useful to various "levels" of Government and to co-operative groups as a means of dealing with the "public" problems of land utilization. Statistical research originally concerned mainly with the construction of index

numbers to help guide the individual farmer, now includes a great deal of what has come to include work designed to answer questions of public officials and administrators engaged in carrying out and amending public agricultural programmes. There has been a similar broadening in the scope of other fields of study such as farm population, soil conservation, and marketing and foreign trade of agricultural products. In short, Agricultural Economics has come into full flower in its concern with "public agricultural policy" and has even blossomed to the point where some farm leaders have been asking whether the purpose of Agricultural Economics is to improve the well-being only of the farmers or that of the "public." In other words, the scope of Agricultural Economics is not confined to the problems of the farm but extends far beyond and includes most others which vitally affect national welfare.

Among these wider problems, however, the most important is that of land utilization and land policy. We have, therefore, included in this section an excerpt explaining the importance and scope of "land economics" which is a major sub-division of Agricultural Economics. According to RENNE, land economics considers mainly how the individual enterprise in agriculture affects land-use and how it affects groups using or interested in the land. It seeks to discuss and explain situations which hinder or aid agricultural development, with the purpose of assisting individuals and agencies in the formulation of plans and policies which would bring about a better use of land resources and a higher level of general welfare. Land policies, public or private, form the field operations within which individuals plan land-use and one of the functions of land economics is to analyse the policies and the principles upon which they are based, to determine whether they are the most consistent or the most feasible means of achieving the goals of maximum welfare.

SECTION C: RESEARCH IN AGRICULTURAL ECONOMICS

Until recently, economists occupied an unenviable place as compared with "those in other professions concerned with the work of the world." * They had much less intimate relation with current operations and few of them were sought out by clients ready to pay for their counsel. They gave advice but "most of it was unsolicited and much of it was rated, as free goods commonly are, or even assigned a nuisance value."

But, in recent years, conditions have improved and the economist is coming into his own. Governments have begun seeking his advice to determine how different elements in the economic organisation should be adjusted to one another for increasing human welfare. But the utility of the service which the economists are being called upon to render largely depends on their knowledge of the working hypothesis involved in their advice which, in turn, would need to be tested before acceptance. To that end, a good amount of research has to replace speculative type of

theorising. Only when agricultural economists progress in these fundamentals will their findings be of immense value in solving practical problems confronting agriculture to-day in most parts of the world.

To bring home this close bearing of economic research on economic planning, we give an excerpt from ALEXANDER LOVEDAY emphasising the value of the services of the economists to the policy maker who needs "not crude but refined data about the actual situation and about the hopes and threats that it carries for the future." Policies applied with inadequate knowledge of the situation would fail to go to the root of the matter, prove extravagant of effort and meagre in result. Any Government which holds the view that statistics is simply a by-product of administration and confines itself to those subjects for which there is a compelling and immediate need would fail to make provision for the future and to maintain a healthy interrelationship between economic occurrences. Loveday, therefore, offers two suggestions: firstly, that Governments should devote the limited resources at their disposal to produce accurate statistics, for "estimates" are apt to prove dangerous in framing policies; secondly, private agencies engaged in research should be encouraged as they are better able to undertake and execute this work than a Government agency, the latter having to work under certain limitations which are explained by the author. He also makes a plea for a much more elaborate machinery for examining the national economic structure than Governments have possessed in the past—a step which would necessitate the employment of many more competent and experienced economists by Governments than has been customary hitherto.

But research would be conducted on right lines only if those who undertake it were trained and generally equipped adequately for this responsible work. We, therefore, present three excerpts relating to the teaching of and training in Agricultural Economics. The excerpt from DOWELL makes some important observations on the curriculum for students of Agricultural Economics, and indicates the extent of the field which the student has to cover so as to make his study purposeful. Dowell is not dogmatic. His is a flexible plan concerned more with the objectives than with the means of teaching Agricultural Economics. He emphasises the need for a thorough grounding in the application of principles as a pre-requisite to the study of agricultural economics. The student should also be acquainted with the framework of social and political institutions within which man conducts his economic activities. There are, besides these, several other subjects—such as geography, mathematics, foreign trade, technical agriculture—a knowledge of which is essential in varying degrees to make the student capable of executing his responsibilities in developing the agriculture of his country. In short, the training and education he receives should aim not to specialise the student enabling in any one field of learning but at training him to supply the kind of information that will help an enlightened public formulate sound national policies.

ALSBERG offers similar suggestions for formulating a curriculum for students of Agricultural Economics. He further emphasises Dowell's thesis that Agricultural Economics is an applied science and that its problems, like those of other applied sciences, require the employment of more than one 'discipline' as tools for their solution. According to him, the training of graduate students for work in the field of agricultural economics, therefore, consists of two phases; (1) giving them familiarity with these tools, with their merits, defects and limitations, and (2) teaching them how to use these tools in the solution of problems in agricultural economics. The most important tools the agricultural economist must employ are economic theory and statistics. He should also be familiar with the methods of the historian. Furthermore, Alsberg is also inclined to include in the curriculum sociology, some aspects of accountancy, the theory of politics and public administration. His plan is to reduce spoon feeding by cutting down the descriptive courses to a minimum. Major attention should be paid to train the students to work by themselves, and use the tools for the solution of problems in Agricultural Economics; this means setting the student to work at research on a suitable problem sooner than is usually done. Provision of facilities to students for discussing what they are doing in their own research would also go a long way in developing their faculty to reason, criticise, and to educate one another. Finally Alsberg recommends that students should be assisted and encouraged to visit other countries and study agriculture in different regions under different types of soil, crops and market conditions.

CONKLIN discusses some important questions involved in the training of agricultural economists. What is the place of theory as compared to that of empirical research in Agricultural Economics? Which is more useful to the agricultural economist, the deductive or the inductive method? How is statistics useful in converting Agricultural Economics from an exercise in formal logic to a truly scientific undertaking? How are we to build up a working relationship of theory with the "practical" tools of the agricultural economist? These questions are briefly answered by Conklin. According to him, the prevailing disagreement on these points among men of standing has no justification. Theorists have no reason to envy the "fact finders" for the financial support they often receive while the latter would be equally unjustified in looking down upon the theorists on the ground that their ways are not sufficiently "productive." Agricultural Economics depends for its progress on deduction as well as on induction—on deduction to derive the implications of existing knowledge of assumptions and thereby to shape speculations that will guide fuller inquiry, and on induction to distill the "summary and conclusions" from further inquiry. Statistics, inspite of its limitations, has also possibilities of developing Agricultural Economics into a truly scientific field of knowledge. As there is considerable room for divergent opinions on these points, Conklin concludes his discussion with "some points" which compose a "working philosophy in agricultural economics." These, in brief, are: (1) All agricultural economists should be familiar with

formal economic theory and its development ; (2) This theory is not restricted to the formal kind presented in text books and in established theory courses ; it encompasses all efforts to explore the implications of bodies of knowledge or of sets of assumptions and includes a wide variety of attempts to formulate concepts and hypotheses ; (3) Every research economist should be familiar with the business and production problems of the particular branch of economic enterprise he plans to study ; (4) He should also master statistics sufficiently to make it a tool readily available to him and efficient in his hands ; (5) One trained in theory alone may be a better teacher ; but he will be ill-qualified to derive warranted assertions about real economic processes if he does not qualify himself to undertake inductive research in Agricultural Economics. At the same time, one without training in theory is likely to frame his concepts loosely and may fail to recognise that carefully constructed hypotheses are important guides to collection and analysis of data.

So far about training of research workers in Agricultural Economics. Subsequent three excerpts relate to specific problems of research.

SALTER Jr. discusses the need of research as well as the methods, technique and objectives of research in land economics. He also points out how the history of rural economics research has come into increasingly closer connection with public issues in recent years. He makes a plea for a more comprehensive conception of social science inquiry so that research can be viewed in terms of its relevance to action. As research has its roots in "problematic situations" i.e., existence of problems of conflict between what the people strive to achieve and the results they are experiencing, there is also need for sharper attention to the preliminary exploration and clear definition of these problems. Further, he emphasises the view that the aim of research is not just to affirm a hypothesis, but to expand and modify it until it represents warranted assertions, grounded in experience, as to what actions will result in a satisfactory system and land utilization to the maximum benefit of the country. Finally, he pleads for a recognition of the limitations as well as advantages of various forms of factual materials as evidence, with a view to raising the types of data not merely in terms of metrical precision but on the basis of how well they reveal patterns of actual human experience.

HAAVELMO brings out the increasing importance of "Quantitative Research" in Agricultural Economics in recent years due to the widening of the sphere of Government planning for agriculture. Current economic ideas admit the existence of a close relationship between the several sectors of economy. Because of the mutual economic dependence between the agricultural sector and the non-agricultural sector of economy one cannot reach a full, or even approximate explanation of the economic conditions within agriculture unless he has an understanding of the functioning of the economic mechanism that governs the non-agricultural sector of the economy as well. And the main objective of quantitative

research in this field is to measure the network of economic relationships that explain the functioning and the results of this mutual interdependence between the two sectors. Haavelmo also explains the place that statistical theory occupies in quantitative research in agricultural economics. Statistics are a valuable aid as we have to get an accurate idea of the situation or the changes taking place in other sectors of the economy ; to-day, we cannot assume ' other things given ' when, in fact, they are not. Moreover, this knowledge with regard to " other factors " is an indispensable pre-requisite to intelligent formulation of over-all government policies such as those of taxation and subsidies, public spending, price-regulation and rationing.

The extract that follows indicates the scope and method of research in Agricultural Economics with specific reference to an important problem in agriculture, viz., Land Tenure. This is culled from a publication of the Social Sciences Research Council, New York, which has brought out a number of similar studies on various aspects of agricultural economy such as Land Utilization, Agricultural Income, Agricultural Labour, Farm Management, Farm Family Living, Transportation in Relation to Agriculture, Agricultural Insurance, Agricultural Index Numbers, etc. They contribute to the making of research in agricultural economics methodical, intensive and of practical use, and as such, are very valuable to individuals and institutions engaged in agricultural economics research. The extract included by us in this volume gives a general survey of the field of research in the subject, explains the various issues involved in its study and offers an outline of the plan of investigation.

This is followed by a sketch of a farm-to-farm survey carried out in England and Wales during the early years of the last war. This survey reveals how intensive and comprehensive investigations are necessary to formulate sound policies for increasing production on the farms. The immediate object of this survey was to ensure that each farm makes its maximum contribution to food production. Accordingly, it attempts to assess the needs of each farmer to carry through his part of the national food production plan. But more significant than this are the long-term objects kept in view for the purposes of central administration and general policy ; the more important among these objects were (a) to prepare a permanent and comprehensive record of the conditions on the farms ; (b) to provide a body of data which would be useful as a basis for post-war administration and planning and formulation of post-war agricultural policy and (c) to provide for statistical and cartographical analysis which could contribute particularly to objectives (a) and (b).

Finally, we publish two excerpts relating to organisations for conducting research in Agricultural Economics. One of these traces the emergence of Agricultural Economics in Departments of the Canadian Government and the development of the Economic Division of the Department of Agriculture. In this article, BOOTH shows how research which

began with problems very close to the soil and to the market has, under this Division, broadened in scope with experience and changing demands. To-day, it functions extensively in the national field and is also making a modest contribution in the study of international problems. The author also makes several suggestions for making research in agricultural economics more fruitful for the purposes of developing agriculture.

The other excerpt gives the main objectives and procedures of the Bureau of Agricultural Economics of the U.S. Department of Agriculture. The Bureau is the main apparatus with which the Department keeps a ceaseless watch on the minutest developments in general economic activity, marketing, commodity exchanges, farm credit, farm security, farm insurance, crop surpluses, foreign agricultural relations, land use etc., and further, studies minutely migration trends, rural poverty, tenure relationships, property rights in land, mortgage debt, land-taxation and allied problems. All these studies help the Department to formulate a unified agricultural programme for each of the 48 States and to develop an integrated land use, adjustment and rehabilitation programme for the country.

These excerpts which indicate the attention paid to research in Agricultural Economics in western countries with a relatively smaller proportion of agricultural population should be a good eye-opener to other agricultural countries—particularly those in the East—where the Governments are inclined to shape the future of their agriculture without adequate knowledge of the actual handicaps, deficiencies and potentialities of this industry. If measures to tackle unhealthy trends in agriculture such as fragmentation of holdings, land-transfers, rack-renting, insecurity of tenants, agricultural indebtedness, etc., have not brought about the expected improvement in the economic conditions of the agriculturists in these countries, it is because the policy makers had no adequate knowledge of the existing conditions. For, in agriculture, as in the case of other sectors of economy, planning has to be guided not by vague ideologies, but by concrete facts which suggest as well as make possible achievement of definite and practicable ends.

SECTION A

**PLACE OF AGRICULTURE IN
NATIONAL ECONOMY**

Agriculture in Modern Life

By

O. E. BAKER

The last two centuries have been unique in human history. The population of the world has increased from about 670,000,000 in 1740 to over 1,800,000,000 to-day. The increase in two centuries has been nearly twice as great as in all the countries preceding. In Europe the increase has been from about 135,000,000 in 1740 to about 500,000,000 to-day; in the United States the increase has been from less than 1,000,000 to 130,000,000. In Asia the increase has been estimated at from 400,000,000 in 1740 to nearly 1,000,000,000 to-day, which is a greater increase in number than in Europe and America combined.

THE INCREASE IN AGRICULTURAL PRODUCTION

This increase in the world's population was made possible by a great increase in agricultural production. The beginning of the agricultural revolution was earlier than, and its development made possible, the industrial revolution. In Europe and America at least the increase in population was accompanied by, indeed may be assigned primarily to, a great reduction in the death rate, principally in the early years of life, the result of a more adequate food supply and sanitation probably even more than of medicine.

In 1798, after this increase in the population was well started, an English clergyman and philosopher, Thomas Malthus, published the famous "Essay on the Principles of Population." In this essay he maintained that population tends to increase in geometrical ratio, and that the factors which restrain population growth are principally war, famine, and pestilence.

In later revisions of the essay, Malthus recognized the importance of those "preventive" checks which have now become so effective.

But science and the application of power to agriculture have increased production in the United States, in much of Europe, and in several other portions of the world so much, and the number of births is falling so rapidly in these regions, that agricultural production is now pressing on population, so to speak, instead of population pressing on "the means of subsistence". Agricultural production in the nation as a whole increased enormously—more than doubling each quarter century until 1890, and a larger and larger proportion was produced for sale, rather than home use. By 1929 products "sold or traded" constituted 87 per cent of all farm

* By permission from *Agriculture in Modern Life* by O. E. Baker, Ralph Borsodi and M. L. Wilson, copy-righted in 1939, Harper & Brothers.

products. President Roosevelt has stated that one-third of the people of the United States is "ill-housed, ill-clad, and ill-nourished"; but this is owing primarily to defects in the distribution of the national income and not to inability to produce.

In most of Asia, Malthus's thesis probably is still valid, but in the United States the soil resources are so large that the further application to agriculture of science and of inventions already made could increase production probably by 50 per cent or more in a few decades, if profits could be made on farming such as were made during the World War years. Only about half the potentially arable area (but of course, the better half) is as yet used for crops in the United States, and cost of production records indicate that seldom is the point of diminishing return in acre-yields of the crops reached by farmers in the United States. Acre-yields of the crops are only about half those in Germany, England, or Denmark. Land has been abundant and abused. There are two and one-half acres of crops harvested per person in the United States, excluding exports, compared with about one acre in Germany, one-half acre in China, and one-quarter acre in Japan. It is my opinion that in much of the agricultural area of the United States the farming people could enjoy more of the comforts and pleasures of life, such as good roads, electric power with its manifold uses, better school and church facilities, etc., if the people lived closer together, if the farms were smaller in area and the production per acre were higher.

PROPERTY IS POWER

Whether the rural people, probably in association with that portion of the urban and suburban aristocracy who have retained familistic ideals, will be able to lead the nation toward a more stable and permanent civilization depends primarily, in my opinion, upon whether they can retain the "native values of rural life" and recover the ownership of the land. Property confers not only liberty upon the possessor; it also gives power. Shall the nation's farmers become tenants and labourers, with the owners of the land living in the cities? Or shall the system of family farm owned by the operator be preserved? The answer to this question lies in large part, I believe, in the hands of the leaders of agriculture in the nation, especially the colleges of agriculture, including the extension services. In which direction these leaders and agencies exert a directing influence will depend largely upon their economic and social philosophy.

It is my conviction that dependence upon the cities for financial credit, for standards of living, styles of behaviour, attitudes and ideals, is a dangerous thing for the farming people. Apparently to the extent that they accept the urban culture, they, too, will perish—not the present individuals, but their children will slowly cease to be. Meanwhile, they will continue to lose the ownership of the land. They must become masters of their own fates financially, captains of their own souls culturally. They must do this soon, judging from the trends, or they will lose the opportunity.

Agriculture in Modern Life*

By

RALPH BORSODI

What we are in effect asking ourselves when we consider agriculture and modern life is: what sort of an agriculture we should develop for people who will presumably spend their lives in a society which is predominantly scientific, mechanical, industrial, commercial, and urban.

The dictionary defines agriculture as the science and art of cultivating the soil, including the gathering in of crops and the rearing of livestock. In considering the problems of agriculture to-day, it is important to bear this definition in mind. Particularly important to note is the fact that in agriculture we are presumably concerned with a science and art, because one of the first things which this definition requires of us is abandonment of the idea, assiduously inculcated for nearly a century, that agriculture is a business and industry and that every problem connected with it should be approached in the same manner in which we would approach all other businesses and industries. This latter conception of agriculture is not merely modern, it is distinctly American. Not only the leaders and teachers of agriculture in America, but most of the farmers of America to-day consider agriculture a business similar in all its essentials to the business of mining, of manufacturing, of trade, and of finance.

Yet it may prove to be the case that in these two conflicting conceptions of agriculture will be found the clue to the unsatisfactory condition of agriculture to-day. We moderns may be treating agriculture as a business, instead of a way of life. When it is too late, we may find that it is no more possible to treat agriculture as a business (without utter disregard of its intrinsic nature), than to treat art or religion in that manner.

Some students of the subject will insist, as I do, that agriculture is necessarily and by its nature a vocation. They will maintain that the true agricultural problem to-day is, "How can this particular way of life absorb what modern science and invention have to contribute to enrich it without surrendering itself to modern commercialism and industrialism?"

Others will insist that agriculture is a business, and that it is pure romanticism not to recognize that the real problem to-day is how to make the farmer as prosperous as other businessmen. They will maintain that self-sufficient family farming has been made into an anachronism by the modern world and that the sooner all farming is commercialized, the sooner the agricultural problem will disappear.

* By permission from *Agriculture in Modern Life* by O. E. Baker, Ralph Borsodi and M. L. Wilson, Copy-righted in 1939, Harper & Brothers.

Still other authorities will maintain that both kinds of agriculture have existed side by side in the past and must continue to exist side by side in the future, even though the proportion of commercial to subsistence farming may continue to be increased by the developments of modern life.

The first group will maintain that agriculture is intrinsically a way of life with an incidental business aspect; the second group will claim that it must be treated as a business pure and simple; the third, that it is becoming—and may have already become—a business but with peculiarities arising from the fact that for many farmers it is also a way of life.

The commercial "profit and loss" approach to agriculture seems to me an approach in the interest of modern industry and finance-capitalism, while the technical and engineering approach seems to be an approach in the interest of urbanism and the development ultimately of a socialized state.

What I think really needs consideration is the problem presented by modern life to those who practice the art and science of agriculture. To me, the great need is for consideration of the problems of agriculturists rather than of the agricultural industry.

In spite of the great development of mechanized farming, the distinctively commercialized agriculturists are still only a minority of all the population of the nation which practices the art and science of agriculture.

Commercial agriculture, inspite of its dominance in terms of production for the market, is only one phase of the life of enormous numbers of American agriculturists, of the millions who are still engaged in general farming and who own family-sized farms. It plays practically no part at all in the life of the part-time working population which lives in the country—which draws part of its sustenance and support from agriculture, but which is not even considered a part of the farming population by the proponents of modern commercial and industrial farming. Yet all these part-time farmers and all the sub-marginal agriculturists (often farming sub-marginal land with sub-marginal capital), whom the advocates of a commercialized or socialized agriculture would "liquidate" in the interests of what they call progress, are human beings who still support their families at least in part from the farming of land. They are practicing the art and science of agriculture just as truly as are those farmers who have enough to operate a modern, specialized, one-crop farm, and who secure a cash income from the sale of crops large enough to buy most of the goods which their families consume and most of the supplies their farms utilise.

The real question to which it is high time we gave consideration is how both the millions of commercial and the millions of non-commercial agriculturists should either adjust themselves to modern life—to a life scientific, industrial, commercial, and urban—or how modern life should be adjusted to what is inherent and inescapable in the art and science of cultivating the land. It is possible that if we ask this question, we shall find out that there is not only something wrong with modern agriculture but that there is also something wrong with modern life.

Agricultural Fundamentalism*

By

JOSEPH S. DAVIS

THE ORTHODOX DOCTRINE

"AGRICULTURE IS THE FOUNDATION OF MANUFACTURE AND COMMERCE." So runs the inscription on the great seal of the United States Department of Agriculture. "Agriculture is Fundamental" was the subject of an address in November, 1922, by E. T. Meredith, ex-Secretary of Agriculture and publisher of *SUCCESSFUL FARMING*. He undertook to show the Association of National Advertisers that agriculture is "absolutely controlling" in the advertising business "and every other business in United States." In June 1922, Eugene Meyer, Jr., then Managing Director of the War Finance Corporation and later Governor of the Federal Reserve Board, addressed the Associated Advertising Clubs of the World on "Farm Financing and Business Prosperity." He said in part:

"The fact that agriculture is the keystone of the American economic and business structure has been more widely advertised during the past five years . . . than at any time in the history of the country . . . The farmer is the most essential cog in the driving wheel of the American business machine. He is the greatest producer, borrower, and buyer in the United State. . . . Agricultural crisis of the past two years has . . . brought home to every businessman in every part of the nation a greater realization of the fact that agriculture furnishes the basis and the substance of American prosperity. They (businessmen) now understand . . . that one important part of the country cannot be happy and prosperous if another part is in distress."

Professor T. N. Carver wrote in 1924: ". . . farming . . . is vastly the most important industry in every large country, as well as in the world at large." While admitting that "agriculture is losing ground relatively" and will never again be of such overwhelming importance as it once was", he also said: ". . . the prosperity of the nation depends largely on the work of those who till the soil. The agricultural statesman is one who, through his leadership and law-making gives the utmost encouragement to the workers on the soil." Sir Albert Humphries, the great British milling expert, is reported to have told the World's Grain Conference at Regina in July, 1933: "If agriculturists in the widest sense can be made prosperous, then the whole world will very shortly become more prosperous as well."

* By permission from *Readings on Agricultural Policy*, Edited by O. B. Jesner. Copy-righted in 1949, Blackiston Company.

Such quotations could be multiplied indefinitely, from many countries, ages, and interests. They bear witness to a widespread, deep-seated, persistent conviction that agriculture is *PAR EXCELLENCE* the fundamental industry, and that farmers are, in a peculiar sense and degree, of basic importance in society.

"Agricultural fundamentalism" not only has a large following. It is rarely challenged, and many who do not wholly accept the faith are more or less under its sway. It is reflected in American agitation for restoring agriculture to "equality with industry", raising farm prices to their "fair exchange value", and ensuring that agriculture shall get its "fair share" of the national income. It has been influential in the adoption of farm relief measures, including the Agricultural Marketing Act, 1929, and the Agricultural Marketing Act, 1933. It has contributed much to produce the fresh wave of agrarian protectionism in Europe—even in Great Britain—to prevent competition of cheap imports from forcing contraction of agricultural classes there.

DECLINING IMPORTANCE OF AGRICULTURE

In face of such convictions, history reveals a trend, most conspicuous in countries of more advanced standards of living, toward a smaller place of agriculture in national economies. This has been going on for centuries, at times slowly, again with quickened pace. It has been conspicuous since 1850, and especially so in the first decade after the Great War. Though the trend is sometimes interrupted or temporarily reversed, major reversals are rare. It is, of course, the obverse of the expansion of commerce and industry, the arts and the professions. Statistical evidence of it, though largely limited to the past century, is increasingly voluminous. While even now the data are by no means comprehensive, accurate, or easy to use, the testimony of various indicators is substantially concordant. One may even venture to state as a law of economic history that economic progress, broadly viewed, tends to be accompanied by a decline in the relative importance of agriculture. This has been true, if not universally, of most nations in most periods and of the world as a whole.

Declining relative importance of agriculture is imperfectly reflected in declining rates of increase in the rural population as compared with the urban, or even in stationary or declining rural populations while city populations increase. It is more clearly revealed by falling ratios of agricultural populations to the total, and of those engaged in agricultural occupations (particularly male workers) to the totals gainfully occupied; still more by absolute contraction of the numbers engaged in or primarily concerned with farming. It is reflected in available though imperfect indexes of the net output of agriculture as compared with that of industry, in evidence of falling ratios of agricultural wealth to total national wealth, and in falling percentages of agricultural income to national income.

Most fundamental of these factors are, first, the comparative satiability of human demands for farm products, and second, the successful urge of man to devise means of satisfying wants far beyond mere subsistence. Great economies in agricultural efforts in the production of farm products have been achieved through developments in transportation, machinery and equipment, and the science and art of farm production. At the same time, opportunities have evolved in many fields outside agriculture for work which yields much more than bare subsistence. Other outlets for labour and capital have been found in ever-widening degrees, though not always with sufficient rapidity to utilize available resources smoothly and effectively. Auxiliary occupations of farm people have been absorbed into specialized industries, many of them urban. Latterly, some agricultural products have been displaced by industrial (notably horses and horse-feed by automotive equipment and gasoline), and some farm products of temperate agriculture by tropical and sub-tropical products. In recent decades, as a result of striking declines in the death rate and even more notable declines in the birth rate, the rate of population increases in Western countries has fallen and the age structure of the population has changed radically. Partly because of this, and even more because of changes in occupational distribution and in modes of working and living, per capita physiological requirements for food and clothing have diminished.

These various influences have tended to decrease per capita demands upon agricultural efforts, and have been only partially offset by a few that work in the opposite direction. Chief among the latter are the increasingly general adequacy of per capita food consumption, and enrichment of the diet both through greater use of secondary products of agriculture (such as animal products as compared with wheat and cotton) and through increased variety. Of some importance also, particularly in the United States, have been increased waste of low-quality products at the farms, of their diversion to feed or industrial uses; and increased waste by consumers in households accompanying lessened incentives to thrift, and incidental to more extensive resort to public eating places. Moreover, the growth of population continues, though it can no longer be regarded, as many viewed it only a decade ago, as a slow but sure remedy for agricultural depression.

In the light of these facts, it is impertinent to ask: Is agricultural fundamentalism, after all, a sound doctrine in spite of its antiquity and prevalence to-day? Is it, with its implications, true enough to furnish bases for wise national policies? The issues are of far-reaching importance. Politicians may cater to popular sentiments and prejudices, but statesmanship requires real insight and true perspective. It calls for recognition of truths even when they seem unpalatable, and for recognizing powerful economic forces for what they are. It requires measures that are directed not toward neutralizing such forces, but toward using them and making adaptations to them. Social scientists who do not fear

heresy charges have a duty to contribute to clarification of thought in such a field.

ELEMENTS OF TRUTH IN THE DOCTRINE

The elements of unquestioned truth in the doctrine may first be summarised. Agriculture employs a large fraction of the population of most nations and the world at large, and the welfare of so large a group is necessarily a matter of signal concern. It furnishes an important fraction of the materials for trade and manufacture, so that large non-farm groups are affected by the volume of output available to be handled. Moreover, fluctuations in the purchasing power of so large a group inevitably affect the income of other large circles of the population. Agriculture is also an essential industry, or rather a group of essential industries. Its chief products are foodstuffs, which man must have to live. It also produces raw materials well-nigh essential for clothing, household, and industrial uses.

In terms of numbers engaged and even in value of net output, agriculture is the most important industry. This is true in most nations if agriculture is considered as a single industry, and compared with other industries grouped more specifically, though in post-war Britain agriculture has ranked below engineering and mining in respect of numbers employed, and below these and the textile industry in value of net output. With at least equal propriety, modern agriculture may be regarded as a group of industries, overlapping indeed, but more or less distinct and with interests more or less divergent. If, like agriculture, various other industries are considered in major groups as single industries, there are other countries in which agriculture no longer ranks first in respect of number of workers or net value of output. According to the United States census of 1930, agriculture was surpassed by the group of manufacturing and mechanical industries including construction, and equalled by the trade and transportation group, in the number of gainfully-employed workers of 16 years of age and older. Nevertheless, in the world as a whole even to-day, the primacy of agriculture in numbers engaged is beyond dispute.

Such simple quantitative tests, however, are inadequate and misleading. Size is not the supreme index. The importance of a man is very imperfectly indicated by his height, his weight, his age, his wealth, or his income. The importance of a nation is not proportional to its area, its population, or its wealth. Probably half the world's population, and more than half the world's agricultural population, is in three countries, China, India, and the U.S.S.R.; but to say merely this is to exaggerate their relative importance in the world of to-day.

The great food-exporting countries,—whether we measure their greatness as such by the volume of food products that they contribute to international trade, or by the proportion of their exports that consist of

farm products in raw or processed form—find their prosperity heavily dependent upon the volume and value of their agricultural output and exports. Such are Canada, Argentina, Australia, Cuba and Java. A large outturn and large exports of farm products mean great activity in transportation and handling; a large value of farm production makes for liberal purchases by farmers; a large value of agricultural exports gives liberal purchasing power for imports, debt payments, travel abroad, etc. What is true of such countries is true of agricultural surplus sub-regions and communities within a nation. Such are the Prairie Provinces of Canada and numerous sections of the United States. There agriculture is truly basic, in the sense that the purchasing power, the tax- and debt-paying ability and the opportunity to spend for education, amusement, vacations, travel, etc., are heavily dependent upon the volume of agricultural products marketed and the amount of cash farm-income. Such regions, however, are by no means typical of the world at large, and even in respect to them the pre-eminence of agriculture is often exaggerated.

LIMITATIONS OF THE DOCTRINE

Agriculture, moreover, is by no means uniquely essential. Air and water, indeed, are even more vital necessities than food; but these are so generally available without cost, or at very low cost, that only a small proportion of human effort is required to provide them where they are not readily available. Food is not likely ever to be as easily procurable as water, but beyond a certain point it is equally wasteful of human energy to expend efforts upon increasing its supply. Especially in the modern world, and conspicuously in the more advanced nations, "man does not live by bread alone." Progress is indicated not merely by attainment of increasingly regular sufficiency of food and other essential means of subsistence for all, but by increasing leisure and a larger consumption of a great variety of goods and services that are regarded as making life more worth living. All occupations that contribute to the satisfaction of human wants are constructively important, and, in the world as now organized, it is not easy to draw the line between the essential and the non-essential, or to rate them in order of their importance.

Even in the process of supplying the world's food, farm production of foodstuffs is only one link in a long chain by which food reaches the consumer's table. Transportation, processing, merchandizing, and finance are also necessary links; and, in the short run, transportation is the most immediately critical. Though agriculture appears to be the first link in the chain, it must be said that scientific investigation, communication and education in many forms, and provision of farm machinery and fertilizers are even more primary than the farmer's efforts in making it possible for modern farmers to produce the quantities of foodstuffs and raw materials that they do. Moreover, while food is essential to life, by no means all agricultural effort that goes into producing foodstuffs is thus essential. With food as with other forms of consumption, we often choose to take our comforts, conveniences, and luxuries in a vast variety of forms and

services linked with essentials, rather than get them wholly in distinct goods and services. Flavour, appearance, convenience, variety, even prestige, are super-added to calories, minerals, and vitamins. While this tendency is sometimes carried to such extremes that essentials are sacrificed, it is often an eminently rational procedure. If we chose to limit our diet to the minimum essential for life, health, and working efficiency, at minimum cost, the services of a large fraction of the farmers of the world, as well as of industry and commerce, would be dispensed with. To a large extent also, farm products other than foods go extensively into supplying wants for what cannot be called "necessaries of life."

In some countries to-day, indeed, the farmers' part in producing the food actually consumed is not the largest fraction; as much or more may be contributed by transportation, processing, and merchandizing services. Witness the extensive use of delivery and credit services, packaged breakfast foods, loaf and packaged sugar, canned fruits and vegetables, wrapped and even sliced bread, and quarter-pound table units of butter. Even where a product, such as fluid milk reaches consumers apparently unchanged, what the consumer gets is economically different from what the farmer ships. The "farmer's share of the consumer's dollar," as that is actually spent for food, has declined in large part because an increased share of that dollar has been earned by others who have contributed to the more elaborate processes through which foodstuffs reach the consumer.

Furthermore, it is by no means true that all farmers are essential even for producing the foodstuffs, and other farm products that the world customarily consumes. The aggregate importance of farm products is very great, but their marginal importance is modest. The elimination of agriculture and the "vanishing" of the farmer are almost unthinkable, but the practical questions concern the importance of moderate additions or reductions in the number of farmers and the supply of farm products. With air and water relatively abundant, we properly regard those who provide our water supply and air conditioning equipment as contributing to our comfort and convenience; but we do not magnify their importance because air and water are vitally necessary. Except in regard to the number of persons involved, the situation is essentially similar with respect to farm products and agriculture as an industry.

Farming has a powerful attraction for large numbers of people, in spite of the risks and hardships associated with it, and the low financial return that it yields to the capital and labour employed. It commonly assures at least a minimum living at moderate cost. It is easy to enter, though for certain types considerable capital is essential. It does not require extensive training, though specialized education and experience both contribute to efficiency and pecuniary success. Children of farmers particularly find it easy to stay on the farm, and adults established in farming often find it difficult to quit. Many like not only to live but to work in the open country, and get very real satisfaction out of co-operating with nature in making plants and animals grow. Farming is the principal remaining field of independent enterprise other than retail store-

keeping ; and that freedom is cherished in spite of its practical limitations. Many who have tried urban occupations and residence find that these have drawbacks not apparent at first sight. Moreover, developments of recent years have made available to farmers in some countries, at a cost within reach of large numbers, such additions to their traditional standards of living as electricity, telephone, automobile and radio, and have lightened their drudgery with mechanical devices for farming and the farm household.

In competitive societies where occupational mobility exists, there is a broad tendency for group rates of remuneration to vary with the marginal importance of the services contributed by each group, the size of the group depending partly on the ease or difficulty of entering it, the appeal or repulsion of the risks it involves, and its all round attractiveness. Broadly speaking, low financial remuneration of a group implies that its marginal importance is low ; from whatever cause, the group is so large that society is unwilling to pay better for the services that it renders. When supplies of farm products are restricted or contracted, whether by war, by nature, or by farmers' action, society pays the farmers more, at least per unit of product. When the restraint or contraction is serious and persistent the remuneration of the farming group rises, and greater agricultural activity is stimulated. When, however, farm products come forward in abundance, compared with what society cares to use, a low remuneration for farmers is a competitive society's way of encouraging a shift into other forms of activity.

CONCLUDING OBSERVATIONS

Much more might be said. In a brief discussion one cannot hope to exhaust so large a topic or to convert convinced adherents of orthodox doctrine. I challenge the soundness of agricultural fundamentalism, not because there is no truth in it, but because it contains so much of error as to lead the world astray. It stands in the way of progress, and its common acceptance often operates contrary to the interests of farmers themselves.

Agriculture has, and probably always will have, an important place in the life of every nation. Measures to protect agricultural resources from needless depletion, to facilitate physical and economic processes of agricultural production and marketing, to mitigate the severity of fluctuations in farm income and to raise the plane of living among farmers are in the general interest ; but they are justified on grounds independent of an allegedly peculiar importance of agriculture or farmers. Efforts to raise the level of attractiveness of farming, financially and otherwise, are desirable as part of a general policy ; but most attempts to raise it in relation to the level of attractiveness of other occupations tend to be self defeating. Efforts to make farming profitable for all who may choose to farm are foredoomed to failure. The wealth and welfare of nations depend upon many complex conditions. To-day, agriculture is not uniquely basic, and the prosperity of a nation depends largely on other factors than the work of those who till the soil.

Farm Prosperity*

By

WALTER W. WILCOX

Many studies have been made of agriculture's problems. These studies all agree that farmers' economic welfare is closely tied to the economic welfare of other groups in this country, and to the other peoples of the world who deal with us in foreign trade.

This fact should be kept in mind at all times by those who are mapping our farm policy.

There is an old conundrum: "Which came first—the chicken or the egg?"

We have a "chicken or the egg" problem in agricultural policy too. Is it changes in farm income that cause changes in non-farm income? Or is it changes in non-farm income that cause shifts in farm prices and income?

Some people have found that farm income and industrial wages have held about the same relationship to national income during the last 20 to 30 years. They point out that national income has averaged around seven times either the farm income or the industrial wage bill. They call it the "1-1-7 relationship."

So they argue that a one million dollar rise in farm income will boost our national income \$7 million. In their opinion, national prosperity depends on farm prosperity.

Others looking at the same problem point out that industrial workers' income and farm income go up and down together. Industrial workers buy the food produced by farmers. So they say that the rise and fall of farm income depends on the rise and fall of industrial workers' income—or rise and fall of wage rates and employment.

A third basic relation was stressed in the 1920's and in the early depression years. Farm prosperity was pictured as dependent on foreign trade.

Our tariff policy cut imports; this ruined the foreign market for our export crops. That in turn caused the drop in farm prices of the 1920's. Farm leaders again are giving growing attention to the importance of

* By permission from *Readings on Agricultural Policy*, edited by O. B. JESNESS, copyrighted in 1949, Blackiston Company.

these foreign markets as they look forward to the necessary post-war adjustments.

INTERDEPENDENT ECONOMY

All too often only one of the above three relationships is stressed as the only one. But the answer is not that easy. There is no simple explanation for the ever changing relationships in our modern complex economic society.

Our modern industrial age is more complex than ever before. And we are continually becoming more industrialized. This means we depend more on each other. We are less self-sufficient—both as communities and as individual families. Families produce less of their own goods than formerly; the same is true of communities.

Each group of workers and its income is essential for our modern economy. If farmers quit producing and buying, city people would starve for lack of food; many factory workers would lose their jobs.

But this is no different from what would happen if transportation workers quit their jobs. City people again would starve. No raw materials would come in for industrial production. Soon industry would be at a standstill. Farmers soon would suffer from the loss of markets.

We can say the same for each group of workers in production and distribution. It is impossible to say which is most important in a modern economic society. Our high standard of living grows from a specialized production and a relatively free exchange of goods.

The point is this: An efficient agriculture made up of farm families with a high standard of living and a high buying power per person contributes much toward a high national income and the economic well being of the nation but the same can be said for each of the other groups.

Farming probably was the first settled occupation. People had to spend their time producing their own food and clothing. Industrial development came only after people became efficient enough in farming to produce enough extra food to feed non-farming people.

In this sense farming can claim priority over other lines of work. But to argue that it is more important is something else. When we say that it is in any sense more a generator of income in modern society than other occupations, we fail to understand the true nature of our modern economic society.

Your automobile runs poorly with one of its cylinders missing. The movements of each of its cylinders are perfectly tied in with the move-

ments of the car. We could take the front cylinder. We find that its behaviour was closely related to the behaviour of the car. We could quote lots of figures to prove our point.

Yet few people would be misled into believing that the front cylinder was more important than the other cylinders because the operation of the modern motor car is fairly well understood to-day.

People do not have nearly so clear a picture of our modern economic society. This hazy understanding leads many people to place agriculture in a special class. They attempt to deal with agriculture as an independent industry or one which has different economic effects on the economy than other industries. This usually leads to wrong conclusions.

Agriculture along with all other industries which make up our modern economy is greatly affected by what happens in the other parts of the economy. But in measuring the importance of changes in farm income to the economy as a whole, we should not forget to note that farm income accounts for only 10 to 15 per cent of our national income.

The Nation's Stake in the "Good Life" on the Farm*

By

HOWARD R. TOLLEY,

Chief of Bureau of Agricultural Economics,

Department of Agriculture, U.S.A.,

What is the nation's interest in the attainment of the good life both by individual farmers and by agriculture as a whole? The nation's principal interest in agriculture, aside from its interests in farmers as citizens like other citizens and in the production by farmers of an adequate supply of food and fibers, is that agriculture assumes a status equal with those of other elements in the economy. A depressed agriculture obviously is a millstone about the nation's neck. Agriculture must prosper if the nation is to prosper, though the converse is true also, of course. The nation also looks to agriculture to contribute to a well-rounded national culture, fully representative of the national life. Then, too, it must look primarily to agriculture for conservation of natural resources and for the cultivation of another resource—human values among people engaged in agriculture. The nation has a definite interest in the reinforcement of the sense of personal dignity, of the citizen's importance as a citizen. Indeed, this may be regarded as a dominant interest, for the health of any state depends upon the free intelligent functioning of its citizens.

The entire nation, then, has a stake in seeing that its farm people have a chance at the good life. How far is it possible to say that the constituents of such a life, as roughly outlined, have so far been made attainable to the farmers of the United States? If the yardstick of what rural people want is applied to what they now have, much remains to be done before it can be said that any large number of them have attained very many of these elements of the good life or attained them in any large proportion.

For a generation or more the slogan of vocal farm groups has been "equality for agriculture." This has arisen from the feeling of farm people that they cannot now earn enough from their labour to enable them to buy for themselves, individually or as a group, to the same extent as other groups, these elements of a good life.

For instance, to take the denominator that is most readily usable, agriculture represents about 25 per cent of the population, yet has less than 10 per cent of the national money income, despite some progress in recent years toward giving agriculture proportional status. Since farm families rear about one-third of the Nation's children, it is obvious that many of those children, in a money economy such as now exists, start life at a grave disadvantage compared with other children in the Nation. It

* *Farmers in the Changing World*—Department of Agriculture, U.S.A.

has been estimated that 22 per cent of American children suffer from malnutrition, and there is little evidence, even inferential, that rural children are much if any better off than urban in this respect. The prevalence of cash-crop farms as well as bitter poverty imposes an ill-balanced diet upon great groups of farm people. The evidence points to relatively worse position for the farmer with respect to clothing and housing. As many as 50 per cent of farmers are believed to live in inadequate dwellings, and probably one-third of them are poorly clothed.

Aside from the over-all inequity of the status of agriculture, there is imbalance within agriculture. It has been estimated that about 24 per cent of all farm families in 1935-36 had less than \$500 on which to live for a year, that at least 15 per cent were "in dire physical need", and that "one-fourth to one-third of all our farm families are still below the poverty line." Erosion still claims, despite great efforts, 3 billion tons of soil a year. So much for the material situation of agriculture. Figures upon many non-material elements are hard to obtain, but it is known that rural school terms are shorter on an average than those of city schools and that teachers in rural schools are paid less than their urban colleagues. More than 70 per cent of the entire rural population is without public-library service. And observation shows that all too few country families have any opportunities to enjoy music, pictures, plays, or movies. As citizen and worker, the farmer is still without effective control over the fruits of his labour, and he is still unsure that he can act to make his needs and desires known.

In conclusion this may be emphasized: The wants and desires of those who people the countrysides of the Nation are not static and will not go unvoiced. Their conception of what makes up a good life will continue to evolve with the changing times, and their struggle to convert that concept into reality will go on.

The Importance of Agriculture in an Industrialised Economy*

A century ago, American agriculture was still the centre of gravity of our national economy. In the course of what has been called the "industrial revolution" with the tremendous growth of urban and metropolitan areas in the industrial zones, agriculture, too, has made great progress in improving the efficiency and output of its manpower. Agriculture to-day represents a substantially smaller proportion of the national income and of the number of gainfully employed people than in earlier periods. This gradual shift was caused in part by the transfer to other sectors of the economy of more and more activities originally incorporated in the productive activity of the farm. Partially it was caused by the tremendous expansion of new industries and occupations. The manufacture of tools and all durable goods used on the farm, the processing of food raw materials into finished consumer foods, as well as the transportation of farm needs from city to farm, and of farmers' produce from farm to city, are the chief activities of this nature which have been taken over by industry and commerce.

Because the centre of gravity within the national economy thus shifted away from the farm and the farm population toward the city and urban productive groups, the nation's general prosperity has gradually come to depend upon the multiple set of conditions generating a high rate of productive industrial employment and high national output by industries. The urban population's high aggregate real income, in turn, results in an increased flow of goods and services to and from the farm.

America's roughly six million farms, accounting for 18 per cent of the nation's gainfully employed people, are a vital part of the arterial system of circulation through which flow the goods and services of the national economy. The nation depends on properly functioning farms as important sources of primary materials, food, and fibers. Yet the farms cannot be treated as an independent object of policies nor can they be made prosperous in emancipation from the remainder of the economy. Nor can conditions creating mass unemployment and decreased output in cities be cured by maintaining or restoring economic well-being to the farms alone.

Certain popular theories argue that prosperity for all can be secured simply by putting, one way or another, enough money into farmers' pockets. It is further claimed that such artificial farm solvency would be

* REPORT OF THE COMMITTEE ON PARITY CONCEPTS, U.S.A., *vide Journal of Farm Economics*, February 1946.

The preliminary draft of this Report was written largely by Dr. Karl Brandt

reflected many times throughout the urban economy. Speculative theories of this sort are dangerous fallacies. They are built upon untenable assertions without a shred of evidence to support them.

NATIONAL WELFARE AND RURAL WELFARE

The pre-requisite for the well-being of the farm population is closely linked with the well-being of all the other people living within our national boundaries. This well-being requires a healthy flow of "real" income consisting of goods and services. The distribution of such real income must grant all social groups at least a minimum of subsistence permitting the maintenance of life and health. The necessary inequities in income must not preclude the potential pursuit of happiness in times of better income by impaired health or stunted growth resulting from shortage or deficient consumption of food.

The Land Problem one aspect of the Economic Problem*

By

ARTHUR P. CHEW

**Special Agricultural Writer,
Office of Information. U.S.D.A.**

The urban stake in the land is not just in preserving the soil and maintaining its fertility. It includes less tangible elements, which affect the entire rural-urban balance. Among them, are the reciprocal influence of farm and non-farm incomes, the bearing of rural unemployment on rural employment, and the tendency of declining operator ownership to cause widespread social maladjustment. National welfare requires a well-distributed national income. That is impossible if wide disparities exist between farm and non-farm prices and if more and more farmers lose their farms. City people help themselves when they help farmers to counteract the forces that drive them from their farms. Not by taking the soil away from farmers, but by returning it to them, can the soil be made secure.

There is one way, and one way only, to increase the urban stake in the land. It requires a delicate rural-urban adjustment, which will make farm and non-farm production increase simultaneously in the right proportions. This will mean an increase, equitably shared, in the entire national income. Agriculture can get its due share of the national income only through an approach to abundance. There must be an increase in both farm and factory production but at different rates, since farm production is relatively high already. Only thus can surplus goods and surplus labour be absorbed. Perhaps the approach should be indirect, through measures to raise the domestic level of consumption. More industrial production would follow. But any approach would require rural-urban co-operation.

Moreover, this co-operation must be planned. It cannot be entirely automatic. There are two main requirements: (1) Concerted effort to decrease the production of unwanted farm surpluses, and simultaneously to increase the production of soil-conserving crops; and (2) decreased infiltration of idle labour and capital, both urban and rural, into lands that should not be farmed, overgrazed, or logged. The best remedy for the overproduction of the surplus crops, such as cotton and wheat, is an improved domestic market for other farm products. The best remedy for compulsory sub-marginal farming and for other exploitative land uses is practically the same thing, namely, more industrial employment.

* "The City Man's Stake in the Land" Vide *Farmers in the Changing World*
U.S. Department of Agriculture.

Higher consumption per capita and more non-farm employment are cures for the ailments both of the agricultural land and of the agricultural people. They are cures for urban ailments, too. Eventually, they will give us a streamlined agriculture which will produce adequately for all requirements without waste of land or labour.

The agricultural problem is not a separate thing, walled off entirely from matters of urban concern and of such a nature that the city dweller can tackle it or leave it alone. He cannot detach himself from it. He has a vital interest in the distribution of the people on the land, in the relationship they have to it, in the use they make of it, and in the amount and distribution of the resulting farm income. This interest involves him inevitably in important land use responsibilities.

National Agricultural Programs*

Agriculture is a biological industry that is dependent on proper balance among moisture, temperature, plant food, the soil, the growing crop, farm animals, and all the environmental factors which help or hinder the development of crops and livestock. The treatment given a field last year, and in still earlier years, profoundly affects the crop yield this year.

City people seldom recognize how delicate is the relationship among all of the factors that are necessary if large crop yields are to be obtained. What seems like a small and unimportant variation from good farm practice may not at once bring bad results, but in the next crop year or cumulatively over a period of years, the wrong practice may cause very great damage.

Because of the complex biological and economic nature of farming, major decisions of the Government, in whatever field of activity, almost invariably exert a large influence on agricultural production and on the welfare of farm people. It is highly important, therefore, that among those responsible for major policies of the Government there be included persons who understand and can interpret and evaluate the needs of agriculture. The interests of agriculture and of agricultural people should be as well safeguarded and promoted as are those of any other industry or group. This is specially important in Poland where more than 60 per cent of the population live on the land.

The responsibility for governmental activities in behalf of agriculture and food production should be fixed as far as possible in a single government ministry, and not divided among several ministries as at present. Such activities would then be more effective in promoting food production.

The Mission believes, further more, that experience in other countries as well as in Poland has proved the desirability of placing the responsibility for matters of such vital national interest as food production in a regular government agency that is answerable to the entire population. The Mission recommends that no public funds for, and no control over agricultural and food programmes be given, directly or indirectly, to any non-governmental agency such as the Peasant Self-Help Association. All public funds and trained personnel now employed by that organisation in such programmes, notably agricultural research, educational and advisory work, agricultural reconstruction, and the administration of certain publicly owned lands, should be transferred to appropriate Government agencies.

* "POLAND"—Report of the Food and Agricultural Organisation of the United Nations.

Agriculture in an Unstable Economy*

By

THEODORE W. SCHULTZ

Each is prone to see agriculture according to his lot ; only a few see it as a whole, and fewer still see it as an integral part of an interdependent economy. Not many outside agriculture see it as farmers do, since most people no longer have roots in the soil.

Farming is fundamentally different from industrial work and business management. Neither businessmen nor industrial workers gain from their work the experience needed to understand agriculture, and therein lies a major political as well as social problem.

Farm production as a whole is highly stable. Agriculture does not permit rapid changes in output up or down. Farmers do not close down their farms when a depression strikes ; they continue to furnish food and other farm products to the nation. They are therefore not "unemployed" ; but they do not escape the burden of depression—as is apparent from the income instability and economic uncertainty that were major factors in "the farm problem" in the twenty years between the wars.

There are two bridges over which most of the economic traffic between farm and non-farm people passes. One of these, if it had the capacity to clear the load it is expected to carry, should keep in comparative balance the two sectors of the economy the utilization of resources and, consequently, their earnings. The other bridge has carried the traffic associated with business fluctuation and its attendant instability. Most of the farm problems during the inter-war years arose from the way that traffic was handled on the non-farm side of the two bridges. In other words, the basic causes for the farm problem—the low earnings of most farm people and the great instability of income from farming—are not within agriculture but elsewhere in our economy.

The full picture of what needs to be done in our peacetime economy cannot be grasped without this knowledge of the relationship of agriculture to the rest of the economy. The future of agriculture obviously takes in more than economic and political policy. There are other important unsolved difficulties affecting the farmer and the nation. Solving some of these will probably require the devising of new mechanisms, some political, some economic, and some social. Ultimate solutions may have to wait on further scientific knowledge. Depletion and erosion of the soil

* By permission from *Agriculture in An Unstable Economy* by Theodore W. Schultz, copy-righted in 1945 McGraw Hill Book Company.

is one such problem and of critical importance. Many of the difficulties regarding plants and animals arise as scientists try to move forward toward lower production costs and higher returns for farmers. Advances in farm technology do not come easily ; costs in time and human efforts are large, but, once achieved, the gains are like the strides of a Bunyan.

Within agriculture there are problems related to production, prices and income about which farmers by their own effort can do a good deal. The work of the U.S. Department of Agriculture and of the Land-Grant Colleges, when it is concerned about economy, focuses largely upon the farmers' productive efficiency. Is it cheaper to use tractors or horses ? Would longer-staple cotton be more profitable ? Should oats give way to soyabeans ? Should cattle be fed to a higher finish, hogs to a heavier weight, dairy cows for larger daily output ? The ratio of corn prices to hog prices, the peanut-hog ratio, and all other feeding ratios will affect the answers as will relative price relationships between crops. Improved farm-tenure terms are needed, as well as better use of credit (and of war-time savings) in investments in soil, buildings, machinery, and durable consumer goods ; these would improve the efficiency of the farmer and the farm.

These and other measures are within the provinces of farmers and can be affected by them singly or in concert. They are the **WITHIN AGRICULTURE** type of problems. Important headway has been made in these areas, but too often the pros and cons on these issues are formulated in isolation, too much on the assumption that the solution can be found without reference to what happens elsewhere in the economy. The excess supply of labour in agriculture in peacetime and the instability of the demand for farm products, factors which have their origin primarily in the non-farming fields, directly and vitally affect many of these *within agriculture* matters.

The habit of identifying agriculture with food leads to much confusion in developing agricultural policies. We now have the knowledge regarding nutrition and food-producing resources to make it possible for us to close the nutritional gap. But policy designed to serve the nutritional requirements of a people is of necessity different from measures to bring balance and stability to agriculture. Programmes to correct inadequate diets (whether caused by lack of income or lack of knowledge) cannot be expected to cope with the problems that have come to farm people from the erratic production performance of the industrial-urban community. Since adequate diets are important in the social efficiency of a people, an analysis of the necessary elements of a food policy should not, however, be made subservient to the purposes appropriate for a national policy for agriculture. Food policy must stand on its own merit.

A NATIONAL AGRICULTURAL POLICY IS NEEDED.

There can be agricultural policies that serve the national interest, that contribute to the development and stability of the economy as a whole,

and that places the welfare of farm people on the same footing as the welfare of other groups. The many particular problems WITHIN agriculture that have received and are receiving attention are not unimportant. Each has probably deserved all the thought and effort that have been given to it. But it is not sufficient to correct the maladjustments WITHIN agriculture; in fact, it is questionable whether such problems will remain "solved" while significant maladjustments exist between agriculture and other parts of the economy.

The emphasis that has been placed upon problems of the WITHIN AGRICULTURE TYPE is not unduly surprising. First, there is a natural tendency for any group, business and labour and agricultural alike, when it assesses its own situation to consider its problems essentially in isolation. The problems loom large close at hand; their immediacy makes demands for correction. A not inconsiderable second factor is the division of labour that has arisen in our college and University research and thinking about agriculture, and in the Federal Government which further "compartmentalizes" ideas, policies, and programmes. The mandates that established the U.S. Department of Agriculture and the authority that is vested in its various agencies carefully restrict the activities of the department in matters of agriculture. Finally, the emergencies that came as a consequence of the depression necessarily centred public attention on relief and rescue programmes which were in the main highly particularistic in nature.

The OVERCROWDED AND UNPRODUCTIVE EMPLOYMENT in agriculture is a problem that has its origin largely in our developing economy. It is inherent in the forces shaping the supply and demand for farm products. The INSTABILITY OF THE INCOME FROM FARMING stems chiefly from business fluctuations. To understand this, one must understand our business economy. To remedy it one must turn to fiscal-monetary policy and related measures. The pricing of farm products to facilitate the best use of agricultural resources and to channel farm products to consumers—not too largely into storage bins—has become both a national and an international problem.

CONDITIONS NECESSARY FOR ECONOMIC PROGRESS OF AGRICULTURE

There is a high probability, therefore, that the post-war period will find American agriculture substantially over-extended—a condition that will be one of the many heritages of the war, but that was in the making in any event. This poses a general question: How may agriculture attain a more balanced relationship to other parts of the economy? The maladjustments and dislocations resulting from the war make this question urgent. But the imbalance of agriculture is a problem of long standing. During most of the years between the two wars agriculture (except for a few favourable regions) was chronically depressed. In a developing industrial economy there are basic forces at work reshaping the supply and demand for farm products, pushing supply ahead of demand and

thus setting the stage for low earnings for people engaged in agriculture. The war has accelerated this process.

It is essential, therefore, that we take the more comprehensive view and examine the causes for the imbalance whether their origin is in the mobilization for war or in modern industrialisation. What basic conditions are necessary for the economic progress of agriculture? Two primary problems have arisen in modern agriculture, namely, the overcrowded and underproductive employment in agriculture and the instability of farm income. They are basic to an understanding of the effects that a modern, urban-industrial society has upon agriculture. The excess labour in agriculture appears to be closely associated with long-run industrial development; the instability of farm income appears to have its origin primarily in the fluctuations of modern business.

THE AGRICULTURAL SETTING

Agriculture and industry are of different temperaments; one is slow and sluggish in its movements and the other sensitive and erratic. The quick rises and falls in industrial output are well known but a factor in our economy that is little recognized is that the production effort in farming and the resulting output of food, feed, and fibre seldom changes substantially from one year to another (when we take agricultural production as a whole). Even during the unprecedented droughts in 1934 and 1936 agricultural production did not fall off 10 per cent. Nor do bumper crops bring large bulges in total output. In considering the future of American agriculture, awareness of this behaviour is essential.

DIFFERENCES IN ATTITUDES

Because farmers seldom alter considerably the rate at which they produce and because industry often changes its rate of output, it is not surprising that farmers have attitudes different from businessmen about the main obstacles facing them as producers.

Farmers are not haunted, as are men in industry, by the possibility of idle plant and idle men. Not that farm income is unaffected by business conditions—far from it—but farmers are not unemployed during a depression. They stay at their jobs; in fact, they often work harder as prices decline. Their principal economic devil is the fluctuation of farm prices. They fear, and with justification, that farm prices will drop, sharply again after the war.

In seeking a post-war agricultural policy, we need, therefore, to ask: "Should agriculture modify its gait?" If so, should it be the aim of national policy to help agriculture reduce its output quickly when curtailed industrial output occasions a drop in the demand for farm products? And, conversely, increase its output when industry expands? Or would it be better to help industry change its gait? Put this way, the choice should not be difficult. It is obvious that the steady performance of agriculture is a major national asset, while the erratic rate of production in industry is a serious liability.

Modern Capitalism, Rural Economy and Industrialisation*

By

FRANK M. TAMAGNA.

The economic and social history of the times which preceded World War I shows different patterns in the West and in the East.

Modern capitalism—i.e., that economic system which is characterized by technical processes of production based on accumulation of capital resources—is a phenomenon native to the Western World. It grew in Europe and the United States as the product of gradual developments brought about by internal economic changes and social forces. The commercial revolution, which resulted from the expansion of communications linking Western Europe with overseas markets, was characterized in the economic field by specialization of production and trade and in the social field by the formation of a new class, the moneyed bourgeoisie, and in both fields, by the substitution of the spirit of competitive enterprise for the principle of traditional authority. The decline and disappearance of privileged land castes in Europe and the opening of the western frontier in the United States, which followed the commercial revolution, had the effects of an agrarian reform, as they relieved agriculture of parasitic burdens and gave rise to a new class of independent farmers. The introduction of new technological processes and the industrial revolution, which took place in Europe and the United States along with the economic and social transformation of agriculture, absorbed the growth of population and provided the means for raising standards of living. This parallel process of economic and social changes reached its completion in Western Europe and the United States in the latter part of the 19th century, and introduced a phase of political stability which lasted until World War I.

In the Far Eastern world, competitive capitalism and industrial enterprise do not stem naturally from tradition. During the second half of the 19th century and early part of the 20th century the disintegration of the traditional economic and social structure released in Japan and China certain elements receptive to foreign influences and capable of developing along new lines, but the transition from the feudal economy to modern capitalism was never fully achieved.

In other Far Eastern countries, the foreign nature of capitalistic development and its conflict with the traditional elements of the society and economy, forcefully manifested itself through a colonial defence upon advanced industrial countries. In neither Japan nor China, nor any other

* *Politics and Economics in Far Eastern Countries*: Royal Institute of International Affairs, London.

Far Eastern country, did the combination of traditional and modern elements progress to a point of complete transmutation or assimilation—for the former survived in a “native” society while the latter developed in a “foreign” way.

THE RURAL ECONOMY AND INDUSTRIALISATION

The question whether capitalistic development is compatible with the maintenance of a rural economy of traditional type and whether it may be brought about by forced or accelerated processes within the framework of such rural economy is a debatable issue. A related question is whether a forced or accelerated process of industrialization can be simultaneously achieved with a rise in living standards and democratic forms of government.

Industrial development in Far Eastern countries has not been the product of changes in pattern of consumption and rise in consumer demand; instead it has been generally imposed upon the existing rural economy and attained by a process of capitalization of human resources drawn from the excess manpower of land. Concern for such type of development—historically exemplified by Japan—is justifiable in view of the fact that China, India and other Far Eastern countries place such an emphasis on the need for industrialization, to the point of disregarding the sociological and political implications of it.

Because of the inability of a rural economy to produce capital, the point of departure of any forced or accelerated industrialization is generally the development of processing and manufacturing industries for exports and a reliance on foreign sources for the procurement of productive equipment. From this early phase of export linked to procurement, the tendency is to shift toward a balance of foreign procurement and domestic production of capital equipment, and eventually to do away with the dependence on export industries and foreign procurement by concentrating on domestic production of capital equipment. If it were not for the tendency to regard export primarily as a means for procurement and procurement as a substitute for production of capital equipment, there would seem to be no reason why a gradual industrialisation could not prove compatible with rising standards of living, agrarian reform and democratic form of Government. But, as this process of export and procurement lasts and because of the fact that industrial objectives are set constantly higher than existing productive capacity would allow, the economy is kept in a state of instability and the growing industry lives parasitically on the rural economy. In fact, agriculture comes to be regarded as important to the national economy mainly, if not only, because of its ability to support an expanding population at prevailing standards, making thereby available additional manpower at low cost to industries engaged in production for export, in the early phases, and the building of basic industries in the later phase.

It must also be recognised that for the first half century after the Restoration, Japan pursued a policy of accelerated (rather than forced) industrialization with intelligence and efficiency. In fact, until the Manchurian incident, the pressure for industrialisation was not dissociated from attention to agriculture and was not allowed to depress the material standards of rural life. The Japanese policy, it may be said, was based on offering such incentives to agriculture as were necessary for the purpose of raising bigger crops and supporting the population growth, and of paying attention to the adaptation of the traditional structure of society to the new industrial system—with the result that there was a gradual but marked increase in agricultural production and improvement in standards of living. Further more, industrialisation was carried out with considerable assistance from abroad in the form of war indemnities, foreign loans and direct investments; and respites were permitted, such as during the 1920's, when a phase of relative stability was attained and maintained. With the Manchurian incident however, the State took an active role, forced the process of industrialization and created or accentuated the sacrifice of living standards for the purpose of a higher and better integrated industrial system. It may be argued that the economic limit of industrialization has been reached in Japan in the decade following World War I, and the forced industrialization of the 1930's was based on integration of foreign resources and markets within the Japanese economic system, a high degree of diversion to Japan of agricultural production from dependent areas, and a general retrogression of living standards.

It may be noted that other Far Eastern countries do not have the basic favourable conditions which facilitated the beginnings and sustained the growth of industrialization in Japan. Partly because of rooted traditions and partly because of territorial expanse, China never experienced a gradual transition from rural and local economy to commercial and nationwide economy. On the contrary, modern forms of production and trade grew there on a framework of dots and lines, which remained directly tied to foreign economics and failed to reach the interior parts of the country and affect the village structure of society. The thoughts and planning coming out of China since the latter part of the war are such that their application would maintain this traditional state of conditions, whether as a matter of policy or perhaps of indifference. The principal emphasis seems to be placed on the development of basic industries at fixed points, transport seems to be considered only as a necessary part of the industrial development, and little or inadequate attention seems to be given to the rural economy. Even more significant, the possibility of diverting the interests of absentee landlords and merchants from land and local speculation to industries and nationwide trade is scarcely envisaged, or perhaps regarded as hopeless.

It is argued by the proponents of forced or accelerated industrialization that the faster a country industrializes, the sooner it will have the capacity it needs to satisfy the requirements of agriculture, as well as of

other branches of the national economy. This may well be regarded as a theoretical truism, but in practice the process of industrialization introduces certain contradictions which must be reckoned with. For instance, if industrialization is pressed forward to the point of depriving agriculture of manpower as well as capital, it may result in a fall of food production and higher labour costs ; or, if the position of agriculture and rural classes is improved relatively to other activities and groups, this may cause a diversion of consumer goods from the export to the domestic market--in both cases it may cause a loss of foreign markets to export industries and consequent difficulties in the accomplishment of industrialization may absorb any increased production and prevent net savings accumulation. This point seems to be particularly relevant to the Far East, as the dynamic factor of population growth there is the death rate rather than the birth rate, and the beneficial effects of industrialization (through expanded transportation, sanitary facilities, and welfare measures) would probably wipe out important checks to the population growth.

For these reasons, serious doubts are raised as to the feasibility of policies of forced accelerated industrialization in Far Eastern countries. The point is made here that commercialisation of the nation's economy, particularly of the rural economy, may be the way in which Far Eastern countries can secure a maximum industrial development in a given period of time.

Agrarian Backwardness and Economic Dependence Under Colonial Policy*

The mass of the peasants in South East Asia suffer under unsatisfactory agrarian policies. Primitive methods, pressure of debt and lack of credit facilities have largely offset any improvement in the administration, public health or education for the peasants. Economic development has been "colonial" in character, adjusted to the economy of the ruling Power, usually in connection with special commodities, e.g., rubber, sugar. This has brought dependence on outside markets, the movements of which are beyond the control of local administrations. Administrative reforms alone cannot remedy this state of affairs. Even the grant of political independence cannot make up for economic dependence of this kind. Under colonial rule there appears to be an inherent difficulty in continuing the exploitation of natural resources for the world market together with the economic development and social adjustment necessary for the well-being and advancement of dependent peoples. This points the need for international, or at least regional, policies of development in territories either now or previously under colonial rule.

In *Burma*, for example, rice monoculture, which leaves the peasant at the mercy of fluctuating rice prices, is a permanent cause of agrarian difficulty. Indian and Chinese money-lenders have undue financial power over the peasant. Economic development largely profited British companies dealing in oil, mining, timber, shipping and rice exporting. Improvement of this condition involves diversity of agricultural production, reform of taxation to meet fluctuations in rice prices, legislation regarding land tenure, and establishment of land mortgage banks and co-operatives for rural credit and marketing (despite earlier failure).

In *Malaya* the vast economic development of the country has been with foreign (British, Indian and Chinese) capital and foreign (Indian and Chinese) labour, especially in tin and rubber. The purely administrative attitude of British policy has left Malaya at the mercy of private commercial developments beyond their power to influence or even share. Even in agriculture, they suffer from agrarian indebtedness, without even taking advantage of measures designed for their protection. Malayan nationalism protests against foreign Asiatic economic domination under British political control. Future policy must reconcile the exploitation of resources with social welfare.

In *Korea*, Japanese policy was directed towards exploitation of the country's agricultural products and minerals. Despite material improve-

* *Dependencies and Trusteeship in the Pacific Area*: Australian Institute of International Affairs.

ments, e.g., afforestation, railway construction and irrigation, the subordination of Korea to Japanese requirements increased the impoverishment of the peasants. An important economic and political problem arises from the large proportion of Korean agriculture and industry held by the Japanese. In N. Korea (the Rubber Zone) Japanese estates are being "distributed" amongst Koreans. In S. Korea (the U.S. Zone) title to Japanese owned lands has been vested in the Military Government. Improvement in Korea will demand re-education of the Korean people in the control of their own economy.

In *Indo-China*, the Chinese had entered trade before the French rule. The French used them in business dealings with the local population; and they came to control rice cultivation and fishing and form the money-lending class. The French economic policy, especially in mining and rubber, is essentially "colonial" subordinating development in Indo-China to the interests of France. Rice monoculture is affected by world conditions. Despite the rice resources and local agitation, French policy at home has hindered industrialisation in Indo-China. There are problems of over-population, labour conditions in large enterprises, reform of taxation (to meet bad harvests) and the loss of land by peasants. All of these problems need a comprehensive economic policy directed to removing the serious effects of colonial rule.

In *Indonesia* overpopulation (in Java) has intensified the effects of colonial policy. The Dutch developed scientifically the cultivation of both indigenous and introduced products, and improved communications, irrigation, agricultural research and instruction, medical services and agrarian credit facilities: yet too much of the profits of development flowed out of the country or went into the same kind of production for the world market. Commercial policy was unduly influenced from Holland, in some cases (e.g., sugar, oil and the Sumatran estates) led to definite exploitation of Indonesian labour. Dutch policy did not sufficiently meet the social effects of over-population, which steadily reduced living standards in Java.

The Agrarian Background*

By

E. STUART KIRBY

In the pre-occupation with Japan's industrial and export prospects, it is easy to forget that practically one half of the population is still directly dependent on agriculture. The possibility of feeding the other half, the persons depending on trade and manufacture, is to a very great extent determined by the proportion maintained between the amount of food that can be grown in Japan and the amount that must be earned from abroad by the manufacture and sale of Japanese exports. Before the war, upto 80 per cent of Japan's staple food consumption was home produced. On the ratio of home grown supplies in the post-war period will largely depend the scale of the economy, the kind of economy and the general standard of living in Japan. The question is all the more acute in the era of world food shortage.

This is but one aspect of the agrarian problem. That problem looms large at every turn in the discussion of Japanese affairs. No solution of the Japanese problem is possible without a solution of the agrarian problem in particular; and the converse may also be true—there can be no full solution of the agrarian problem until all Japan's other problems are solved.

It is suggested that all dichotomies are really inter-related, and are all essentially part of the same problem, which is ultimately the root problem of Japan's plight; so that any treatment of Japan which leaves unresolved these cleavages of interest, of adherence, of ideology and of status, is no solution at all. At present it is desired only to stress that the division between the urban and the rural is one of the main axes of the Japanese system, and the question to which it gives rise must be given primary consideration.

There is a considerable diversity of agrarian conditions in the Japanese archipelago. Good soil fertility and land utilisation maps are largely lacking; their preparation would be a useful task for the new regime to undertake. But the general picture is clear. Seventy-five per cent of the country is mountainous. Only 16 per cent of Japan proper was actually cultivated in 1939; another 5 or 6 per cent is theoretically cultivable. Seventy per cent of the cultivated area lies in smaller or larger pockets between the mountainous backbone and ribs of the country and may accurately be visualised as on two main levels. The lower layer (alluvium) has 45 per cent of the crop area and is the more intensively cultivated,

* *Japan's Economic Future*: Royal Institute of International Affairs, London

mainly with rice. The upper layer (diluvium), with some 25 per cent of the crop area, produces mainly wheat, barley, vegetables, mulberry, tea, fruits and industrial crops ; it is difficult to irrigate, its soil is coarser, shading off into the steep, rocky and ashy ground of the mountains above. Practically all the ground with a slope of less than 15° has been taken into cultivation, and much of the land farmed has a slope even higher.

It is mainly to technical change within the existing space that Japanese agriculture must look. In so far as the desired intensification depends on land, rather than the other factors of production, it is entirely circumscribed by the law of diminishing returns. The high proportion of land under cereals, the absence of grazing, multiple cropping every year with virtually no rotation of crops in the proper sense, all mean progressive exhaustion of the soil. The purchase of fertilisers represented a high, and swiftly rising, proportion of farm costs before the war (20 per cent in 1933, 35 per cent in 1939). The price of inorganic fertilisers was then already above the Japanese farmer's reach ; now the terms of trade may be still further against him. The sale of fertilisers could be subsidised ; but all in vain if the tendency is for one more yen's worth of fertiliser to raise the harvest by less than one yen.

Another objective limitation is that in condition of rural over-population the results of capital improvement tend to express themselves in the form of an easing of the burden of toil on each individual, rather than an increase in the surplus brought to market. To increase output and at the same time promote rural welfare requires an enlightened and effective agrarian policy such as no Japanese government has ever essayed.

These considerations apply with greatly enhanced force to the third sphere of improvement suggested, namely organisational reform of the system. To proceed again from the outer workings to the inner, take first the question of reform of the fiscal system ; before the war, it plainly showed the extent to which the burden was thrust upon the agriculturists. In 1934, for example, on an annual income of 300 yen a farmer paid over 100 yen in taxes, whereas a merchant paid only about 37 yen and a manufacturer no more than 4 yen. The farmers are still the most backward section of the community, and the least able to defend themselves politically ; while the country will still need to favour and subsidise exporters. It is therefore likely that some bias of this sort will continue in the future.

There are thus powerful grounds for the argument that an internal agrarian-social settlement in Japan is the antecedent and indispensable condition of a workable external solution in terms of industrial and trading relations.

Agriculture in Syria*

Syria is predominantly an agricultural country and has been such since the dawn of its history. Furthermore, the indications are that agriculture will play an even more important role in the future of this segment of the Arab world. Between 60 and 70 per cent of its people are directly dependent upon agriculture for a living, and most of the others are engaged in the processing and trading of agricultural produce. Practically all Syria's exports are raw, or slightly processed agricultural products. Its culture is dominated by the agricultural way of life, as exemplified by the village folk and the tribal groups.

The tribes of Syria constitute an important segment of the agricultural or rural population, numbering about half a million of a total population of about three million. They exist in various stages of settlement, from purely pastoral nomadism to almost completely settled agriculture. These people are farmers in their own way and in their own right, although they are not usually considered, or officially classified, as such. But they harvest the scanty desert grass with their roving flocks of sheep and goats and herds of camels and cattle, raising the bulk of country's livestock and producing most of its meat, wool, and dairy products. From the overflow of their population they have contributed over centuries to the rise of village and urban settlements, and through their tribal way of life they have likewise contributed heavily to the general culture of the country.

The more important segment of the agricultural population, however, is made up of village folk, a total of about one and half million. These are the cultivators of the soil, whether they own it or work on it as tenants or labourers, who produce most of the crops and raise part of the live stock of the country. They live in compact nuclear villages and go out to work in the surrounding fields as the occasion demands. Their agricultural activity figures to a high degree in the national economy, supplying the country with its food, raw material for industry, and most of its exports. They, too, have made significant contributions to the national culture.

In addition to the tribes and the village folk, there is in Syria another segment of the population that is directly engaged in agriculture. This consists of a large number of city dwellers in Damascus, Aleppo, Homs, Hama, and other towns, who are farm labourers, tenants, operator-owners, or absentee landlords. In fact most of the towns classified as urban are predominantly agricultural in character.

* *Report of the United States Syria Agricultural Mission.*

This brief analysis of the agricultural population shows clearly that a national programme of agricultural development and rural welfare should take into consideration not only the village folk, who are considered the bonafide farmers of the country, but also the tribal groups and the large segment of urban people related to agriculture. Each of these groups has its own way of agricultural life and problems which differentiate it from the others and make it deserving of special study and treatment.

SECTION B

DEFINITION AND SCOPE
of
AGRICULTURAL ECONOMICS

History of Agricultural Economics*

BY

H. C. TAYLOR

The last two decades of the 19th century had much in common with the third and fourth decades of the 20th century. Both were periods of falling prices, both were periods of farmer agitation because of the low purchasing power of farm products, and they were both periods when many of those who were discussing the farmer's economic problems were thinking first of all in terms of government action. I shall endeavour, therefore, to give a brief sketch of the situation of the thought, and of the action relating to agriculture during the 80's and 90's of the last century.

During the latter part of the 19th century, the extension of the railways throughout the fertile prairies of the North Central States and the improvement of farm machinery led to a vast increase in wheat production. The expansion of the corn area and the utilization of the native grasses resulted in a rapid increase in hog and cattle production. The Eastern markets were flooded with wheat, pork, and beef at prices which were embarrassing, not only to the farmers of the new agricultural areas, but also to the farmers of Ohio, New York, Pennsylvania and New England, who, even with their advantageous location with respect to the markets, could not successfully meet the competition from the new agriculture of the West. The depressing influence of this expansion of production was enhanced by the concurrent deflation of the currency; and prices fell to very low levels. Debt paying was practically impossible; mortgage foreclosures were common.

These conditions stimulated thought on the part of farmers' organizations, political economists in the universities, the leaders in the agricultural colleges and experiment stations, men of letters and social reformers. In the main these groups proceeded independently.

The Farmers' Alliance started a movement in Texas which spread to the whole Middle West. By 1890 this organisation had a membership of two million. In the annual meeting of that year, there were delegates from 27 states. While it was the avowed intention to keep out of partisan politics, the Alliance professed belief in the need of legislation to redress wrongs and in the power of organized effort to secure that legislation. Dr. C. W. Macune was the outstanding leader in the development of the Farmers' Alliance. He used his influence to keep the organization out of party politics but at the National Convention at St. Louis in 1889, the

Alliance adopted a platform calling for government warehouses in which the farmers might deposit their products and receive loans of treasury notes with the stored goods as security. While nominally remaining non-partisan, they agreed to support candidates who favoured Alliance demands. This met with great success and at the Alliance Convention in Cincinnati in 1891 a party was launched whose platform demanded free coinage of silver, abolition of national banks, loans on land and real estate sub-treasuries, an income-tax, plenty of money, government control of railroads, election of the President, Vice-President and Senators by direct vote, non-ownership of land by foreigners, revenue of state and nation limited to expenses, eight hours' work and universal suffrage.

At a meeting of the American Economic Association, August 24, 1892, an evening session was devoted to the subject: "The Farmers' Movement in the Northern States." Charles W. Walker, Professor of Economics at the Massachusetts' Agricultural College, presented a paper which was discussed by a number of the leading economists of the United States, such as John R. Commons, Edward W. Bemis, Richard T. Ely, and others.

Professor Walker's statement of the problem is as follows:—"The farmers' industry has increased the supply of agricultural products beyond the demand, with the consequent fall of price. Here is revealed the efficient cause of his pecuniary condition. The trouble, however, is not that the supply is too great, but that the demand is too little. The other producers have not kept up with the tiller of the soil . . . The farmers' movement is the awakening of these sturdy citizens from engrossment in manual labour to a sense of their duty, first to themselves and then to society. The movement may be slow, it may do much apparent damage, but it is irresistible, and though it may change the looks of things, in the end its results will prove beneficial. (1) Organizations of farmers are now many and strong, constantly increasing in numbers, in their field of action, in usefulness and in power. (2) The movement is a widespread and powerful advance among all educational lines. Farmers are a unit in demanding the best education in everything pertaining to the science and art of agriculture, and to the knowledge and practice of manhood. (3) The movement is progressive along the line of co-operation. In time organized and educated farmers will master the difficulties of co-operation so far as it relates to agriculture. (4) Organization, education, co-operation, have led to political action, within and without the old parties. From repeated failures farmers are learning how to take care of themselves, politically. They press and enforce their demands patiently and persistently, meeting all attacks bravely believing that wherein their claims may not be for the general good, the conflict with the demands of others will modify and correct them."

The discussion was opened by J. P. Clark of Jamestown, New York a farmer who had served as secretary of County Farmers' Grange of which he had been a member for fourteen years. He remarked:

It is an encouraging sign when trained minds give expression to the very thoughts I have heard farmers themselves give expression to for fourteen years."

Considerable discussion followed in which questions were raised as to whether or not farmers were more heavily taxed than businessmen and as to whether or not farmers paid higher freight rates than did the merchants and manufacturers, but especial interest centres about the statements made by Professor John R. Commons who said:

"I should like to hear some mention made of what seems to me to be the important development of the farmers' movement, namely, the sub-treasury scheme. As far as my knowledge goes, that seems to me to be the most scientific plan put forward by any writer or thinker. As you know, the St. Louis platform provides for the depositing of the farmers' goods in warehouses, and for his receiving loans on short time, which are to be paper money, legal tender. When the farmer is ready to pay his notes he can go and redeem his grain, returning his notes, which are kept by the government in store until the next crop comes. Does not that meet exactly the defect of the currency? At that time of the year when the crops are harvested there is a great demand for money. All the money is in New York City. The farmer must pay high rates of interest because money is actually scarcer in the West than it is in the East. In Canada, where they have a different banking system, I believe it is not so. When this great demand for money arises in the West, the effect is to force down the price of the products of the farm, just when the farmers have goods to sell, it is claimed 40 per cent. They only get 60 per cent of what they would get at other times of the year."

In response to this statement by Professor Commons, Professor Edward W. Bemis of the University of Chicago, said:

"It is shown by statistics that the farmer is in no need of any sub-treasury scheme to enable him to hold back his crops, as the prices of the staple crops average almost if not quite as high immediately after harvest as six or nine months later. But the farmers might get money or capital at lower rates of interest by adopting the principle of the German Raiffeisen."

Again in 1896, a morning session of the American Economic Association was devoted to the farm problem. Professor L. H. Bailey of Cornell University was asked to lead the discussion. Although he was ill and could not be present, he sent seven questions which were presented as the basis for discussion. They related to the rapid growth of the tenant system, mortgage indebtedness, soil exhaustion through one-crop farming, exhaustion of the rural population through the efflux of the young people from the farms, the desirability of rural free delivery of mails, the extension of electric railroads into the rural districts and better educational facilities for farm people.

While the economists generally seemed to believe in 1896 that the solution of the farm problem did not lie in government action but in suitable adjustments in their farm economy by the farmers themselves, the question may well be raised if the gradual inflation of the currency during the period immediately following did not influence the prosperity of the farmer during the first two decades of the 20th century more than did improvements in farm management. It should not be overlooked that the co-operative movement was making headway among farmers in the 90's. In Minnesota and Wisconsin, for example, co-operative creameries and co-operative stores were prospering. The Babcock test was developed by the experiment-stations as a part of the effort to solve a major problem in marketing butterfat in co-operative and other creameries. In California, co-operation in the marketing of fruit was in progress. In 1899, Edward F. Adams, a leader in that movement, published a noteworthy book entitled, "The Modern Farmer in His Business Relations."

In this period the attention of the U.S. Department of Agriculture, the agricultural colleges and experiment stations and the agricultural press was focused primarily upon physical and biological problems and yet some attention was given to the tenure of farms and to the costs of producing farm products. George K. Holmes of the U.S. Department of Agriculture published a significant article on tenancy in the United States in 1895. The interest in production costs was in part incidental to the introduction of new crops but it centred primarily upon the relation of costs and prices and was undoubtedly stimulated by the low prices of farm products during the 90's. While little of scientific value either as to methods, findings or analysis of results was achieved during this period, it is significant that thoughts with regard to production costs and their relation to prices were a part of the intellectual and emotional atmosphere of the time.

As the students in the agricultural colleges were stirred to think of these problems and went to the libraries for reading material, one of the most popular books of the time, *Progress and Poverty* by Henry George, was likely to be indicated as a readable book which dealt with the economic problems of the farmer. Henry George was a self-educated newspaper man in California. The concentration of land holdings in California excited his imagination. In 1871, he published "Our Land and Land Policy" and in 1880 he published "Progress and Poverty." This book has nothing to do with the economics of farm management. It has to do with the problem of an equitable distribution of the national income among those who produce it. George studied the classical economists, Adam Smith, David Ricardo, Thomas R. Malthus, and John Stuart Mill. He accepted all too literally the Malthusian theory of population and the Ricardian theory of land rent from which he deduced the theory that land was the one important monopoly which, with the growth of population, was able to take increasing rents while the workers became poorer and poorer. His one solution of the problem of the inequitable

distribution of income was to guarantee "equal right to the use of land." "Progress and Poverty" contains a discussion of the trend with regard to the size and tenure of farms, mortgage indebtedness, etc. His proposed method of guaranteeing "equal right to the use of land" was the taxing of the value out of land and using the income from this tax to support all public activities. Henry George's writings wielded more influence abroad than in the United States. In Denmark there are 5,000 farms operated under the Henry George system. In England the movement toward land nationalization has gained impetus for many years. The single tax as a panacea was bitterly attacked by American economists. It is only in recent years that some students of agriculture have dared raise the question if, after all, once the land has been settled some system like that suggested by Henry George might not be better than having every generation of farmers struggle for nearly a lifetime to pay for a farm, particularly if the tax were used entirely for the support of rural institutions instead of being used to support landlords in remote cities. There are of course many sides to this question. If Henry George were living to-day, he would certainly note that land gives only one of the many opportunities to make a living, that barriers to the entry of occupations are numerous, and that equal right to enter other occupations is now perhaps more urgent than "equal right to the use of land."

Thought was likewise being stimulated by an agricultural depression in Western Europe during the last two decades of the 19th century. Just as the expansion of agriculture in the Middle West bankrupted the farmers of the Eastern part of the United States, so did it throw into confusion the established order of things with regard to farming in Great Britain and Germany. In Great Britain the gradual fall in the prices of farm products resulted in such great distress that in 1893, a Royal Commission was appointed by the Queen to study the extent of the agricultural depression and the conditions both at home and abroad which were responsible for the unhappy situation. The findings showed that bad seasons, foreign competition and increased costs of production had led to a general depression, that the depression was the worst in the areas where grain production was most largely practised and less severe in the areas of livestock farming. The report of more than 2,000 pages is full of interest to the agricultural historian because of the description it gives of the agriculture and land tenure of Great Britain in the middle 90's. However, it did not lead to the discovery of any magic that would solve the farm problems. It recommended the adjustment of farm practice to the new conditions created by world competition. This meant a decrease in wheat growing and an increase in dairying and market gardening. It was at this time that the English tenant farmers became very sensitive about clauses in farm leases which bound the farmer to a given system of crop rotation. The farmers insisted upon freedom to adjust their farming operations from year to year with changing conditions. They also demanded adjustments in rents and compensation for unexhausted improvements. These issues led to parliamentary action under the title

of the Agricultural Holdings Act, which dealt with the relations of landlords and tenants. The gradual perfecting of this Act and its administration is now looked upon as agricultural statesmanship of the highest order.

English history is rich in materials relating to the adjustment of agriculture to changed economic conditions. The Industrial Revolution of the 18th century put into action the economic forces which resulted in a new agriculture adjusted to the demands of the new industrial cities. Foundations for the new agriculture were laid by Jethro Tull, who emphasized the importance of better tilth; Charles Townshend, who introduced the turnip crop to take the place of the bare fallow and to provide feed for the new livestock industry based upon the new demands for meat; Robert Bakewell, who played the leading role in improving the quality of livestock; and Arthur Young, who, as author and as Secretary of the Board of Agriculture, was the evangelist of the new agriculture. Prior to the introduction of the new agriculture, the system of farming in England was often called Virgilian agriculture due to the fact that the contributions of the Roman writers, Cato, Varro, Columella, Pliny and Virgil constituted the principal available literature and that the farming practices had much in common with those of ancient Rome.

The record of the transition from the Virgilian to the new agriculture in England gave the background in terms of which the British solved their problems in the last two decades of the 19th century. They were much aided in this by the excellent surveys of British agriculture initiated by William Marshall and carried through by Arthur Young as Secretary of the Board of Agriculture. These surveys are descriptive of the "Rural Economy" of various counties during the latter part of the 18th century and the early part of the 19th century. Marshall's method was to locate himself in a given county and study minutely the agricultural practices of the time and the changes which were in progress. He spent as much as fifteen months studying a given county on the basis of which he wrote an extensive report on the physical, biological and economic aspects of the agriculture of the county. Marshall gave his books the title of "Rural Economy" which meant agricultural and rural life; but in speaking of the economic problems of political economy, he used the phrase "rural economics." It is interesting, also, that while giving this major attention to a detailed study of farm practices and problems, he did not refrain from expressing his views on monetary questions and on their relation to the economic problems of the farmer.

Outstanding writers on Agricultural Economics in England between the days of William Marshall and the Report of the Royal Commission of 1893 were James Caird (English Farming in 1850 and 1851) and R. E. Prothero (The Pioneers and Progress of English Farming 1888), who viewed the economic problems of Great Britain from the standpoint of the profits of the individual farmer as well as from the point of view of the landlord and of the nation as a whole. This period cannot be passed over without mention of Cobden and the free trade movement which

resulted in the repeal of the Corn Laws in 1846 and which, while laying the foundations for the expansion of English industry and commerce, opened the way for the serious impact of foreign competition upon the English farmer in the 80's.

Although there were no chairs of Agricultural Economics in English universities at the close of the last century, Great Britain had a rich literature available to the student of this subject and had to her credit notable achievements in economic legislation for the farmer. The Report of the Royal Commission refers to "writers on agricultural economics" (Final Report, page 32) showing that the terminology such as "rural economics" and "agricultural economics" which we have been inclined to look upon as phrases originating in the United States in the present century are old phrases in the literature of English agriculture.

While the agricultural depression in Great Britain was doubtless more serious than that on the Continent, Germany, too, was suffering from falling prices and was looking for causes and for remedies. In 1883 Dr. Max Sering, a young economist, was sent by the German Government to the United States and Canada to study the conditions which had led to the low price of wheat in the German market. In 1887, he published a large volume on the Agricultural Competition of North America (*Die landwirthschaftliche Konkurrenz Nordamerikas in Gegenwart und Zukunft*) which gave a clear picture to the German reader of what might be expected for many years to come with regard to cheap wheat from the prairies of America. The agrarian policies of Germany in those days relating to resettlement, agricultural credit, protective tariffs and export bounties are full of interest. The stimulating of agricultural industries such as beet sugar production through tariffs and bounties on exports was accepted as national policy.

In studying the background of the development of agricultural economics in the United States, our major interest in the Germany of those days is found in the development of our subject in the universities and agricultural colleges. Following the introduction of the new agriculture in England a century and a half ago, a German physician by the name of Albrecht Thaer, of Celle in the Province of Hanover, who was physician to the Hanoverian King of England, commenced introducing the new agriculture on the farm on which he lived. Thaer was a man of great ability and rendered to Germany a service similar to that which Tull, Townsend, Bakewell and Young rendered to England. He published a three-volume work on English Agriculture (1798), followed by a four-volume work on the fundamental principles of agriculture. He became known throughout Germany and was induced by the King of Prussia to establish an agricultural school and experimental farm at Mogelin near Berlin.

While Thaer dealt with the economic problems of the farmers, as well as with the physical and biological phases, his major work was with field crops and livestock. One of his students, Johann Heinrich von Thunen

gave particular attention to the economic problems involved in determining which crops should be grown under given circumstances with respect to soil, transportation and markets and to the way in which these economic conditions affected the proper degree of intensity of culture for given areas. Von Thunen has been spoken of as the first of the farm economists in Germany. His most important contribution is found in "*Der isolirte Staat*" published in 1826.

By the close of the 19th century every important German University had its professors who taught subjects having to do with the field we now designate as Agricultural Economics. These professors were divided into two groups, those who approached the field with a background training of political economy and those whose primary training had been in the technical phases of agriculture. For example, in 1900 at the University of Halle, Professor Johannes Conrad gave a course entitled, "*Agrarpolitik*"—historical and descriptive in character. This course gave major attention to the political economy of agriculture and slight attention to farm economics. In the same semester, Julius Kuhn, an agronomist, was giving a course, in the same lecture room, on "*Landwirtschaftliche Betriebslehre*" which dealt largely with the physical elements of the farm—equipment, labour, etc.—and their organization in practical farm operations. He touched all too lightly upon the economic aspects of farm management.

This situation at Halle was quite characteristic of German Universities at that time. An exception to the rule was Freiherr von der Goltz of the agricultural college at Bonn. While the political economists and the agronomists were cultivating opposite edges of the same field, von der Goltz occupied the whole field including the history of agriculture, farm accounting, the economics of farm management and the political economy of agriculture. He dealt with those economic problems which the farmer might hope to solve through better management and also with those economic problems beyond the control of the farmer, as such, and which require group or government action if they were to be solved.

The basic points of view in the German thought of that day may be briefly stated as follows: The function of the *Betriebslehre* is not to point the way to maximum production but to state those economic principles of farm management which lead to maximum net profits from the operation of a farm; the function of the *Agrarpolitik* is not to guarantee an existence to everyone who chooses to follow agriculture for a living without regard to the measure of his skill and activity, but rather to make known the way in which, under the existing legal and social order, every individual may have an opportunity equal to his skill and activity, and to help remove the barriers which stand in the way of the development of the agricultural industry as a whole.

American students who went to Germany for training in agricultural economics at the turn of the century and who took the time to make a

geographical and historical study of German agriculture in its world setting and who read von Thunen's "Der isolirte Staat" and Wilhelm Roscher's "Nationalökonomik des Ackerbaues" and who had the good fortune to come under the influence of Max Sering and Freiherr von der Goltz, found many of the basic principles which have been followed in the development of agricultural economics in the United States.

With this setting at home and abroad, one effort to develop agricultural economics in an agricultural college in the United States in the 19th century deserves mention. In 1892, Thomas F. Hunt commenced giving a course in rural economics at the Ohio State University. His work was divided into two parts. The background of his course was the study of historical and comparative agriculture including Egyptian, Grecian, Roman, British and American agriculture, followed by work on the economics of farm management. While it was necessary for Hunt to give major attention to courses in agronomy and to serving as Dean and Director in an agricultural college, he always maintained a keen interest in rural economics and deserves the title of the outstanding pioneer, the Daniel Boone, in the field of agricultural economics in the United States. Dean Thomas F. Hunt was an influential member of the American Association of Agricultural Colleges and Experiment Stations. He was for many years the most dynamic person on the Committee on Courses of Study. It was doubtless he who put Rural Economics in the list of courses recommended in 1896. The outline of a course in rural economics adopted in 1900 was evidently based on the course Hunt had been developing since 1892. It was similar to the outline of Hunt's book printed in 1899 entitled "Lectures on History of Agriculture and Rural Economics" but was more elaborate. Marketing was included in addition to agricultural history, farm accounting and farm management and mention was made also of land tenure, labour systems and social and financial condition of farmers.

It was very fortunate that Dean Hunt had pioneered the way in agricultural economics prior to 1900. He appreciated the contributions to be made in this new field by the economist, the agronomist, and horticulturist, the statistician and the mathematician. He realized that while one must be an agriculturist he must also be an economist to work successfully in this field. His strategic position in the American Association of Agricultural Colleges and Experiment Stations gave him leadership among the deans and directors, with the outcome that Thomas F. Hunt was the dominant influence in bringing it to pass that agricultural economics in the United States has become a unified subject.

Agricultural Economics in Scotland*

By

WILLIAM E. HEATH

Modern economic thought, and in particular the application of Keynesian principles, has applied equally to the administration of agriculture as to other parts of the national economy. As a result, the emphasis of agricultural economics, or at least the work done by agricultural economists, has undergone a considerable change. Before the war, agricultural economists were, in the main engaged in a study of the ways in which the agricultural industry obtained and organized the factors of production. In addition, they utilised the knowledge obtained by themselves and their predecessors for teaching and advisory purposes. Agriculture was organized on the basis of private enterprise, and the price the farmer paid for his production requirements or received for his products was determined by the free play of supply and demand. It is true that Governments interfered to some extent. Apart from controls, which affected agriculturists and other people alike—for example those relating to education and the maintenance of law and order—there were special controls for agriculture: examples are tariffs, subsidies, measures for the regulation of imports, legislation for the promotion of marketing schemes, and the like. But these were as nothing compared with what happened after the outbreak of war when agriculture became subject to a greater and greater measure of control. Prices farmers paid and received were prescribed, and to a large extent the volume and type of production were dictated by the Government.

As the scope of control extended, so did the field of the agricultural economist. So much so, in fact, that for years there has been little time to develop along the research, teaching, and advisory lines so prominent before the war. Work has, of course, still been going on in these directions, but it has, of necessity, been soft-pedalled and most of the new work in agricultural economics has been associated either directly or indirectly first with war-time control, and latterly with the launching of the post-war agricultural policy.

The developments since 1938 in Scotland, and for that matter throughout the United Kingdom, have been conditioned, by two major factors. The first of these was the war itself, and the second was the recognition by the government of basic principles of Keynesian economics. Associated with the latter and arising also out of war-time experiences was the openly expressed intention of ensuring for agriculture a measure of stability and prosperity it had not previously experienced.

* *The Changes of Eight Years in Agricultural Economics* - International Journal of Agrarian Affairs - October 1945.

In the years before the war probably the main difference between agricultural economics in Scotland and elsewhere in the United Kingdom was the emphasis placed in Scotland on farm accounts as an aid to the correct understanding of farmers' problems. This emphasis had persisted since the inception of the organized study of agricultural economics in Scotland in the latter nineteen-twenties.

With the outbreak of war British agriculture assumed a new importance as a supplier of foodstuffs for the nation. The blockade made it necessary to employ every possible means of increasing the output of Scottish agriculture. Agriculture was controlled in almost every way. Production directions were issued, prices were fixed with the intention of attracting production of desired types, potentialities were surveyed, and plans for the future were made. As far as Scottish agriculture was concerned the responsibility for all this lay mainly on the Department of Agriculture for Scotland. Like others they found it difficult to make bricks without straw, and during the war years much of the energy of Scottish agricultural economists was directed to supplying some of the necessary straw. Personnel were greatly increased and the college economists were asked to supply more and more data. The emphasis was still on accounting data relating to the farm as a whole and the farm accounting scheme was greatly extended. This information was of great value, particularly in the later years of the war, in assessing the economic position of the farming industry. It enabled changes in farmers' incomes to be measured, not only for Scotland as a whole, but for the different types of farming in different districts.

But the needs of the time led to other kinds of investigation. A major departure from pre-war practice was the initiation of a national scheme of costing individual farm products. The need for the latter arose mainly from the price-control scheme adopted.

If it is no exaggeration to say that war-time control drew attention to the part agricultural economics should play in furthering the objectives of the agricultural industry, then it is equally true to say that an event to which reference will now be made consolidated and confirmed the position.

This event was the declaration by the Minister of Agriculture and Fisheries on 15th November, 1945 of the statement of United Kingdom's agricultural policy. A cardinal point in the policy is the adoption as an essential and permanent feature of agricultural policy of a system of assured markets and guaranteed prices for the principal agricultural products. In order to promote a very necessary feeling of confidence within the industry it was announced that minimum prices for livestock and livestock products would be fixed for some years ahead—on a system of overlapping four-year periods and biennial reviews. It was agreed further that the annual discussions which would be necessary to implement this plan would be based on economic data relating to different types of farming and sizes of farms supplemented by costings material.

Here indeed was a development and a recognition of the function of agricultural economics. On agricultural economists rests the responsibility of providing an accurate and up-to-date picture of the economic conditions of the agricultural industry, a picture which will have a major influence on the future of the industry.

Nor is this the end. Indeed if the control policy is continued it may well be only a beginning of the contribution to be made by agricultural economics to the well-being of agriculture. The agricultural policy is as yet only an infant and it will have many problems to meet and difficulties to overcome if it is to grow up satisfactorily. For example, we are not yet past the stage of legislating and planning for the average farmer. Every effort is made by way of commodity price adjustment to keep the balance even between farmers operating under good and bad conditions. As a supplement to price adjustment, acreage payment, subsidy schemes, and marginal agricultural production assistance are examples of further measures taken to see "fair play." But these have their dangers, of which perhaps the most obvious is that of perpetuating inefficient production. Subsidy schemes undoubtedly have their constructive side, but they are in the main palliatives. Sometime and probably sooner than later, the assistance of Agricultural Economics must be invoked to find the answer to the problems of how to deal with unprofitable farms in a controlled democracy. Indeed, the effort to go further has already begun. The Hill Farming Act which applies to England and Wales as well as Scotland is now on the Statute Book. This Act, which is directed towards the rehabilitation of hill sheep-farms, one of the depressed sections of the farming industry to-day, requires for its successful consummation all the help agricultural economists can give. During the next five years it is proposed to spend a large sum of the tax-payer's money in an attempt to improve these farms. Where is this money to be spent? Where would it be wasteful? Agricultural economists must provide the answers.

The demands made on agricultural economists during the last seven years for help in formulating and administering control policies and programmes has prevented such progress in the ordinarily accepted lines of agricultural economics development. Such fundamental research as had been going on, and this in the ultimate analysis lies at the root of progress, was to a large extent arrested. There was, of course, some research. It was, however of an *ad hoc* investigational kind directed more to the solution of the pressing problems of the day. Its scope was limited by the needs of the moment, and excursions into the deeper realms, which although often abortive, do at times yield most valuable results, were impossible. There was a job to be done and agricultural economists, like many other people, had to sacrifice their own inclinations and get down to it. Comparatively little has been done, for example, in the way of market research, farm organisation studies, and the like. However the time has not been wasted. The experience resulting from war-time developments and the data which it is hoped will be made available as a result of war-time activities will be invaluable in the future.

In conclusion, therefore, developments in agricultural economics in Scotland since 1938 have been essentially of a practical nature. Times have changed, and with the changes a reorientation of agricultural economics activity has taken place. Adam Smith's 'hidden hand' has not entirely gone, but it is weaker than it was. We are committed to a degree of planning not known before, and events have called upon the agricultural economist, not to change his role, but rather to change the emphasis of his activities and play his part in the new era.

Agricultural Economics in Italy*

By

GIUSEPPE MEDICI

Upto the end of the last century, agrarian economy, instead of an organic whole composed of doctrines and experimental data logically assembled, represented only a chapter of synthesis in the treatises on cultivation. In fact, in the classical textbooks on agronomy and agriculture, there is always a chapter at the end—sometimes as large as the book—wherein are gathered the threads of the technical arguments, and a synthesized judgment is expressed as to what are the economic aims towards which agriculture is directed. Indeed the word “agriculture” if considered from a philological point of view, has a meaning more economic than technical. In the German expression “Landwirtschaft”, the concept of land economy is explicit. Therefore it is not surprising that agrarian economy should in early times have been studied by technical agriculturists instead of by economists; technical agriculturists who, when studying the concrete problems presented by crop culture and animal husbandry, could not forget that both the one and the other are practised within the environment of farm-holdings; and they could not forget that these holdings, in their turn, condition those same applications of technical science upon which their attention was focussed. And if it is true that the economy of the various countries until the middle of last century was founded almost exclusively on agriculture, it is also true that the most important investigations of classical economists were directed towards the general problems concerning marketing, and, consequently, the fixing of prices, international exchanges and the forces that determine them and the conditions that bind them, currencies and the laws that regulate functions, etc., etc.; so that if some great economists—of whom I will name Ricardo—discovered fundamental economic laws pertaining to agrarian economy (Ricardian theory of rent, for instance) these were general laws, which found in the agrarian atmosphere the opportunity whereby to become concrete; thus they were not agrarian economic studies in the modern meaning attributed to this term.

Agriculture and its problems are in fact present in all important treatises on political economy, but they are handled diversely, in a matter extraneous to the way of thought of rural economists.

The lack of precise knowledge of agrarian technique and a poor knowledge of agricultural conditions explain the deep gaps and also the abstract form of these wordy treatises; I think, however, that the limited exchange of thought between economists and agricultural writers is due to a different “forma mentis” and to the innate dissimilarity of their scienti-

* *Agricultural Economics in Italy*: Giuseppe Medici (Istituto Nazionale di Economica Agraria),

fic interests. The economists were above all intent on general economic problems, apart from the specific character of the sector under consideration; they dwelt, for example, on the general problems of price-fixing, even though their investigations were directly concerned with agricultural products. Others instead were intent upon purely economic aspects of technical problems, such as quantitative data on production and relative costs of a particular cultivation. Even when studying an economic situation from a historical point of view, thus examining agricultural problems as related to human activity, economists were rarely able to conceive other than abstract problems of little practical value even from a scientific point of view. Such are those studies which question the profitability of small, medium-sized, and large properties, rendered famous by a decadent and conventoinal literature; equally instructive are those nebulous sociological arguments on the life of the peasants and the problems of farm work!

Perhaps it can be safely affirmed that until the end of last century, agrarian economy, as an organic doctrine, was not yet born.

Several fine monographs written in the last century by such men as Carlo Castaneo, Stefano Iacini, Ghino Valenti, had indicated the path to follow in order to study the agriculture of a certain country and the particular economic factors therein present; they had not however attempted the process of analysis of agrarian holding, conceived as an abstract entity, nor the study of the best methods to be followed in economic-agrarian research, both of which were only undertaken at the beginning of this century. It was at the end of last century that economic-agrarian studies assumed an independent development, as apart from the treatise on crop-culture of which they represented the synthesis; and this independence was achieved happily,—without excessive concessions to either technique, which was being rapidly improved by scientific progress, or to economy, as a science, which, thanks to great scholars, was assuming more and more a rational and severe aspect.

What happened in Italy can be said to have happened also in other countries, in Germany, for instance; but in our country, by singular good fortune, the formation of our code of studies was so successfully achieved because there were a few prominent agrarian economists who though coming from technical studies on farming, had yet an open mind, apt and ready to examine thoroughly economic studies in general. In fact, towards the end of last century, a leading personality, ARRIGO SERPEIRI, initiated his scientific activity in the field of rural economy, and for the last forty years he has completely dominated the background of our studies. Fresh from technical studies on agriculture, he immediately took upon himself to acquire a deep and sure knowledge of economic doctrines. As early as 1901, in an essay on the nature of farm profits, he laid the foundations of a rational method of study of the economy of the farm-holding. In a later study on the methods of appraisal of landed property, he showed how the rules of the science of economy can be applied successfully in the valuation of rural property

Nevertheless, all said, we cannot express ourselves as satisfied. Our science has not yet achieved that elementary clearness and precision indispensable in teaching. If we feel dissatisfied with treatises that we consider too far removed from reality, the student commencing his studies on agrarian economy must feel downright dismay. I think, we all, as pupils of the various agrarian faculties have experienced the same feeling of disorientation when confronted with the teachings of rural economy, due to an inability to extract therefrom the concrete ideas that can be easily applied, which are conducive to a sound knowledge and interpretation of agricultural practice.

This derives probably from the fact that Italian teachings and studies on agrarian economy, over the first thirty years of this century, have developed along the lines traced by SERPIERI, which consisted chiefly in examining from a logical point of view and in accordance with abstract rules, the typical farm-holding. From this has sprung a series of theorems, which are too remote from the facts of farming to be of real utility in teaching.

By this I do not want to say that the study of farm holdings by deductive method is fruitless. Quite the contrary, I only say that the abstract study of the farm-holding, so perfectly carried out by SERPIERI, is a well-defined and completed chapter. I would add, however, that this alone does not satisfy the needs of those who seek suitable aids with which they acquire a true knowledge of agrarian economy.

We must also consider the lesser, though precise, criticisms made by young students, who have a sharper and more open critical sense and who feel with greater intensity the need for new vigour in research. What then are the remarks heard when we converse with our young friends?

In the first place it is said that many of our studies, particularly the more recent ones, lack originality, and constitute a mechanical and unvaried repetition of statistical data; also that others consist of material statements made without any adaptation of the general method to the specific case, and are devoid of that logical interpretation without which all assembled data remain mere elements for study.

This criticism is not unfounded, each one of us feels some little guilt. Sometimes we have erred in an unhappy attempt to assert ourselves by abstruse and useless statistical calculations, as if our branch of knowledge had need to have recourse to the airless sphere of higher mathematics in order to acquire scientific authority. The same "inferiority complex" is revealed in certain voluminous bibliographies, not always displaying sufficient knowledge of the works recorded. This is a fault, however, which even if found amongst agrarian economists is certainly not in them alone encountered!

These remarks have only the object of drawing attention to the necessity for being more frank and more sincere, and of helping us to overcome

a certain impatience, so as to preserve that calm which permits us to see clearly beneath a veneer of elaborate statistics, which, if useful sometimes in private practice, are not always desirable in printed form.

Another criticism is moved against us with particular insistence by those extraneous to our branch of learning. It is affirmed that our studies whilst not so rigorously scientific as those of physical chemistry, mechanics, and even biology, are not carried out with methods proper to economic research. Thus we are related to a kind of Limbo, from which we have not yet been able to emerge.

On this point I would like to dwell a moment. This accusation is unjust and superficial; it comes almost always from those versed in positive sciences, who, accustomed to research which finds solutions in the measurement of dimensions or in description of certain physical or biological facts, do not accept readily the work of interpreting data which do not lead to positive results, but must be pondered, applying methods consistent with the deeds of men, not the phenomena of nature. They are troubled by their inability to use, in our field, their customary form of reasoning; they do not find themselves at ease in a world full of doubt, where it is necessary to treasure at every turn the fundamental teachings of Socrates. It is indeed true that also in our field there are some studies which leave us perplexed; that is, if some are well done there are others badly done. But this should not bring us to the conclusion that our branch of studies is not scientifically determined.

If one considers the nature of agrarian economic studies one finds that they are indeed real studies of economy; being however studies of agrarian economy, and not pure economy, this presupposes a sure and profound knowledge of technical agriculture.

When, for example, our colleagues of agronomy or pathology remark that our studies are generic, I would remind them that our studies do not concern the technical field, but are studies on economy. They do not have for object, phenomena of the physical (land and climate) or biological (crops and livestock) world but the deeds of men. We study the work of men who, in their activity in the field of agriculture, do not constitute that mutable complex of circumstances which induce and counsel men to act in particular ways. Whilst natural phenomena can be anticipated, sometimes with certainty, or at least with some measurable degree of probability, the facts studied by agrarian economy are extremely changeable, difficult of co-ordination in a body of laws having definite probability of future realisation.

On the whole, then, the criticisms from without and within are not such as to lead us to feel that we should modify the method of our work.

At this point I would draw your attention to the dangers that lurk ahead.

The first is that of continuing to dwell uselessly on the problems of profitableness. This, in my opinion, means using oneself up in arguments already amply covered by an abundant literature and on the scarce results of which we are all agreed.

The second danger is that of seeking to technicize economy, if you will allow me to use an ugly expression. In my opinion, this is a grave risk, since economy should remain economy, and technical science should remain technical science. Each should seek to excel in his own profession. The rural economist must have a thorough knowledge of the technical side of agriculture, because it represents the basis of his work ; similarly, the historian who must devolve into Latin origins must know Latin, but not for this reason is he a Latinist. The technical side of our work must be studied as a means, and the possession of this knowledge must be our goal. We must know as much about technical agriculture as we do about the science of economy, in order to follow correctly agrarian economy.

The Economics of Agriculture*

By
R. COHEN

Marshall defined economics as "a study of mankind in the ordinary business of life." Agriculture is the oldest business in the world and, even to-day, it is numerically the most important. The majority of the population of the world, probably nearly two-thirds of the total, are dependent upon it for a living.

The general framework of economic theory is applicable to the business of agriculture just as much as to that of industry. The analysis of the equilibrium of demand and supply, of value and price, and of the distribution of the national income, is as valid in agriculture as in industry. In so far as economic theory is concerned with special industries, it has developed a technique which is suitable for all businesses where both producers and consumers weigh against each other the relative advantages to them of different courses of action. This general theory, however, is very general, and gives no more than an outline of mankind's economic behaviour. When it attempts to become more precise it must base its theories on various assumptions as to the special conditions under which different divisions of economic life are carried on. If the purpose of economic study is more than intellectual exercise, if it seeks to explain economic life as it is, and perhaps to provide a basis for improvement, then its success must depend upon the validity of the assumptions on which it is based.

•

It is at this stage that the economics of agriculture and the economics of industry diverge to some extent. There are substantial differences in the natural conditions under which production must be carried on and in the sociological background, which lead to important differences on the supply side.

Firstly, many agricultural commodities are joint products, either like wheat and offals, or mutton and wool, because they are both part of the same plant or the same animal, or like barley and sheep, because they are frequently produced most cheaply on the same farm. The costs attributable to the various products cannot be separated, as they often can in industry even when several products are produced in the same plant. Thus it is rarely justifiable to consider the supply of any product in isolation.

Secondly, agriculture, on the whole, requires a far larger proportion of land in relation to its employment of other factors than does industry. This is the underlying cause of many of the chief differences between agriculture and industry, such as the tendency to diminishing returns, the wide

* *The Economics of Agriculture* - R. Cohen - (Nisbeth & Co.)

scatter of production, and the great importance of systems of land tenure.

Thirdly, farming is, as a general rule, undertaken in small-sized units and gives little scope for the division of labour ; thus that part of economic analysis which has been developed to explain the large-scale organization typical of industry is less applicable to agriculture. On the other hand, the large portion of economic theory which assumed perfect competition is far more real in agriculture than in industry. The farmer almost always disregards the effect of any change in his own output upon price, which is rarely true of the industrialist.

Fourthly, because of the effect of the weather and of biological factors, yields of farm products vary considerably ; thus the farmer cannot fully control the amount he produces.

Fifthly, partly because of its small-scale organization, the production of agricultural products frequently responds rather differently to price changes than does that of industrial products, so that supply may adjust itself only slowly to price changes.

Finally, agriculture is often regarded as a way of life as well as a means of livelihood, so that sociological, political, and sentimental considerations influence its organization.

The differences on the demand side are less clear-cut, but no less important. First, and chiefly, agriculture is mainly concerned with the production of food, which is the basic necessity of life. It is therefore to be expected that, as generally improving technique makes possible a higher standard of life, the demand for agricultural products will increase less rapidly than that for industrial. Thus the study of agriculture is the study of an industry where the numbers employed are falling.

Secondly, agricultural products are generally perishable, so that it is less easy to postpone their consumption. Partly as a result of this, and partly because of the small scale of production, the middlemen between the original producers and the final consumers assume a place of particular importance for agricultural products.

As a result, to a large extent, of these differences between agriculture and industry, most Governments at the present time have intervened to assist agriculture. There are few farmers in the world to-day whose decisions are not affected as much as by Governmental interference in the pricing process as by the results of the unfettered action of producers and consumers.

Definition and scope of Agricultural Economics*

By

B. H. HIBBARD

The subject of economics seems to take in primarily the social phenomena due to the wealth-getting and wealth-using activities of man. This is substantially the definition given in Ely's textbook. In these few words we have the main meaning of economics. Now agricultural economics is a part of general economics, and it requires at least a fairly clear understanding of general economics.

Professor H. C. Taylor's treatment of agricultural economics deals with agricultural matters as bearing on state and world affairs. His definition, however, pertains to a single farm, which is undoubtedly the main concern of the vast number of farmers, but which does not include the extremely vital problems which should concern all people and which are involved in the pittances earned by Japanese farmers or the relatively ample incomes of the Americans. Many questions such as tariffs and their effects, interest rates, money and its influence, land tenure, and so on, must be considered in forming an adequate definition, which must undertake to cover the question of the income and the outgo of a great class of people. In the paragraph following his definition of agricultural economics, Professor Taylor shows that his ideas on the subject are, unlike his definition, as broad as possible.

Professor Taylor defines the subject as follows:—" agricultural economics treats of the selection of land, labour, and equipments for a farm, the choice of crops to be grown, the selection of livestock enterprises to be carried on, and the whole question of the proportions in which all these agencies should be combined." Later he remarks, "These questions are treated primarily from the point of view of costs and prices." What he gives, appears to be a pretty careful definition of farming from the standpoint of farm management. It would seem that by knowing what is going on in the world, a man could solve all the questions that arise in connection with his own farm, and since it is not easy to change social matters by individual action, it must be true that a farmer's wants and his satisfactions come primarily from the management of his own farm. Although it is true that a given farmer's attention is directed primarily toward his own work rather than toward the work of the community of which he is a part, the farmer must give real attention to community and even to world affairs. Professor Taylor's definition is, to

* By permission from *Agricultural Economics* by B. H. HIBBARD. copyrighted in 1948, Mc.Graw Hill Book Company.

repeat, almost exclusively a definition of the farm-management phase of agricultural economics and hardly at all of the more general aspect of farm life. Under his definition a given farmer could live a lifetime strictly within the confines of his own farm. In the world of economics implied and suggested in the general definitions of most textbooks on general economics, he is a world citizen, and every phase of economic life comes to him for decision and action.

Professor Gray, in his *Introduction to Agricultural Economics*, gives an excellent definition of the subject: "It may be defined as the science in which the principles and methods of economics are applied to the special conditions of agricultural industry." We may say: Agricultural Economics is the study of relationships arising from the wealth-getting and wealth-using activity of man in agriculture. Agricultural Economics is after all merely a part of an immense field called economics. What we are going to study is just a part of the general field of economics, the part applying to agriculture. The main subdivisions of the subject are worth mentioning.

Under one or another wording probably every book on Agricultural Economics for years to come that poses as a general treatment will deal with the ownership of land, the hiring of labour, and the possession of movable capital. The size of the agricultural class is likely to continue to attract attention. Are there too many farmers? Also there is always occasion to consider the combination of the factors of production. To these may be added a large number of subjects such as the size of farms, the value of farms, the relation of tenant to landlord, credit, co-operation and marketing.

Agricultural Economics As Applied Economics *

By

A. W. ASHBY

Agricultural Economics is an "applied science", that is, it is a methodical pursuit of knowledge of economic processes and organisation in agriculture and of their results, for the purpose of stabilising, adapting or modifying them; and, if and when necessary, of changing their results. The application of knowledge to an industry does not necessarily mean changing the forms of organisation or structure of the industry or even making any change in its processes. The most complete and reliable information may confirm the usefulness, desirability, and value of the existing organisation and processes. But this is not often the case, and had there been expectations that this result would arise from the study of agricultural economics probably there would not have been any such study.

In all "applied" sciences there is an underlying assumption that the results of study will lead to desirable change, to development and progress. The study of agricultural economics grew out of a more or less clearly recognised need for knowledge of economic organisation and economic processes in the industry which would be used for intelligent modification of existing forms and conditions. Agricultural economics is not a "pure science", for the study is not pursued, nor is the organisation maintained to pursue it, maintained to produce "knowledge for knowledge's sake." There are necessarily times when agricultural economists must specially claim to be free to pursue knowledge in their sphere without restriction and without thought of its possible effects; and they will of course always claim "freedom of science" to explore their universe and "academic freedom" to proclaim results.

Scientists engaged in an "applied science" do not usually apply their knowledge; they usually apply their methods of study to what are apparently weak spots in the industry. They produce their results, and they sometimes indicate how these results affect the consideration of processes or forms of organisation. They may even go further and indicate the modifications which seem, as the result of their investigations, to be necessary or desirable. Some studies are directed not, apparently, to weak spots in organisation or process, but to these in general. But no one will object to the statement that any weaknesses discovered in such investigations are given greater attention than evidences of strength or of stability. This condition may alter as the science develops and at some points knowledge may lead quite as clearly to preservation or conservation as to change but this is not to be expected for some time to come.

* Extract from a paper read at the Second International Conference of Agricultural Economists.

If agricultural economics is not an applied science in this sense, then it can only be an industrial branch of "political economy" or "economic science." Studies will be pursued and organisations maintained to procure knowledge and to proclaim it. The result may be "pure knowledge", whatever that may be. But whenever the result is real knowledge, we may rest assured that someone will use it either whole or in part. And we have always to remember that "laws" or "principles" of the "purest" of pure economics have been used, particularly in politics but also in industrial administration. These uses perhaps have been more frequently of a negative or conservative than of a positive or constructive character but negative uses of ideas, principles, and even knowledge in social life may sometimes be as important as constructive uses. The negative here as everywhere is merely the first step to a positive attitude.

Industry is a social activity. Economics is a social science. The pursuit of agriculture is a social activity, and agricultural economics is a part of a social science of economics, which is only one of the social sciences.

The outstanding fact about any branch of applied economics and about agricultural economics in particular, is that its results and its knowledge (sometimes more properly perhaps, its "information") will be used for purposes of manipulative or directive acts in the sphere of economics or politics. These acts may be those of individuals, of groups or their leaders, or of administrators or statesmen. They may apply to one business, to group interests or collective businesses, or to economic organisation of the state or world community.

There is a theory, or as I would prefer to call it, a suggestion (occasionally treated as a dogma), that agricultural economics is concerned only with natural forces in that part of the economic universe occupied by agriculture and agriculturists. Agricultural Economics, it is said, is a naturalistic science, that is, it should pursue its studies with reference only to phenomena or facts; and it has nothing whatever to do with "values" or assessments of phenomena or "facts" by human or social standards. There is also a suggestion that agricultural economics as an industrial branch of pure economics is a study in pursuit of pure knowledge, which sometimes means that it is an essay or series of essays in logic. And it matters not that logic may be deductive or inductive; the results are logical and impersonal.

This, of course, is not true. Some processes in inductive logic in the social sciences are quite personal, and some in deductive logic are intensely so. Logic does not give mechanical results of mechanical processes. But neither of these represents the true position of agricultural economics as a branch of social science, and I shall not make any apologies for applying some of the principles of other social sciences to agricultural economics.

We may, then, take as our fundamental principle in economics the division and specialisation of function because of its importance in pro-

duction. Our fundamental problem is, then, the co-ordination of functions to secure the greatest order in the distribution of functions themselves and the greatest order in the distribution and the use of the goods and services produced. Or, accepting the principle that division and specialisation of function will lead to production at least cost or on the most economical lines, then our problem is that of combining the pursuit of least cost with that of the highest possible degree of order and security.

Before proceeding further with this discussion perhaps I ought to offer some ideas as to studies in agricultural economics. Economic systems are made largely if not wholly by behaviour systems in men and groups of men, but not, mark, by any one behaviour system which is common to all men at all times. The predominant economic systems have been made by men who have been dominant in economic organisations. If we can change the behaviour systems of the men who dominate economic organisation, we can change the economic system itself. Incidentally, the first thing we attempt when we direct attention to farm management data or marketing data, and try to get knowledge applied, is to try to change the behaviour systems of men, so I presume that no one of the "practical" persons amongst us will say that behaviour systems cannot be changed. We can and do change behaviour systems of men in individual business, in groups or in nations.

In farm management economics we are using standards such as yield per acre, or per cow or per hen : standards of acres per man or acres per horse ; standards of age-weight in meat animals ; or of hour's work per acre on crops. These are "efficient" standards, but this efficiency has reference to a purpose which can only be that of providing society with all the present means of decent living with the least possible expenditure of economic resources consistent with continuous provision of equal or increasing means at a constant or diminishing expenditure of resources. When we look for these standards we do not look for the average or even for the type at the point of greatest concentration. We do not look for the norm in the sense of a typical example, but for the norm in the sense of either a model or an authoritative rule. When we relate such efficiency standards to rates of profits we begin to create standards of profits. If a certain yield per cow in milk production, or a number of crop-acres per man in crop production, is related to a certain standard of profits, and we make a standard of the yield, or of the crop-acres, we begin to make a standard of the profits also. This might be sound practice if all incomes arising from the production were determined by the profits, or even if all were determined by production. As we know that they are not, it is necessary to consider standards in distribution also. By using these norms in the stimulation of industrial efficiency we envisage, possibly create, constant struggle ; and possibly constant rise in efficiency and total income. We must then envisage constant adjustment in distribution and unless we set up norms for this also we leave it to chance. It is indeed necessary to ask what is the nature, or the validity, of the standards of profits which are related to standards of efficiency. Do they relate only to comparative

rates of profit within one branch of agriculture, to comparative profits in agriculture in general, to comparative profits or earnings in other industries, or to the average earnings of all occupied persons in the country? This question is important, for the farmer's reward is determined in the process of distribution as well as in the process of production of wealth, and the pursuit of efficiency standards may merely tend to enrich other people.

In the marketing branch of agricultural economics we have also need for some standards. Many investigations are concerned with what may be called the physical economy of marketing—cutting out superfluous handling or trading, improving methods of handling, grading, storing and so forth, and in general, cutting down the material cost, or improving the service of marketing function not only in the distribution of goods (produce) but also in the distribution of wealth. There is an efficiency of marketing organisations as wealth distributors as well as their efficiency as distributors of goods. The whole co-operative movement bears witness to the recognition of this duality. When a co-operative society limits interest on capital to 5 per cent or 6 per cent it sets one norm in the marketing system. But, on economic grounds, what should be the earnings of a wholesaler (or a retailer) with a known capital, a known turnover and a known (average or normal) rate of risk? No one knows; yet, by implication, we are all ready to suggest that we know what the minimum rate of profit or earnings of a farmer should be.

The general position is that agriculture, as a depressed or suppressed industry, needs to make a start on the scientific establishment of norms other than those of industrial efficiency. Many of the modern and rising economic institutions have as their objects the establishment of norms in expectations and conduct which will lead to desirable norms in distribution, consumption, and conditions of life. This is the case with the trade union and the co-operative society, and in some degree with the trust, the cartel, and other forms of trade agreement. It is certainly true of the "trade unionism" involved in the method of collective agreement now being used in determining prices of farm products.

So I make a plea for the study of such standards as tend to be established in the distribution of wealth, and for the objective analysis of the economic possibilities of the establishment of other and more satisfactory norms. While we attempt to regulate and direct production towards efficiency we cannot leave distribution to the free play of haphazard forces. It is not improbable that the study of distribution of wealth from this point of view will favourably react on the work of relating production.

The ultimate purpose of all analytical studies is the provision of information for a new synthesis; and the synthesis cannot be left entirely to the untrained and unscientific mind.

The Objectives And Methods of Agricultural Economics*

By

BUSHROD W. ALLIN

The history of agricultural economics and the economic history of agriculture are two very different though closely related subjects. The first is an account of the changing ideas, objectives and methods of agricultural economists, as revealed in such publications as the *Journal of Farm Economics*; the second is an analytical, descriptive and statistical account of the changing economic status of farm people and of the methods by which they have dealt with the problem of making a living. The first is a record of "theory" or mental tools useful for improving the levels of living of farm people; the second is an indispensable part of the subject-matter needed by economists in developing useful theory.

The early history of agricultural economics in this country is replete with discussions of scope and objectives. For example, there was the "line fence" conception, or the notion that the field of agricultural economics should be restricted to those things which could be acted upon by the individual farmer within his own line fence. The prevalence of this idea at the time the American Farm Economic Association and the *Journal of Farm Economics* were founded is the reason for the word "farm" in both titles. Tradition has kept it there.

The "line fence" or individual farm management schools were dominant in the early days simply because they were the product of Land-Grant Colleges dedicated to the improvement of individual farm management. These colleges had already made long strides in developing the separate sciences of farm technology such as soils, agronomy, and animal husbandry. What they felt the need of first in the field of economics was integration and synthesis of the findings of physical science in their application to the individual farm, assuming the institutional or social situation as given.

But along with this development, another branch of the agricultural economics profession was growing under the leadership of Professor Ely, who still earlier had been a student of Karl Knies of the German Historical School. This branch recognized the importance of the economics of individual farm management, but it was also concerned with institutions, or the collective actions of governmental, economic and cultural organizations as they affected the economic well-being of the individual farmer—something the individual farmer acting alone could do nothing about, but which he could effect as a participant in voluntary associations such as

* *Journal of Farm Economics* - August, 1948.

general farm organizations, co-operative marketing associations, and political parties. This branch has come into full flower in its concern with public "agricultural policy." It has even blossomed to the point where some farm leaders have been asking whether the purpose of agricultural economics is to improve the well-being of the farmers or that of the "public." This could happen, of course, only because ours is a democratic economy in which group interests are compromised by collective bargaining—not one in which the general welfare is served either as a "natural" consequence of "atomistic competition" or by the edicts of an all-wise and all-powerful dictator. In fact, old "General Welfare" himself is only an abstraction without any "troops" or organization behind him to make his will effective. And the agricultural economist who would work to improve the well-being of farmers in a manner consistent with the general welfare must have an understanding of diplomacy as well as of economics.

In any event, the increasing emphasis upon the institutional aspects of agricultural economics has the greatest significance, because all institutions have *historical roots* a knowledge of which is essential if they are to be understood—and if on the basis of such understanding they are to be modified intelligently to meet changing conditions.

Methods in agricultural economics have changed with the changing problems. Cost analysis for individual farms with a view to discovering the relative importance of limiting and complementary factors in the determination of profits is still important for that purpose. But we are now concerned also with "regional adjustments in production", and "production goals" from a national point of view. This type of information is needed in the production planning of Federal "action" agencies. Research in land economics has evolved through a descriptive type aimed at showing the amount and location of agricultural resources and production to the development of "directional measures" useful to various "levels" of Government and to co-operative groups as a means of dealing with the "public" problems of land utilization. Statistical research, originally concerned mainly with the construction of index numbers to help guide the individual farmer, now includes a great deal of what has come to be known as "service work", which is work designed to answer questions of public officials and administrators engaged in carrying out and amending public agricultural programmes. The "master sample" and the "enumerative survey" are supplementing traditional crop and livestock reporting because more and better statistical information is needed by Government. And public opinion or attitude studies are important aids in determining and administering public agricultural policy. Soil conservation has become a public as well as an individual responsibility, and research has not yet caught up with this veritable revolution.

Investigations in the field of farm population and rural welfare have expanded from community studies to inquiries into the characteristics and distribution of the national farm labour force, from studies of local govern-

ment to those of social security and of all manner of public facilities and services. Research in marketing has grown from studies of marketing practices and problems incident to the administration of regulatory measures until they include such matters as the economic significance of food stamp plans. Studies of foreign trade in agricultural products have evolved from analysis of the economics on a world-wide scale, as revealed by such activities as those of the Food and Agriculture Organization and the International Emergency Food Council. Here, agricultural economics becomes a part of social science in the broadest sense.

If the purpose of social science is to yield "understanding" or social or human relations, one of the methods by which such understanding must be achieved is to search out the inter-connections between the contributions of the various social disciplines. The relation of jurisprudence to agricultural economics is apparent in the history of the Agricultural Adjustment Act. And every "school of thought" or system or logic in economics rests on a conception of human nature. Classical doctrine rested on the assumption that "man's self-interest is God's Providence." Others have denied this and rooted their views in "pragmatism." All of which is background for one of the main points I want to make in this paper, namely, that academic training in all the social disciplines, including agricultural economics and history, is over-specialized. This is one aspect of the problem of method, and a very important one.

I think all our universities and colleges should have Schools of Social Science, not merely Departments of Economics, History, etc. History can be as meaningless as economic statistics when recorded by someone who is interested only in what he calls the "facts", when produced by those without a "theory." Give us more history by those reasonably well-trained in economics and more economics by those reasonably well-trained in history.

Solon J. Buck knew some economics; otherwise he would never have produced his excellent work, *The Granger Movement*. Arthur Schlesinger was interested in the whole gamut of social problems; otherwise he could never have produced *The Age of Jackson*. Economic interpretations of history should be both the tools and the products of economists and historians. Beard's work is a landmark in the synthesis of political economy and history. Some of it has been facetiously called "criminal" rather than "economic" interpretation. But the fact is that men are both stupid and wise, both vicious and righteous, and some of both kinds have been known in high places. A scientific history will record the deeds of both.

I would select for heads of the Schools of Social Science men well-trained in all the social sciences, generalists rather than specialists. These men should be men with ideas, men trained to think not merely experts in the mechanics of a given discipline. As heads of Schools, moreover, they would need to have the native ability and personality essential for good academic administration. I would staff these Schools with specialists in the various social disciplines, including agricultural economics and

history, and would select for such jobs only people who also had at least a fair acquaintance with the other social disciplines as well as a thorough knowledge of their own specialities.

But you might ask, from where would you recruit such a staff? I admit the difficulty, but this only emphasizes the importance of beginning to train men who can qualify under such specifications. Training of this kind involves discontinuance of the practice, still too prevalent, of granting advanced degrees in social science to people whose training has been largely restricted to their speciality.

Methods in agricultural economics differ from those of other branches of economics only as the subject-matter and problems differ. In my judgment, the similarities are more important than the differences. The late John Maynard Keynes has said:

" . . . The study of economics does not seem to require any specialised gifts of an unusually high order. Is it not, intellectually regarded, a very easy subject compared with the higher branches of philosophy and pure science? Yet good, or even competent, economists are the rarest of birds. An easy subject, at which very few excel! The paradox finds its explanation, perhaps in that the master-economist must possess a rare *combination* of gifts. He must reach a high standard in several different directions and must combine talents not often *found* together. He must be mathematician, *historian*, statesman, philosopher in some degree. He must understand symbols and speak in words. He must contemplate the particular in terms of the general, and touch abstract and concrete in the same flight of thought. He must study the present in the light of the past for the purposes of the future. No part of man's nature or his institutions must lie entirely outside his regard. He must be purposeful and disinterested in a simultaneous mood; as aloof and incorruptible as an artist, yet sometimes as near the earth as a politician." (Italics mine).

Note that Keynes' ideal of "many-sidedness" in the qualifications of a "master" economist includes proficiency as a historian. Apparently, also, his conception of a master economist is different from what is usually called a "leading" economist, for a leading economist is often nothing more than a leader of a particular "fraternity" of economists. As such, he may be more of a salesman than a social scientist.

I agree with this quotation from Keynes and consider it a classic; but I follow the late John R. Commons and go much further. After sixty years of many-sided and acute study of human affairs, as well as active participation in dealing with economic and social problems, he wrote:

"As I have studied practical problems it has always seemed to me that the life and death struggle of making a living and trying to get rich was at the bottom of all other problems. Out of this basic struggle come political parties, constitutional governments, labour unions, corporations and so on. Always I worked out to some administrative task, but the

administration grew out of the underlying struggle for making a living. Consequently, I have never been able to think of the various social sciences as separate fields of history, political science, law, economics, ethics and administration. What we need is some way of working through the whole complex of problems that grow out of this fundamental struggle."

What is that way? Commons found it in the "transaction" and in the "going concern." Others have not only failed to find it at all, but continue to hold to the neo-classical position that a separate science of economics can and should be developed and taught without too much relation to other social disciplines, such as jurisprudence, political science, psychology, anthropology and philosophy.

Both quotations from these two master economists emphasize the importance of history to the economist. Economists have argued long and vigorously over the relation of economics to history. From Schmoller's debates with Menger to the present day, professional economists have argued the relative merits of the historical, statistical, and inductive methods versus the "theoretical", abstract, logical, and deductive methods. As is generally the case in most arguments, it has always seemed to me that both sides were right and wrong. Each was right in insisting upon the use of the methods advocated, and each was wrong in over-emphasizing the importance of its method as contrasted with the advocated by the opposition.

That the importance of the historical method was recognized early in the development of Agricultural Economics in this country is indicated by the very name of one of the Divisions of the Bureau of Agricultural Economics, namely, the Division of Statistical and Historical Research. But what is the significance of using both of these words in the name of this Division? Isn't every "statistical" time series also "Historical"? Isn't the Agricultural Census part of the economic history of agriculture? Yes, but statistics and statistical method are concerned with more than the maintenance of time series. They are the language of numbers, and aid in the understanding of all things measurable in social science. And history includes much more than can be treated statistically.

I believe the trend in American Universities and colleges is toward a broadening of the training of people specializing in the various social disciplines. One example I consider to be a move in the right direction is the establishment of schools of "public administration." I should like it much better if these schools had been established as schools of "social science" with curricula appropriate for that title. But what has been done is at least a recognition of two facts of life: (1) that the number of people needed to administer all kinds of government "action" programmes has increased enormously in recent years, and (2) that the training of a good administrator should include more than economics, since he must draw upon all the social disciplines, and these are never found in mutually exclusive compartments.

Administrators need a comprehensive understanding of social science lest under the pressure of their work and in their concern with routine

matters they lose sight of where the "economy" has been and all sense of direction as to where it is going or ought to go. Because policy is being made more and more by administrators, and because administration is providing increasing opportunity for the kind of research through which *one learns by doing*, it is ever more important that those in key administrative posts understand the social implications of what they are doing—in other words, have social *perspective*.

Agricultural economists, of course, should know something about agriculture, but as economists they should be first of all social scientists. The word "agriculture" should distinguish them from other social scientists only as it differentiates their background and the type of problem they are interested in or working on. A good knowledge of history is an indispensable part of their training and some knowledge of how to do historical research is a necessary tool in their work. They should not be demoted, however, if they cannot answer from memory, "What is meant by Shay's Rebellion?"

As for master economists it may well be that these cannot be trained. May be they just grow. The bald truth is that the proportion of students both able and willing to study comprehensively in the field of social science is small. It is even probable that the market for the service of such people is thin, whereas a job is waiting for the fellow who knows the mechanics of peanut marketing or the advanced techniques of farm cost accounting. But a good administrator who has the inquisitive mind of a research worker and has the responsibility for making policy decisions will also have a lively interest in both the relevant facts of the past and in economic theory that will help him understand what he is doing. Both those interested in the maintenance of the "status quo" and those concerned with improving existing institutions have a ready use for the findings of social science. But the study of the discipline can flourish best in an atmosphere of free inquiry.

To-day, knowledge of agricultural economics in its larger social science setting is especially important as mankind tries to write some important history for the future. We face many new and imperfectly understood situations as well as a considerable area of absolute and abysmal ignorance. All of us nurse the hope that this Nation and the world are standing at the threshold of a great new age. But none of us can fail to be aware that many dangers lie between us and that goal. We cannot even know what all the dangers will be. On the other hand, I am convinced that even the most sanguine of us is hardly likely to envision the half of what this age, now dawning, offers to man in terms of material, intellectual, and spiritual advancement. The broadening character of the economic matters with which we are dealing to-day as compared with a few years ago is both a token and a promise of the future. Along with more cataclysmic events, this is itself an indication that "One World" is more than a catchword; it is a developing entity with which we are already having to deal, both at home as between agriculture, industry, and trade, and in the world as a whole.

Land Economics As A Social Science

By

ROLAND R. RENNE

Definition and Scope of Land Economics: Land economics deals with the problems of cost, price, value, income, and use-control aspects of utilizing land as a factor in the production of economic goods and services. It has been said that all human creation is basically re-creation and all production re-production. Producers of economic wealth do not make anything completely new, but perform a process of "extraction" and "conversion" reworking the basic element, land, into useful things ("wealth"). Land, which is defined as the basic natural earth resource, is transformed into usable, want-satisfying goods through the efforts of agriculture, industry, and commerce.

Land economics deals with economic problems involved in utilizing soils, forest, minerals, water, topography, and climate for production of food, fuel and fiber, lumber, recreation, irrigation and drainage, location sites (dwelling, business, and industrial sites), and transportation. Most land economists have been trained in the field of agricultural economics, and have, therefore, devoted most of their energies to determining principles and solving problems applicable to farm and ranch lands. *Agricultural land economics*, like farm management or agricultural marketing, may be considered a sub-division of agricultural economics; but the full scope of land economics is a distinct, applied field of the parent discipline—economics.

Land economics, even when limited to consideration of agricultural land utilization, is clearly distinguishable from farm management, although the two fields are not mutually exclusive. In farm management, the strategic or limiting factor is *management*, while in land economics it is land, either because of its natural qualities of location and fertility, or because of the institutions or behaviour patterns established to govern its use. Farm management focuses attention on the management problems of an individual farm, and the choice of enterprises for a farm or ranch, or group of farms and ranches. Land economics considers especially how individual farm affects land use and how it affects groups using or interested in the land. The problems with which the farm management economist is concerned are the individual farm operator's decisions with respect to alternative enterprises—such as grain or livestock production. The land economist is interested in community, state, or national problems, such as tenancy, land taxation, foreclosure, and soil depletion. The institution of property in land is the focus of attention in land economics since it determines the major relations of man to land, and since most of the problems of land economics are intimately connected with the exercise of property rights as construed by the prevailing economic philosophy.

LAND AND ECONOMIC PROBLEMS AND POLICIES

Basic Economic Problems: The use of land, like the use of other economic goods, is subject to economic forces such as those of supply and demand. Land has certain unique characteristics which distinguish it from the other major factors of production and cause it to respond in special ways to the stimulation of price shifts or institutional changes. Two such characteristics not common to the human element or to capital in production are permanence of land and its fixity in space. The method of using land and its share in the national income are therefore determined according to principles whose applications are sufficiently different from the other production factors to justify separate study.

These differences in the response to price or institutional changes give rise to serious problems. Should income from land be taxed differently from other income? Does land ownership give the owner peculiar monopolistic control, because of land's non-reproducible nature, the scarcity of certain kinds of land, and the lack of substitutability among individual parcels? Answers to these questions involve careful study of the characteristics of landed property and the particular economic system within which it operates.

American public and private land use policies have developed in a commercialized price economy where the principle of specialisation and division of labour is generally accepted and applied. Land resources are used to produce want-satisfying goods and services in an economic environment dominated by private enterprise and production for sale and profit.

The price system gives rise to many land utilization problems that would not occur in a more primitive, self-sufficing economy. Land economists are concerned with prices because land use is determined largely by the market price of the products of land and the costs of producing them. Price fluctuations create many land utilization problems. For example, if prices of farm products decline rapidly, the farmer must adjust his costs of production, among other things, in order to survive. The two major means of adjustment for the farmer are tightening his belt or taking it out of the soil. He may reduce his level of living, as a means of reducing costs of production, but frequently this is not enough. Some other approach must then be made to the problem of living within his reduced income. Too often the adjustment takes the form of "mining" or exploiting the soil. For example, a farmer may apply insufficient fertilizer or till inadequately, allowing undue decline in fertility, spread of weeds, expedited erosion, and soil blowing. Price changes are therefore extremely significant in land economics, since price disparities between things bought and things sold often cause those who utilize land resources directly to mine them through ill-adapted, short-sighted practices.

Property rights ill-adapted to the general welfare are often responsible for exploitation of land resources. A notorious case is that of allowing separate drilling of oil wells by different owners into a common pool. The race to obtain the most oil first drains supplies much more quickly than the relative needs of present and future would make desirable.

Land economists try to discover and explain why and how these situations develop, with the purpose of assisting individuals and agencies in the formulation of policies and programmes which will bring about better use of land resources and a higher level of general welfare.

Policies and Programmes: A *policy* is "a specific plan of action, or method of achieving desired ends, followed for a considerable period of time." The "desired ends" in land economics are to develop the principles of land use and appropriation as a means to improve the economic and social conditions of living. Land policies, public or private, form the field of operations within which individuals plan land use; and one of the functions of land economics is to analyse these policies and the principles upon which they are based, to determine whether they are the most consistent or the most feasible means of achieving the goals of maximum welfare.

The land policy of a nation is "an evolutionary growth in which politics, ambitions, fears, prejudices, traditions, beliefs true or untrue, and myths each and all have an influence. Physical factors such as soil characteristics, topography, and humidity; technological inventions and developments; biological factors such as improved varieties of plants and better types and breeds of animals; economic and political factors such as taxes, import duties, export subsidies, tariffs, nationalism, and self-sufficiency—all assert their influence on a nation's land use policy, some working together, some against each other. The resulting policy is formed by an intricate mosaic of factors."

Current phases of a land policy are more properly termed *programmes*. Reference to "Programmes" is usually to immediate events, plans, or institutions which are the contemporary manifestations of the longer-time, more fundamental policy. Land use programmes, in other words, represent current efforts designed to achieve the objectives implicit in the prevailing land policy. They are the means by which the policy is translated into action. They include efforts of private and public agencies to set up rules and administrative procedures for achieving immediate goals.

SECTION C

**RESEARCH IN
AGRICULTURAL ECONOMICS**

What the Policy Maker Needs*

By

ALEXANDER LOVEDAY

Now that governments have committed themselves to doing something about the risk of depressions, committed themselves indeed to the courageous objective of trying to maintain full employment, I want to consider what agencies of information they will need to give them some chance of success—or perhaps better, of obviating tragic failure. I shall begin by making one important assumption; namely, that fluctuations in business activity spread naturally from country to country and that no country, unless it is a vast land mass like Russia, rich in almost all natural products and covering many degrees of latitude, can by itself hope to maintain a high degree of economic activity. I shall assume, that is, that full employment policies must either be international or imply the co-ordination of national policies. Granted this, then, the problem before us of the research and the research equipment required is largely one of international organisation.

But all international research must be based on national foundations and something must therefore be said first about those foundations. The policy maker is necessarily a busy person; he has to know not only about the subject on which he is framing policy, but also about the general and approved objectives of policy and, more difficult because less certain, about what the public and the legislature will accept at any particular moment of time. His are the functions of judgment and imagination. Judgment to decide what should be done; imagination to decide what can be done; and judgment again to marry this 'should' and 'can'. He requires therefore not crude but refined data about the situation and about the hopes and threats that it carries for the future. He requires not a steel engraving showing every detail of the picture, but a charcoal sketch throwing the essential into prominence.

But just because the policy maker will in the end form his judgment with a relatively few clear cut facts in his mind, the organization of the essential research presents very real difficulties. The more the policy maker is inclined to think in terms of a few outstanding facts only, the greater is the danger that he will observe results only and not causes, and apply policies that, because they do not go to the root of the matter, prove extravagant of effort, and meagre in result. He may be induced, for instance, to check an impending depression by additions to the national debt when all that was really necessary was to revive demand in capital goods industries; he may restrict imports and production when all that

* *Economic Research and the Development of Economic Science and Public Policy*—National Bureau of Economic Research, U.S.A.

was necessary was to institute an international system to facilitate the temporary carrying of larger stocks of raw materials. What is essential therefore is to organize the research as to allow its results to be simple, while preventing the policy makers from becoming simplistic.

How can this be done? Obviously, behind any form of economic research must lie an adequate organisation of national economic and financial statistics. This need is indeed so obvious that I will not enlarge on it. But there are just two remarks about official statistics that I should like to make. The view used to be widely held that statistics were simply a by-product of administration and should be confined to those subjects for which there was a compelling and immediate need; that logical gaps did not matter; that the administrator (and not the economist) did matter. Surveying the results from the relatively elevated altitude of mountainous Switzerland, that view seems to me lacking in vision and foresight. It implied no provision for the future, no thought of the inter-relationship of economic occurrence. I still think I was right and that the official statistician must consider the working of the whole economic system and what parts of that system he must measure to understand its working.

But, and this is my second point, there is a danger today that too much will be asked of poor and under-developed administrations. It is much better that such administrations should devote the limited resources they have at their disposal to producing accurate statistics on the really essential phenomena than that they should fill a thick tome with a measure only of the imagination of their statisticians. I remember that one government not so very many years ago produced on external request a complete census of a string of villages without sending out a single questionnaire or having any inquiries made on the spot. I doubt whether some of the replies furnished more recently at a request—also external—for estimates of national income were much less imaginative or much less dangerous for the policy maker. No, the policy maker requires a record of facts, not of fiction—a record to which he can himself turn to check a contention, but which will be mainly used by the research worker on whom he necessarily relies.

This research must take many forms. I would put first on my national list work such as that done by the National Bureau of Economic Research devoted mainly to examining with scientific care one section after another of the whole fabric of the economic structure or one group of tendencies after another in the aggregate of forces that contribute to economic change—secular or cyclical. The first type of study is important because economic stability can never be achieved by a structure which is itself inherently unstable. One of the gravest dangers that I foresee in the execution of full employment policies in the future is that statesmen may believe that if only the momentum can be maintained at a high enough pitch, balance can be maintained for ever. This is the type of view that is dear to the hearts of the enthusiastic young economists who prefer logic chopping to facts and to certain of our abstract mathematical reasoners who prefer symbols to human beings. It might be true if there

were no boulders on the path. But there are boulders and the structure must be ready to meet them. The policy maker must not be allowed to become a speed hog. If he does, sooner or later a national disaster will occur, and, if the nation in question is an important one, this will be followed by international disaster. No, it is of the utmost importance that bodies like the National Bureau of Economic Research should examine and re-examine the whole economic structure, check and test it with a view not only to understanding its mechanism but also to detecting the weak spots. Work of this sort is, I think, better done by a private agency than by the government, because no government, however, scientifically minded, can be relied on to persist in this constant overhauling day by day and year by year. Sooner or later it will be subjected to pressure to economize, and long term research of this sort, which may for quite considerable periods result in no single striking discovery obviously influencing policy, will be peculiarly vulnerable to attack. It will be vulnerable too, if results are obtained that imply some radical change in policy from which some powerful political group fears it may suffer. A private agency presents other still more important advantages. It affords as it were a workshop to which economists can turn for help when some piece of research demands more elaborate inquiry or analysis than can be carried out by an individual working alone. The whole body of economists benefits from the inflow of new minds and contact with fresh points of view.

At the same time there can be no doubt that nearly all governments, if they are to make themselves responsible for full employment, will require a much more elaborate machinery for examining the national economic structure than they have possessed in the past. Such examination frequently postulates mandatory powers, which the government alone possesses; it will certainly necessitate also the employment of many more competent and experienced economists by governments than has been customary in peacetime in the past. We may expect indeed a steady expansion of the scope of government research; but the policy maker would certainly suffer if this led to any restriction of private research. The private worker should be constantly exploring new fields, testing new and old theories, demonstrating the effects, good and bad, of government policies. He should be a trail maker and scientific critic.

Some Considerations in building a Curriculum for Agricultural Economics Majors*

By

AUSTIN A. DOWELL

An examination of curricula for majors in Agricultural Economics at different institutions reveals considerable variation in requirements at both the undergraduate and graduate levels. In some cases a fairly rigid programme of courses and prerequisites is required, while at others considerable flexibility is permitted. At some institutions rather narrow specialization is encouraged, whereas at others a broad general training is favoured. These differences suggest some variation in over-all objectives, but they probably reflect, to an even greater extent, differences of opinion as to the means by which the objectives are to be reached.

The views of anyone who attempts to discuss this subject naturally are coloured by his experiences with students and with certain specific curricula. Hence a certain amount of bias is to be expected, and this discussion will prove to be no exception.

I believe the discussion will be much more fruitful if we consider general principles rather than run the danger of getting lost in a maze of detail and perhaps of losing sight of the main objectives or of confusing means with the ends sought. If reasonable agreement can be reached on the objectives, fewer differences will arise over the means.

The first step in this discussion, therefore, will be to indicate the kind of training that appears to be desirable for the well-trained major in agricultural economics. This will be followed by an attempt to determine, within rather broad limits, how much of the desired training can or should be obtained at the different educational levels.

It is obvious that the major in agricultural economics should be an economist. To be a well-trained economist he must have a thorough grounding in principles of economics. This is much more important than the number of applied courses in a given field.

The agricultural economist also should have a thorough grounding in the application of economic principles to agriculture. This means that he should have a working knowledge of and keep in contact with the various technical agricultural lines. He will be working with farm people and, hence, should be at home in such an environment. I would be the last to assert that a farm background is essential to success in this field. But I am convinced that it is an asset of incalculable value. Those without

this background will have to put forth special effort to acquire the equivalent of this experience. Some are able to do this quite successfully, some with a fair degree of success, while others seem to be unable to make the grade. The classic example of the eastern city owner of a western sheep ranch ordering his manager over the telephone to "stop lambing" in the midst of the lambing season because lamb and wool prices had declined below production and marketing costs is a case in point. Older members of our group may recall the suggestion made at a farm meeting a couple of decades ago when mule prices were high that farmers should breed their mules to increase the number of work animals. I fail to see how one can talk intelligently about farm problems without a good understanding of farm work and farm life. By the same token, I do not see how one can expect to offer constructive suggestions for improvements in the marketing or in the distribution of farm products without a good working knowledge of marketing and distribution procedures.

It is of increasing importance for majors in agricultural economics to acquaint themselves with the framework of social and political institutions within which man must conduct his economic activities. Courses in fields such as psychology, sociology, political science, and constitutional law will provide some of the needed background.

World problems are now of such paramount importance to agriculture and to agricultural policy in the United States that well-trained majors in agricultural economics should have a reasonable understanding of our relationship to the rest of the world. The fundamentals of comparative advantage, foreign exchange, and other aspects of international trade have been stressed for many years, but recent developments have thrown these and other related problems into sharper focus than ever before. How can the United States make its greatest contribution towards raising the living standards of the people of the world? Can this be accomplished by reducing trade restrictions, relaxing immigration barriers, exporting industrial equipment, investing in foreign plants, supplying relief to the needy, sending educators and technicians abroad to train others, or by doing any combination of these or of a dozen and one other things that have been suggested from time to time? This country will be obliged to reach decisions with respect to these and other matters, and these decisions should not be made upon the basis of narrow individual or group interest. Agricultural economists will be called upon increasingly to supply the kind of information that will enable an enlightened public to formulate sound national policies. Majors in agricultural economics should be equipped to make their contribution on this rapidly expanding front. This means that they should have some knowledge of the geography, soil, climate and other resources and of the people and their problems in the various countries of the world.

The mere recounting of the various fields of learning that would be useful to the agricultural economist suggests certain rather definite limits to the amount of specialization that is possible or advisable in the major field during the four-year undergraduate course.

At many institutions the undergraduate students who wish to major in agricultural economics fall into three groups: Those who will complete

their formal training with the bachelor's degree, those who will continue through the master's degree, and those who will go on for the Ph.D. The desired amount of concentration in the major at the undergraduate level will be different for each group, and it will also be different for individuals within each group because of variations in background and individual interests.

Relatively little time should be devoted to specialization at the undergraduate level for students who plan to continue through the Ph.D. Their time should be devoted largely to obtaining a good background in the natural sciences, in technical agriculture, in principles of economics, and in social sciences other than the major and minor. They should take sufficient work in English and public speaking to be reasonably effective in these lines, and they should have a satisfactory background in mathematics and statistics. Those who are to devote their time to research in prices or statistics should obtain all the mathematical background and statistical training they can get. The general run of students majoring in agricultural economics should have enough contact with statistics to know how to use them and to realize their limitations. They should know that statistics are extremely valuable tools but that they are not a substitute for analysis. Some knowledge of the geography of the continents of the world also is highly desirable. This broad training will leave relatively little time for specialization. Somewhat more time for concentration in the major field will be available to those who enter college with satisfactory farm experience and with good high school preparation in such subjects as English and mathematics, than for those who enter with greater deficiencies in these areas.

A somewhat higher degree of specialization at the undergraduate level is desirable for those who complete their training with the master's degree than for those who go on to the Ph.D., and still greater concentration in the major field will be necessary for those who go no further than the bachelor's degree. At most institutions the latter probably includes most of the undergraduate majors in agricultural economics, and, if so, it is here that the principal interest in curriculum building for undergraduates will be centered. If these men are to function as agricultural economists upon completion of the bachelor's degree, they must have sufficient training in the principles of economics and in agricultural economics to enable them to give a good account of themselves in the various jobs that will be available to them. Job opportunities for men with such training include county agent work, professional farm management, work with leading institutions and various kinds of commercial jobs. In building a curriculum for these students, a balance must be struck between the training to be offered in the major and in the other lines of work. I am of the opinion that most of the work during the freshman and sophomore years, at least, should be required to insure a broad foundation in chemistry, botany, entomology, zoology, bacteriology, mathematics, English, and some of the important branches of agriculture such as soils, agronomy, animal husbandry, dairy husbandry, poultry husbandry, horti-

culture, and agricultural engineering. A good course in principles of economics also should be required during this period, preferably during the sophomore year. Some students probably will be able to get most of the necessary training along these lines out of the way by the end of the sophomore year, but more often some of it will be carried forward to the junior or even senior years. The background of the student will have an important bearing upon what and how much foundation work will be needed in fields other than the major and minor. Hence, a certain amount of flexibility is necessary at this point. By and large, I believe, there is of too little and too late specialization.

On the assumption that the work in the natural sciences, mathematics, and principles of economics and a considerable part of the work in technical agriculture and in English is completed during the first two years, the junior and senior years will be available for greater concentration in the major. One plan which appears to be fairly satisfactory is to allow the student to select a major and a minor combination but to require sufficient course work outside these fields to ensure a well-rounded progress.

In building the programme for the undergraduate major in agricultural economics, care should be used with respect to prerequisites because of the limits of the four-year programme. For example, it usually is not practicable to require these students to take a course in principles of accounting before permitting them to take a course in farm accounting, or to take a beginning course in statistics before permitting them to take agricultural statistics. If too many prerequisites are required, the students may have little or no time left for work in the major field.

Furthermore, I believe that narrow specialization within the major field is undesirable at the undergraduate level for the great majority of our majors in agricultural economics.

Those who have had long teaching experience will have in mind not one but many students whose interests changed sharply during the training period. In fact, it is common for the student's interest to change as new areas are explored. In such cases, early specialization would have been a serious mistake because it would have been made without adequate information. Then, too, many students do not obtain employment in or do not remain in the field which would have been their choice for narrow specialization. Students commonly enter the employment market shortly after completing the requirements for the degree. They are inclined to accept, from among the employment opportunities that are available to them at the time, the one that appears to offer the greatest possibilities and this may or may not be in the field they would have selected for narrow specialization. Even if the student enters the narrow field of his first choice, he may subsequently be attracted, for financial or other reasons, to a position outside this field. Here again, a well-rounded programme in agricultural economics would have been much more useful to the student than narrow specialization.

Undergraduate majors in agricultural economics who subsequently carry their training through to the master's degree can devote somewhat more time to the acquisition of a broad educational background and less to specialization in the major field during the four undergraduate years than those who complete their work with the bachelor's degree. For example, one who expects to devote his time to study of the economics of soil conservation may find it highly desirable to take some additional courses of soils or in agricultural engineering. More work in mathematics or in English may be desired. Here again, a certain amount of flexibility is desirable to accommodate the differences in background and interests of the students. At the same time, they should have sufficient foundation work in agricultural economics to proceed satisfactorily with graduate study.

The greater the amount of flexibility allowed to meet the requirements of individual students, the more important it becomes to supply competent faculty advisers. This probably is more important at the undergraduate than at the graduate level, although the difference is largely one of degree. The adviser must familiarise himself with the background of the student and of his special interests, and then assist in building a curriculum that best meets his particular needs. He should keep constantly in mind the desirability of a broad background outside the field of concentration, and, for most students, of a reasonably broad training rather than narrow specialization within the major field.

It seems to me that the time has come for re-examination of the rigid foreign language requirements for advanced degrees in agricultural economics. I have heard many experienced agricultural economists who completed the requirements for the Ph.D. express the opinion that they should have taken more work in principles of economics, or in economic theory, or in mathematics and statistics, or in English and public speaking, or in other lines, but I have heard very few express regret that they did not devote more time to study of foreign languages. For these reasons, it seems to me that we could well afford to use greater discretion with respect to the foreign language requirements.

A heavy responsibility rests upon the shoulders of the teacher who is engaged in the training of agricultural economists. The teacher's responsibility does not end with the exposure of the student to a specific course or courses. He should do something other than cram his students' minds full of facts and figures, and train them to become special pleaders for agriculture. His primary function is to stimulate the thinking and extend the mental horizon of his students. In short, the teacher should develop real men, men who can think clearly, and who put general welfare above narrow group or individual interest.

Training for Men contemplating work in the field of Agricultural Economics*

By

G. L. ALSBERG

Agricultural Economics, in so far as it is science, is applied science. By this I mean that its problems, like those of other applied sciences, require the employment of more than one discipline for their solution. The several disciplines we so employ become our tools. Hence, under the assumption I am making, the training of graduate students for work in the field of agricultural economics consists of two phases: (1) giving them familiarity with these tools, with their merits, defects and limitations, and (2) teaching them how to use these tools in the solution of problems in agricultural economics. The most important tools the agricultural economist must employ are economic theory and statistics. He should also be familiar with the methods of the historian. Furthermore, one might include sociology, some aspects of accountancy, the theory of politics and public administration.

In giving training in the nature and value of these tools, those departments of agricultural economics that are an integral part of a university have the advantage. They have, for example, on the same campus a university department of economics upon which they can rely to give their students a training in basic economics. The department of agricultural economics in a college independent of the state university is seriously handicapped in this respect for it must devote a very considerable part of its resources to the teaching of economics as such in preparation for work in agricultural economics. Some agricultural college administrators are unwilling to devote the necessary resources to the development of a department of the size required to give thorough training in general economics as well as in agricultural economics. So it is not astonishing that our experience in the University of California is that many students who come to us really know very little economics. This is true, of course, only of some students, for many agricultural colleges have established excellent sections of economics as a part of their departments of agricultural economics. I would strongly recommend that a department which is not blessed with a sister department of general economics on the same campus take steps to appraise what it is doing to train its students in general economics and to strengthen its staff, if the case demands, in order that it may turn out men who are above all good economists.

Also I deem it of fundamental importance for our country that research in general economics be fostered in colleges of agriculture. I hold

* *Journal of Farm Economics*—February, 1940.

this conviction strongly because in it lies, I am certain, one of the paths of salvation for pure economics as a field of scholarship. What economic science needs to-day above all else is contact with reality, to the end that it may gradually become a body of experimental knowledge and less a system based upon postulates and assumptions of doubtful validity.

Theoretically, if we are part of a full university, it should be unnecessary for us to teach any pure economics at all. We ought to be able to depend upon our sister departments of economics to train our students to familiarity with the use of economics as a tool. In practice, unfortunately, we cannot so rely upon them for the very simple reason that the purpose of departments of economics is not to teach economics so that it may serve as a tool, but rather to make professional economists of their students. And this is true in every other university discipline. Each department builds up a hierarchy of courses designed to produce professionals. Rarely is training offered as we would have it for our purposes: to train in the use of this discipline as a tool. Engineering departments and medical schools have the same experience with the teaching of pure science. Hence a department of agricultural economics must do some of the training of its students in the use of their tools. What I mean is well-illustrated by the subject that we know as "Production Economics." This seems to me to cover some of the same ground as that covered in an advanced course in the general principles of economics with this important difference: the standard advanced course in principles of economics as given in a department of economics is oriented toward industry and trade whereas the courses in production economics as given in our departments of agricultural economics are oriented toward agricultural production and the distribution of agricultural products.

An agricultural economist should above all be an economist, not, as is so common, an agronomist with a veneer, often a paper-thin veneer, of economics. He should have training in the most advanced economic theory not merely for its own sake but because this discipline is one of the best devices yet invented by the human mind to develop powers of analysis. The development of these powers is a most important means to achieve what I have assumed to be the end of graduate training, namely "to view problems freshly and to develop versatile skills for coping with them." This end is not so well achieved by descriptive courses as by analytical ones, like those in economic theory.

Because statistics and the mathematics upon which it is based is not descriptive but furnishes excellent training in analysis, I deem this subject to be invaluable in the training of the graduate student even if in after life he is not required to use statistical methods. Moreover, he needs such knowledge in order to be able to follow the literature of the social sciences in the coming decades. Without it the graduate student of to-day will, I am convinced, find himself when he arrives at middle age quite unable to understand much of the progress that is being made. The difficulty in obtaining this minimum of mathematics and statistics is due to the circum-

stances that a university department of mathematics, as I have already pointed out, is loathe to act as a service department. It cares only to train professionals. It makes demands on the students that are far too great if they do not intend to become professional mathematicians. The answer is, I think, that we must teach the necessary mathematics and statistics in our own departments until such time as our departments of mathematics are willing to do it in the manner we regard as desirable.

Granted that we have taught our student the use of his tools: economics, statistics, history, political theory, public administration and the like, he must then have some material on which to practice their use just as the sculptor needs a block of marble on which to develop his skill in using chisel and mallet. What marble is for the sculptor, factual material is for the student of agricultural economics. It's of two sorts: that derived from the natural sciences, like agronomy, animal industry and much of farm management, and that derived from the social sciences like the phenomena of population changes, commerce and trade. With the natural science material we are not here concerned. But how should the student acquire the social science material that he has not already acquired during his undergraduate years?

My answer would be that I would expect the student to get much of this factual material for himself. It's all in print where any intelligent person can find it. In most of our graduate schools we require the student to take altogether too many courses for credit. We continue the spoon feeding to which we have accustomed the undergraduates. Sooner or later men must learn to work by themselves, to get on without being led. I am confident we lead our students too long after they should be walking erect.

I do not advocate the abandonment of course work, but merely its reduction. I see no good reason why a department of agricultural economics should endeavour to cover in courses the whole vast field. Many courses are purely descriptive, involve the development of no general principles, have little training value and the factual material presented may usually be found in the library if, as, and when the student needs it. I would, however, limit courses to three categories:

(1) The important basic subjects like economic principles which every student needs partly for subject-matter but principally to develop his analytical powers. I would not require the student to take special courses such as money and banking, transportation, international trade and the like. I should not expect more of him than that he should know general economics thoroughly. If he has that he can learn the special fields for himself.

(2) One or two correlating courses requiring generalizing talent on the part of the instructor in bringing together and synthesizing a wide range of information and points of view. I have in mind such subjects

as agricultural policy or land use. Such a course or courses might well be given only in alternate years.

(3) A few highly specialized courses in the fields in which members of the staff are actively doing research to the end that the student may follow the teacher in his forays into the no-man's land of the unknown.

I would cut down the descriptive courses to a minimum ; for example I should reduce the effort put into teaching marketing. To-day, as measured by units of credit, one-third of all the courses offered in the departments of agricultural economics are in marketing. There is a good historical reason for this, which I have not time to analyse. I merely note that in my opinion the phenomenon is an anachronistic survival, for marketing as such is not a subject at all. It presents no general principles applicable to all commodities that are not better taught in connection with price analysis and the like. Indeed I am of the opinion that marketing is best taught as a phase of commodity economics.

Commodity economics, of course, is no more a homogeneous subject than is marketing but there are many pedagogic advantages in bringing our general principles by doing a complete job on a single commodity. It makes it possible to present a complete and realistic picture of the behaviour of a commodity from its production, that is, farm management, through its distribution to the processor and through the economic aspects of the processing industries to the economic behaviour of the ultimate consumer. Marketing would be an incident in such treatment. In this way, it should be possible to give the student an instructive synthesis. Departments of Agricultural Economics might well consider treating the most important commodity produced in their region in this way. I should classify such a course in the category that I have termed "correlating."

I realize full well that if we require our students to take few or no courses for credit many of them will disappoint us in examinations. Accustomed as they are to spoon feeding they do not always at once learn to do without it. But this in itself is a good criterion for weeding out the weak sisters.

Let us now turn to what I have termed the second phase of graduate training: using the tools for the solution of problems in agricultural economics. It is obvious, at any rate it is to me, that the only way to learn to use tools is to begin using them, and this means beginning to do research under the guidance of an experienced scholar. We should therefore, I believe, set our students to work at research much sooner than we usually do. Some of us tend, I fear, to underestimate the research ability of our better students. Some one has said that the American college is a device to delay maturity. I have seen many a paper by a senior that would be accepted without question as a master's thesis.

We should exercise great care in the choice of the problems we encourage our graduate students to attack. We should curb the ambition

of the beginner to tackle a problem so large and basic that it would at once, if he found the solution, range him with the immortals. We should start him on something small and modest which he can solve. Thereby we whet his appetite for something more difficult and thus gradually develop his powers. We should never start him on something we have not pretty thoroughly thought through ourselves.

If the research is not to be purely descriptive or historical the best criterion of the suitability of a problem for a beginner I know of is whether or not it can be put in the form of a single question, or short chain of questions, which can be answered "yes" or "no" by the techniques already available. If the problem cannot be formulated in this way it has not been thought through sufficiently to be safe for a beginner.

We should rarely, perhaps never, set a beginner to work on the development of a new research technique or on a problem requiring the development of such a technique. These problems tend to be the most difficult of all and the most uncertain in outcome. They are usually heartbreaking for the beginner. They seem to me permissible only if the instructor has already a definite new method and wants to see if it will work. Then the question to be answered "yes" or "no" is: Will this particular method work under the given circumstances?

We should never use the graduate student for mere reconnaissance work that may lead to nothing or at best be mere ground clearing for something we hope to complete ourselves. We should never use him merely as an extra pair of hands. Many a good man has been so discouraged by having been set to work on a problem too difficult for a beginner, or by having been exploited by his professor, that he gave up the career of the scholar. Students all over the world have been much sinned against in this way.

I regard it as very important that we facilitate the teaching of students by one another. One of the best means to accomplish this is to have a large room or large interconnecting ones in which each student may have his own desk for his work. Throwing them all together in this way creates the sort of atmosphere sometimes found in the atelier of a great artist or the laboratory of a great scientist. Students come to discuss with one another what they read or what they hear in lectures or what they are doing in their own research. They criticise one another's work, one another's reasoning and, most important of all, what their professors tell them. They learn more from one another than they do from their instructors. The principal advantage of certain great graduate schools is not so much that they have a few great men as that they attract many superior students, who, coming from many parts of the world, educate one another. There are of course other means of getting students to teach one another, but none so effective as this which I am wont to call the atelier system.

Graduate teaching given in this fashion is a most laborious job—more laborious I am sure than giving courses which tend soon to become

stereotyped, for it requires constant contact and consultation with the student. Teaching in this way, we can do justice to only a few students—five in my experience is about all one man can manage. But five really worthy Ph.D. candidates are more than most of us now have.

Finally, I regard it of the utmost importance to the development of our science in America that we discourage our students from getting all their training in one institution no matter how excellent it may be. At different colleges the points of view are different. Different places are interested in different problems, and emphasize different things. In agricultural economics a few journeyman years are especially important since agricultural science unlike such subjects as philosophy, mathematics or philology, inevitably varies from region to region according to the crops that soil, climate, and markets make possible. Indeed it is desirable for young agricultural economists to study in many parts of the world. Much is to be learned in such countries as England, Germany, Java and Japan by merely going there, looking and asking questions. In my opinion there is perhaps nothing more important for the advancement of our science that our great foundations might do than to establish post-doctoral traveling fellowships without the obligation to produce a research product during incumbency. Obviously one cannot do research and travel simultaneously. Unfortunately there is little we can do to encourage foreign travel but we can facilitate the wandering of students from college to college within the United States if we mend our ways. We need to-day a levelling of barriers between universities. Some universities cause the student the loss of as much as a year's credit if he transfers there, for they refuse to recognize that a man can learn much of anything except at their own institution. A student transferring must take a lot of courses over again. And this is not the only hurdle he must take. We need a sort of union card for our students which will be honoured by every local. Moreover since the country is so large and the expense of moving about so great, it is desirable that the departments of economics in the several regions of the country make arrangements with one another to facilitate the exchange of gifted students. Thus two departments might agree to reserve a substantial fellowship provided they have one, for a student recommended by the other department and vice versa. Such bilateral arrangements might prove most beneficial both to the students and to the two departments concerned.

The Training of Agricultural Economists

By

HOWARD E. CONKLIN

Economic theory is a normal part of training in agricultural economics. Some institutions require more theory than others but it is not omitted in any of the recognized schools. Since our title is half "economic" and since formal economics is largely theoretical, this requirement seems somehow justified.

But how many students ever stumble upon the real justification? From personal experience and contacts with other students I am led to believe that theory is usually placed in one of three categories by prospective agricultural economists: It is considered at one extreme to be a necessary evil along with languages; or it is grouped with such "broadening" courses as history and government—valuable but outside our immediate professional field; or it is viewed at the other extreme as the real touchstone of knowledge. The proportion in which student attitudes divide among these categories varies from place to place. In any case, however, any of the three types of attitude is evidence that the chasm between courses in agriculture and those in economics has been found too wide to span; in none of them is theory placed in a working relationship with our "practical" tools. Nor are courses commonly available from which it is possible to gain the perspective for visualizing such a working relationship.

Economics originated as a deductive "science." Seeking in the early stages of its development to teach what should be rather than to discover what is, it could not have been other than deductive. In its deductive character it was consistent with the Greek belief that all knowledge is a derivative of "pure reason." This belief, later implicit and concealed, guided its development for many centuries and much of to-day's economic thinking reflects it. Economics began to lose its normative character, but not its deductive approach, at the hands of the Mercantilists and the Physiocrats and Adam Smith helped to draw that line more clearly. Although this contributing element was gradually removed the traditional method remained intact. Smith was a keen observer of the events of his world but his methods of abstraction have been longest remembered.

Inductive methods have come more slowly to economics than to most other branches of academic endeavour. Probably this is traceable to the impossibility of controlled experimentation, the multitude of factors operating in the economic world, the importance of human elements too

close for objective observation, and to the slow development of statistical devices suitable for controlled observation. Inductive methods were employed in a loose, qualitative fashion by the early economists, and the theoretical usefulness of such devices was considered in some of the first recorded discussions of methods in economics. But only in the past half century have empirical, inductive studies begun to make a material contribution in the field as a whole. Perhaps it is not surprising that confusion and conflict often have attended these attempts to break from the path of tradition. In many instances the attempts were made because of reactions against the older, entrenched ideas, and so they have tended to introduce a dualism into the field, with the theorists on the one hand and the empiricists on the other. Theorists have tried to maintain their position as superior to that of the "fact finders", envying the latter, no doubt, for the rather large financial support they often receive. The "fact finders" often have been eager to differentiate themselves from the theorists lest they fall into ways not sufficiently "productive" to sustain the interest bringing them their support. In this dualism, "facts" have come to be viewed, on the one hand, as the sole and direct source of all knowledge and, on the other, as the anvil upon which thought derived "laws" are to be tested or even as only the models upon which these "laws" are to be tried in quest of a fit. A page from the book of methods in the physical sciences is appropriate at this point.

It seems reasonably well settled that progress in the physical sciences is dependent upon the use of an hypothesizing-testing-hypothesizing sequence. This sequence involves both deduction and induction; deduction, to derive the implications of existing knowledge or assumptions in order to shape speculations that will guide further inquiry; induction, to distill the "summary and conclusions" from further inquiry.

Statistics is being slowly built to-day into social science research and there are those who believe that it holds possibilities comparable to the experimental method in the physical sciences. The inferential elements of statistical reasoning, the null hypothesis, tests of significance, and fiducial limits, as well as idiographic devices for analysing data, are relatively new. Newer yet is some of the mechanical and electronic equipment that is capable of handling great volumes of mass data. It is hardly to be wondered that economists and others frequently expose their ignorance by referring to statistics as the mere accumulation and arrangement of raw or nearly raw data. Nor is it surprising that few have speculated on how far statistics may make it possible to convert economics from exercises in formal logic to a truly scientific undertaking. Clearly, statistics as yet has substantial limitations. There are many phenomena that seem to have no repetitive pattern or at most short run stability. This may be because our phenomenal units are improperly chosen or it may be because sums of component patterns appear as though they were random values. Or, indeed, it may be that we must await the discovery of tools beyond statistics before we can bring some phenomena within the scientific realm. Statistics is developing rapidly however, and already opens many unexplored vistas into future possibilities.

Inductive techniques are being built into the social sciences—where does this leave economic theory? Though the positions taken by some economic theorists seem extreme and reactionary, do they not have lessons to teach? The concepts of theory can be criticised as non-operational, the hypothesis as often too far removed from reality to be practical and the conclusions as frequently no more relevant than the answers to hypothetical problems in a calculus text. Is this so serious an indictment that we are justified in pushing theory overboard? Wesley C. Mitchell answers: "Economic theory, I fervently hope, will not be neglected; but more vigorous efforts will be made to test the assumptions on which reasoning proceeds, or the conclusions it reaches, or both, for conformity to the conditions we need to understand. Empirical workers in turn must have learned from recent experience that they cannot get significant results if they rely upon fuzzy concepts." His belief seems firm that only through integration of theory and empirical research can "an economics worthy to be called a science" be created. There is an increasing number of economists who believe that economic theory can provide part of the starting point, if only that, from which a science of economics can be built. And they go beyond this belief and hold that induction and deduction must proceed hand in hand, so closely interwoven that to separate them would require picking but parts out of individual studies, individual books. Conceptual reformulation so badly needed for effective empirical research in many branches of economics is an example of a task in theory that cannot be done apart from the empirical researches themselves.

This view of the place of theory in economic research is entirely consistent with the generally accepted principles of scientific research in the physical sciences. Economics' peculiarity rests in the fact that it has a vast body of prepared theory with no roots in the real world. Much of it will be discarded in time, perhaps, and the kind of interwoven, evolving theory developed that serves the physical sciences so well. A remark by Albert Guerard, quoted by Joseph S. Davis serves well to remind us of the importance of grasping and developing theory as one of the cornerstones of scientific procedure: "Much of our research is but an arduous flight from the necessity of thinking."

This brief tour through the history of methods in economics uncovers much disagreement among men of standing. Although each in his own mind reaches conclusions on such a tour, one cannot fairly claim to write a conclusion for all. Yet it seems not out of place to set forth some points of the kind that might compose a working philosophy in agricultural economics. Some such philosophy as the following is necessary if we, with our frequent bias for "facts", are to grasp theory as a tangible tool and use it as an operational one. If points such as those, along with the thinking that leads to them, could be put across to graduate students in this field the place of theory in a rounded programme of training would become apparent.

(1) All economists should be familiar with formal economic theory and should have a general knowledge of the steps by which it has developed. Economists should gain this familiarity and knowledge for three principal reasons. First, any scientific endeavour requires the ability to carry out accurate deductive reasoning and the study of theory can develop this ability. Second, theory can suggest the kinds of hypotheses that will be useful in the study of economic phenomena. Third, the study of theory creates a realization of the importance of carefully framed concepts and indicates the manner in which they are constructed. (It does this though it be unable to supply ready made the operational kind of concepts needed in scientific inquiry.)

(2) Economic theory is not restricted to the formal kind presented in text books and in established theory courses. Formal theory generally is more closely reasoned, more compactly integrated and more readily accessible than theory in other forms but all except the barest data gathering projects involve ideas and reasoning processes. Theory encompasses all efforts to explore the implications of bodies of knowledge or of sets of assumptions and includes wide variety of attempts to formulate concepts and hypotheses.

(3) Every research economist should be familiar with the business and production problems of the particular branch of economic enterprise he plans to study. This is one of the prime requisites for undertaking the inductive phases of research.

(4) For a similar reason, every research economist should master statistics sufficiently to make it a tool readily available to him and efficient in his hands. He need not be able to build the tool nor improve it but should be able to talk with men in the statistical tool production business.

(5) Every economist should recognize that we are well over a hundred years behind the physical and biological sciences and that we cannot catch up merely by producing something only superficially similar to the real thing. We must study many "unimportant" and "insignificant" things before we can even approach a scientific discussion of most topics treated so glibly by theorists to-day.

(6) A man trained in theory alone may be a greater teacher and a great thinker. In this he may make a most valuable contribution. Generally, however, he will be ill qualified to derive warranted assertions about real economic processes. He may also defeat the good he accomplishes as a teacher and thinker by concerted efforts to perpetuate the testimonial wall around the pedestal upon which theorists have been inclined to place themselves.

(7) A man without training in theory is likely to frame his concepts loosely and may fail to recognize that carefully constructed hypotheses are important as guides to the collection and analysis of data. There are "facts" without number in the economic world. Vast effort can be poured into fact accumulation without obtaining the kind of data that will lead to conclusions with sound inferential value.

Research in Land Economics*

By

LEONARD A. SALTER, Jr.

The problems of inquiry arise from problems in experience. In a given situation, doubts, confusions, or conflicts arise as to the outcome of an event. The question is this: What means, if instituted, will produce what consequence? The question is posed in the setting of a problem situation in experience. In actual experience, various elements act and react on each other, within an environment and over a period of time.

The scientist works with suggestions, ideas, and concepts that may be formally or informally obtained from experience in solving previously raised problems, formulating the problem for inquiry by noting certain elements which seem to be strategic in the problem event. These elements are then put into interaction in the laboratory and the outcome observed. The elements may be rearranged, operations undertaken, and the outcome observed again. "The ground and criterion of the execution of this work of emphasis, selection, and arrangement is to delimit the problem in such a way that . . . material may be provided (from experience) with which to test the idea that represent possible modes of solution. Symbols, defining terms, propositions, are necessarily required in order to retain and carry forward both (ideas and factual materials) in order that they may serve their proper functions in control of inquiry."

A hypothesis is constructed out of the suggestions and ideas by which the problem has been tentatively formulated. The beginning hypothesis is worked into the form of a proposition in which an "if" clause states a possible something-to-do and a "then" clause postulates the consequences of such action. The hypothesis directs the investigation. It is the basis for tentative selection of facts as evidence from all the facts in the situation. The formulation of the problem and the hypothesis, always tentative, are subjected to expansion, revision, modification, and refinement until the hypothesis proposes means which, when instituted, do result in the stated consequences.

Deduction and induction then are seen not as alternative steps or methods of inquiry, but as referring to the techniques of (1) developing directing concepts and (2) preparing the facts, which two functions are inseparable in experimental operations. "As far as *processes* of inquiry are concerned, there is no difference between induction and deduction."

The procedures needed to handle and detect relevant facts must be determined by the problem at hand, just as laboratory apparatus and

* *A Critical Review of Research in Land Economics*: Leonard A. Salter Jr. (University of Minnesota—1948.)

devices are developed to suit the type of materials involved in the problem. There will be a priori suggestions for possible techniques from previous experience in inquiry in respect to both conceptual and factual materials. But there is a priori no one procedure inasmuch as each problem constitutes a challenge to devise new ways and means of formulating direction concepts, handling factual evidence, and instituting controls. Such inventions may, in turn, cast new light on methods previously determined for resolving other problems and may even result in wholly new formulations of problems previously studied. In all cases, "familiarity with material sagacity in discrimination, acuteness in detection of leads or clues, persistence and thoroughness in following them through, cherishing and developing suggestions that arise" are required of the scientific investigator.

In view of the persistence of the idea that the goal of science is the formulation of generalizations, what is the place of generalization? Put another way, what is the relation between generalization and problem-solving in the sense of instituting means to attain stated consequences? In scientific inquiry, generalizations may be made of conceptual materials or of factual materials; both forms of generalizations are used in inquiry. However, they are sought not as ends but as suggestions for possible ways to resolve the problem under investigation.

In experience, in respect to both place and time of occurrence, an event is a unique qualitative situation. Problems arise in such a setting, and problem solutions are finally tested in such a setting. In contrast with this qualitative and sequential nature of the origin of problems and the final test of their solution, the elements of a law or generalization are not in such a relation. The traits or elements of a generalization are "*logically*, not temporally, conjoined. They are selected and ordered . . . into a definite set of interactions."

Since the final test of inquiry is in an event, how can the "laws of science", on which so much emphasis is often placed, be judged? They must be regarded functionally; that is, they are important not as final grounds of inquiry, but because they suggest possible sequences within events. They are "instrumentalities in determining, through operations they prescribe and direct, the ordered sequence into which gross qualitative events are resolved."

Until the turn of the present century, United States land policies were based on the assumption that nearly all lands were suited to private ownership and control and primarily to farming use. It was believed that if the public lands were put into private hands the nation would have an ample supply of raw materials and the farmers would own their farms. This view received a sharp jolt about 1890 when, just as the nation entered an era of rapid development, it was realized that unappropriated resources were no longer abundant and that an increasing proportion of farmers were tenants.

The history of rural land economics research shows a close connection with current public issues. Before World War I the existence of tenancy and the availability of land for settlement took precedence in research interest. After the land boom following the war, attention shifted from tenancy to land valuation and ownership and to the burden of land debts and taxes that the boom had fostered. Also, with the decline in the demand for agricultural products, studies of land abandonment and of agricultural decadence replaced work on land settlement. Because of the overwhelming importance of these problems in certain localities, the idea developed that land utilization research was a basis for community organization and planning.

With the advent of the depression and the New Deal era of public action, land economics research emphasized the use of public land purchase, reforestation, rural zoning, and subsidized relocation as means for resolving local difficulties associated with settlement on isolated or poor quality land, tax delinquency, land abandonment, conflicting uses, and other phases of land utilization adjustment. Such work came to be seen as a possible basis for aligning various types of public activities into an integrated attack on rural problems, and for a few years prior to World War II, land use planning held a central place of interest in land economics interest.

The depression also resulted in widespread foreclosures of mortgages, and this phenomenon recreated an interest in the problems of farm tenancy comparable to that which existed before World War I. The parallel also extends into the World War II period, when interest shifted from farm tenancy to land values, and immediately following World War II, to attention to land ownership changes.

Throughout the history of rural land economics, its methodology has been affected by corollary professional developments, just as its content has been affected by changes in public issues. To the precedents set by Taylor in research procedures, adoptions from other branches of investigation have been added. Taylor relied heavily on conceptual reasoning, but he interwove it with qualitative summaries of his discussions with persons who were involved in the problems he probed and with graphic and geographic representations of a few statistics from secondary sources.

Land economics research has also been markedly affected by George Warren's farm management research procedures, in which quantified answers to standardized questions were summarized and compared by cross-classified averages and frequency distributions. In addition, land economists have incorporated procedures taken from classical statistics, from the field mapping work of soil-scientists and geographers, from the social surveys of rural sociologists, from the budgeting technique of farm management research, and from the master plans of city planners.

Most land economics research has been undertaken with Ely's point of view, which emphasises the German political economy tradition and

also includes the use of concepts from English neoclassical economics. In addition, land economics has been affected to some extent by the private business management outlook of Warren and others who specialized in farm management work.

The amalgamation and modification of these public and private viewpoints and of Taylor's and Warren's initial research procedures with those of later date and from other fields has been accomplished by L. C. Gray, W. J. Sillman, and C. F. Clayton in the U.S. Department of Agriculture, by B. H. Hibbard and C. J. Galpin at Wisconsin, and by John D. Black, and O. B. Jesness at Minnesota. A list of persons whose influence has been important in other respects would include, in addition to some of the above, many others, but especially George W. Wehrwein for his long devotion to the field in teaching and writing. Research contributions in special branches reflect the work of such men as William Allen and A. B. Lewis of Cornell (land abandonment studies and land classification techniques), Earnest Wiekling (land value statistics), H. A. Hockley (legal aspects of tenancy), and E. O. Wootton and R. P. Teele (the land problems of the arid regions).

But if rural land economics research has made use of contributions from other centres of research interest, it has also come to feel the deficiencies and to reflect the uncertainties that persist elsewhere in rural social science. The existence of these doubts and confusions among rural land economists in regard to their research posed the problem for this study. Both personal experience and a review of current land economics literature attest to the fact that research workers are in doubt as to what to do to get research results and make a real contribution to the solution of land economics problems. The initial hypothesis is merely that if changes are made in land economics research procedures, then more productive results will be achieved.

An exploration of the literature of rural social science research reveals that in all branches of the field the same doubts and confusions exist. It also shows that when rural social science was in a period of great expansion, late in the 1920's, the danger of unproductive research efforts was foreseen because of past experience in that direction. At the same time, therefore, special efforts were made to give the growing profession the best available information on research method: but careful analysis of this material reveals serious weaknesses in it. It is noted that the use of mass quantitative data is emphasized to an extreme degree and is given paramount status, even though in the same documents the highest commendations are given to several other research methods. There is no integration of these diverse appraisals into an integrated research concept. It is further noted that interest centres almost entirely on the techniques of handling collected information and that scant attention is given to the problems of research that precede the arrangement of collected data even though these determinations are said to be of utmost importance. These confusions suggest that something more than the refinement of techniques for sum-

marizing collected data may be needed to resolve research confusion and that an inadequate conception of scientific method may be blocking consideration of important issues.

The conceptual formulation of scientific method in rural social science is Karl Pearson's, whose *Grammar of Science* is directly used as an intellectual framework and whose own work centered in the biological science in which many agricultural economists had themselves been trained. An analysis of Pearson's work reveals that his whole concept of scientific method is also restricted to that of summarizing already collected quantitative data, with wholly inadequate attention to the purposes of research, the formulation of research problems, or the outcome and consequences of research. This analysis substantiates the idea that something more than the adoption of more precise techniques for handling quantitative data may be needed, and suggests that something more than the Pearsonian conception of scientific method may be necessary to overcome the confusions in land economics research.

A review of methodological literature in the general area of social science reveals that a number of current treatise, rooted in Pearson, also fail to fill the deficiencies or to resolve the conflicts noted. It also reveals that in various branches of social science, confusions and debates similar to those in agricultural economics and in land economics are found in abundance.

In these disputes a chief division is between those who insist on the scientific precision of mass statistical technique and those who are groping for some means in research to preserve sequences of human behaviour more nearly as they exist in experience. In several instances this idea is connected with that of designing social research to be useful in respect to the control of human experiences. Implicit in such considerations are questions as to the purposes of social research, the problems to which it is directed, and the usefulness of its conclusions.

These issues as to the relevance of research problems and research conclusions to social action, it is noted, have also been a source of criticism in rural land economics and in agricultural economics even though, as has been shown, the subject-matter of the research has been closely attuned to changes in public concern in current social problems. Furthermore, these questions fall precisely in those areas that remain conspicuously vague or absent in the Pearsonian conception of scientific method and in the expositions of those whose work rests on his formulation.

It is further noted that among those who advocated the de-emphasis of mass statistics in social research techniques and the re-emphasis of action in social research purposes, there remains doubt as to whether such shifts imply complete or only partial abandonment of scientific method in social inquiry. But in the recent literature of statistics in areas far afield from social science is found the beginning of a movement which involves a new

conception of the application of metrical procedures when the purpose for which they are used is to control a physical process.

In the future, the most important needed step is the adoption of a more comprehensive conception of social science inquiry. Research must be viewed in terms of its relevance to action. To do so means that the purposes and consequences of inquiry are given greater attention and that the mechanics of research are regarded not only as procedures for gathering data but as ways and means of observing processes of human experience as operating experiments.

Secondly, it should be recognized that research has its roots in problematic situations; that is, it exists because of conditions under which there is doubt as to what people would do because there is conflict between the purposes they are striving to achieve and the consequences they are experiencing. There is need for sharper attention to the preliminary exploration and clear definition of problems—that is, to the statement of these doubts and conflicts. In rural land economics these problems will arise in connection with the establishment of new major forms of the utilization of space, with the development of landed property relations among men, or with the changing character of locational or resource qualities of the space which men control.

The next step is to encourage the functional use of hypotheses. Hypotheses are suggested alternative lines of action that will lead to the achievement of purposes. Their function is to direct the search for evidence as to what might be done. The aim of research is not just to affirm or deny a hypothesis, but to expand and modify it until it represents warranted assertions, grounded in experience, as to what actions will result in a satisfactory pattern of major land uses, will create desirable landed property relations, will overcome the problems engendered by changing attributes of space.

A fourth step in the improvement of research in rural land economics is recognition of the limitations and advantages of various forms of factual materials as evidence. Scientific investigators must stand ready to make use of all types of data and to judge their accuracy not merely in terms of metrical precision but on the basis of how well they reveal patterns of actual human experience. Secondary statistics, quantified data from interview schedules, qualitative information, newspaper files, public documents, participant observer reports, local histories, all kinds of maps—among these and other forms of data there should be no a priori choice, except that only information which is subsequently arranged can positively substantiate reported patterns of experience. The goal in respect to evidence is to examine the full range of experience in which alternative lines of action have been tried. In this view, exceptional cases become not merely extremes to be cancelled out, but potentially useful proving grounds and potential sources of new suggestions. The basic form for the presentation of research results will finally shift from successive discussions of various items, factors, or elements as they affect all the subjects of the study, to discussions of the various lines of actions and sequences of experience revealed in the evidence.

Quantitative Research in Agricultural Economics*

By

TRYGVE HAAVELMO

I. RECENT DEVELOPMENTS

Recent trends in quantitative research in economics have led away from the more superficial analysis of "market barometers" (for example, share prices and wholesale prices) towards those more basic economic factors that are the end results of economic activity, such as volume of output, consumption, investment, and real income in the various sectors of the economy. This change in objectives has brought with it a change in the necessary theoretical framework and statistical tools. The emphasis has shifted from mechanical investigations of the ups and downs of certain descriptive time series to the development of theoretical models intended to explain, quantitatively, the mutual interdependence among the various economic factors. The purpose of studying such interrelations is to obtain an "explanation" for the mechanism that determines the level of economic activity and thereby the general economic welfare of the various groups in the economy. This same purpose is equally appropriate and desirable for modern economic research concerning the agricultural sector of the economy.

II. THE NETWORK OF ECONOMIC RELATIONSHIPS

This change of emphasis in economic research is only a reflection of the general trend in economic and political thinking. In a sense, the trend in economic thinking—among economists as well as among those who make public policy with regard to economic affairs—has perhaps been ahead of the corresponding developments, in the appropriate research tools for quantitative analysis.

Current economic ideas on the subject of agricultural economics and the welfare of the farm population run more or less in these terms: Because of the mutual economic dependence between the two sectors, one cannot reach a full, or even approximate, explanation of the economic conditions within agriculture unless one has an understanding of the functioning of the economic mechanism that governs the non-agricultural sector of the economy. High incomes in the non-agricultural sector are an essential condition for prosperity in agriculture, and high incomes of the farm population are likewise important for prosperity in the rest of

* *Journal of Farm Economics*—November 1947.

the economy. High prices for agricultural products are associated with high farm incomes, but does this mean that an increase in agricultural prices will cause only a shift in real income from the non-agricultural sector to the agricultural sector? Or does it mean a change in total real income and employment of the economy? Sometimes it may be possible to reach an answer to such questions through a priori economic reasoning. But more often the answer will depend on the actual quantitative values of the elasticities with which the various groups in the economy respond to price and income changes. *The main objective of quantitative research in this field is, then, to measure the network of economic relationships that explain the functioning and the results of this mutual interdependence between the two sectors.*

Let us examine this network a little more in detail. Suppose that our goal is to explain the fluctuations of the annual net income of farmers. We may start out by defining this net income as the value of sales to the non-agricultural sector plus the value of farmers' total consumption plus the value of net change in assets minus expenditures made to the non-agricultural sector. To explain changes in farm income we would therefore have to study the relations that describe farmers' decisions to produce, to purchase means of production, and to improve their farms, as well as the more technical input-output relations governing agricultural production. In attempting to explain these various economic decisions and actions within the agricultural sector, we should find that a variety of economic factors pertaining to the non-agricultural part of the economy enter into the picture—factors such as cost of farm machinery and other means of production, cost of consumers' goods purchased from the non-agricultural sector, industrial wages and their effect upon supply of farm labour, and prices paid for agricultural products in the non-agricultural sector.

From the point of view of economic action—that is, of the decisions to produce, to consume, and so on, within agriculture the factors relating to the non-agricultural sector might perhaps be considered as “exogenous variables,” not influenced by the farmers' own actions. That is, one might say that the farmers plan as if these factors were imposed autonomously “from outside.” But this does not mean that the exogenous factors remain constant or that they are independent of the economic actions within the farm sector. Thus, even if we had arrived at an exact explanation of the level of farm output, farmers' consumption, expenditures on farm machinery, savings, and the like—in terms of the factors that appear as given from outside—we should still not be able to make any *absolute* statements above the variables to be determined. For that purpose, we should also have to know how the factors that appear to be determined within the non-agricultural sector are, in turn, affected by the economic activity of the agricultural sector. For example, it might be reasonable to assume that the price level at which a given output of agricultural products can be sold will be determined by the level of income in the non-agricultural part of the economy. To determine this price level, then, it

might seem reasonable first to make a guess at the probable level of non-farm income and then to calculate the price level that might be expected, given this income. But obviously this is not adequate since it is not possible to guess at the income of the non-agricultural sector without already having some idea of what the farmers' income will be, and this in turn depends on the prices they receive. However, this situation does not mean that we are involved in circular reasoning. It simply indicates that, in addition to a theory of the supply of and demand for agricultural products, we must explain all the variable factors that enter into the analysis in terms of certain factors that are known explicitly or that are determined by autonomous government action.

This is what the economist means when he says that, in order to study the mutual interdependence between the various parts of an economy, it is necessary to establish the *complete, determinate* system of relations that ties the various economic variables together. This idea has a strong basis of tradition in economic theory dating back to the work of the Physiocrats and later to the more explicit and elegant theories of Leon Walras. In modern times the interest of many economists has been directed towards investigation into the quantitative nature of the dependence between economic variables.

III. MORE EFFICIENT STATISTICAL TOOLS

One might think that this new emphasis upon the necessity of studying many economic relations simultaneously is something that need not concern the *statistician* in his attempt to derive estimates of the individual economic relationships in the economy. For example, one might think that the statistician, when studying economic relations within the agricultural sector, could take all the outside, non-agricultural factors as given and then establish the reaction of the farmers to these various factors; or that, similarly, when the statistician is studying relations within the non-agricultural sector, he could treat the factors resulting from farmers' decisions to produce, to consume, and so on, as external to the non-agricultural part of the economy. It can be shown, however, that—from the point of view of statistical theory—this type of *partial* analysis leads to logical inconsistencies of much the same nature as the fallacy, in economic theory, of neglecting the mutual economic interdependence between the two sectors. The results of such an approach would usually not represent the basic behaviour relations that we desire to measure in order to gain more profound insight into the functioning of the whole economy. This follows since the variables that appear to be exogenous to the agricultural sector are themselves influenced, in the final analysis, by the varying response of the agricultural sector to these exogenous variables. In the language of those that are familiar with statistical regression analysis, we would have situations where the variables considered as “independent variables” are themselves correlated with the residual variations of the variables that we try to “explain.” Under such conditions the classical method of multiple correlation analysis is not applicable. It would, in

general, lead to poor and biased estimates. It might even lead to spurious results in cases where one can show that an attempt to estimate makes no sense. That is, an erroneous procedure of estimation may lead to some sort of definite numerical results even when it can be proved conclusively that the estimation problem under consideration is in fact indeterminate. The extensive literature on the classical problem of "deriving supply and demand curves from the same data" contains many examples of the confusion that may arise when these problems are not dealt with by rational and consistent methods.

But does one have to be concerned with these delicate problems when the purpose is only to derive some mechanical formulae for making predictions? Suppose, for example, that we should find a very high correlation between farm income and non-farm income. Could we not then use this relationship to predict farm income, assuming no changes in the structure of the economy? The answer is probably yes, if we know what non-farm income will be. But if we do not have any information on the non-farm income, it is of little use to guess at a value for this variable and then calculate the expected value of farm income by means of the correlation mentioned above. We might as well guess directly at the farm income itself. To obtain more useful prediction formulae, it is necessary to find out how the factors one wants to predict are related to factors that can themselves be predicted on an independent basis. In order to determine what our prediction formulae should be under this approach, it is usually necessary to investigate the nature of the various behaviour relations that are the characteristics of economic activity in the economy that we are dealing with.

Recent developments in statistical theory have produced new and more efficient tools for handling research problems of this nature. It is not possible here to go into detail concerning the theory and technique of these new methods. They will often have to be fairly complicated. Suffice it to say here that they represent the theoretical and statistical counterpart of ideas, long advocated by economists and practical politicians, that a real understanding of what goes on in the various parts of the economy requires that we know the interrelations between the various economic variables that we are talking about. One must not assume "other things given" when, in fact, they are not.

IV. USEFULNESS IN POLICY

Suppose we did succeed in deriving fairly accurate estimates of the supply relations, demand relations, production functions, and other economic laws that together would describe the interrelations between the various economic variables in the economy. For what purpose could this network of relations be used? Obviously such knowledge is required to satisfy our scientific curiosity. But there is also a far more practical reason. Some knowledge of the nature of the mutual interdependence between the economic factors in the various parts of the economy is obviously a prerequisite for intelligent formulation of over-all government policies such as policies of taxation and subsidies, public spending, price regulations and rationing. Political debates on economic policies are often chiefly

concerned with the desirability or non-desirability of the objectives of these policies rather than with the specific means by which such objectives might be reached. The means of reaching a certain objective might, to the politician, seem direct and obvious. For example, suppose that a political majority is of the opinion that farmers have unduly low incomes. As an immediate remedy it might seem appropriate for Congress to pass a law guaranteeing higher prices for farm products. But economic thinking, even of the crudest type, would almost immediately lead to the observation that one must also consider the indirect effects of such measures upon other parts of the economy, as well as the repercussions of these effects upon the economic policy under consideration. Without a rational analytical model of how the economy works as a whole, it is usually almost hopeless to keep track of these repercussions.

One might ask how the knowledge of the network of economic interrelations, describing the structure of the economy *before* a certain measure of policy is introduced, could help in describing what the economy would look like *after* the new policy is put into operation. The answer to this question will, of course, depend upon the nature of the policy or policies that are being considered. Some policies merely change the numerical values of certain economic variables into the old behaviour relations of the various private sectors. A change in the tariff of some imported product, or changes in the rates of taxation under a given tax system, are examples. Other policies may be such that they influence the behaviour of individuals or groups in a manner that can be determined by a priori considerations. Still other types of policies may disrupt the behaviour patterns of some sectors of the economy while leaving other sectors unchanged. Thus, for example, a regulatory policy with respect to the supply of a commodity may not affect the behaviour pattern on its demand side; one could then use the old demand function to calculate the effects of such a policy but not the previous supply function.

Whatever the circumstances, it is of no help to take the point of view that predictions of this type, based on past experience, are impossible. The practical administrator also makes use of simplifications, broad abstractions, and rough approximations. This is unavoidable. The economist who engages in quantitative research believes in stating more openly and explicitly what these simplifications and abstractions are, in order that their implications may be studied in a rational fashion. In this way, he avoids piling logical inconsistencies and errors in reasoning on top of the mistakes that he—as well as everybody else,—will necessarily commit in attempting to comprehend the full complexity of economic life.

The increasing research activity along the lines we have indicated is sometimes considered as a symptom of a trend in the direction of more government planning. This might cause shortsighted opposition to aiding each research work. To this argument, however, there is a simple answer—namely, that given a decision upon a certain objective of government planning of some kind, the objective can probably be reached more efficiently and with less direct restriction upon the freedom of action of the individual private sectors in the economy if we know something definite about the intricate network of interdependence underlying the functioning of the whole economy.

The Field of Research in Land Tenure*

By

GEORGE S. WEHRWEIN

There are two main types of relationship between man and land. One is land utilization, in which land directly serves human needs, furnishing raw material, food and shelter, and standing room. The other is LAND TENURE, including in that term all the relations established among men, determining their varying rights in the use of the land. Every member of society enjoys some form of tenure with respect to certain land, ranging all the way from the right of passage over it in an aeroplane or on a highway to ownership in fee simple. No one enjoys absolute ownership. Governments have abstracted many of the private rights in land through the police power, eminent domain and taxation, so that the owner really shares his property with the state or is subject to a restriction of his rights in the interest of the public. The inheritance of land, its use and transfer to other individuals are all subject to regulation, control or taxation. The rights and privileges of the public with respect to all classes of land are defined by law and custom, and since these are closely guarded and rigidly observed, the legal aspect of tenure is of considerable importance.

Tenure is therefore relatively more a phase or function of cultures, laws, customs and institutions of society than is land utilization; but it is not necessarily independent of physical backgrounds and foundations. Land tenure research is concerned with a study of the distribution of rights in the use of land, and the consequent effects of the distribution of these rights in various forms on the social and economic welfare of individuals and society, both present and future. Land tenure of course has its effect on land utilization. Production may be enhanced or retarded by the laws, customs and institutions that are associated with land tenure. In medieval agriculture volume of production was small, owing to feudal land tenure as much as to a lack of knowledge of the science of farming.

In the United States, as in all countries that have gone through a colonial period, government has been intimately bound up with the land system. At first, that system was under the control of the mother country and reflected its laws and customs. After separation from the homeland, or with "Dominion Status" as in Canada, the new country took over control of land. In the United States the federal Government became the proprietor of the soil, but policies were followed which reduced the land to private ownership in fee simple as rapidly as possible. Research in land

* *Research in Agricultural Land Tenure—Scope and Method*—(Social Science Research Council, Bulletin No. 20—April, 1933).

tenure should reveal how far and in what manner our land policies are responsible for the tenure system of to-day. Comparison with Mexico, Canada, New Zealand or Australia will show striking differences in tenure systems although all of the countries, except Mexico, are of British origin. Canada, with much the same natural environment as the United States, has only one-third as high a proportion of tenants as we have. Not all of these countries have followed the United States in their land disposal policies. Some have retained ownership of a large part of their public domain. This accounts for the high proportion of land under lease in Australia and New Zealand, most of which is under public leasehold. The leasehold has played an important role in the land history of Texas and is a part of the land system in the western states where federal and state-owned lands are leased. The ownership and leasehold of western lands and their relation to the problems of the ranchman are fruitful subjects for land tenure research.

The complete quota of rights in the use of land constitute what is known legally as "property" in land. Professor R. T. Ely has commonly referred to this quota as a "bundle of rights". The primary division of these rights is between public and private. Public rights may be considered in two categories, those exercised by governments, such as the rights of taxation and eminent domain, and those exercised directly by the people but protected and controlled by governments.

Private property rights in land may be divided among several persons. This is the basis of the entire tenure problem. One principal form of this division occurs when the owner grants a certain number of his rights on land in perpetuity—principally the right to use and to the income—to a tenant for a definitely fixed period. The forms and terms of these grants to tenants are extremely varied, even within a country such as the United States, ranging from the rights little different than those of a farm labourer granted to a cropper in the South to those of the cash tenant operating under a long-term lease with right of renewal. To be complete a study of this part of the field of land tenure should consider all the rights in the bundle of private property rights, the various ways of dividing these rights, causes for the various distributions, and finally the impact of these divisions upon the social and economic conditions of the people. Since the tenant pays for the privilege of using his part of the "rights", land tenure properly includes the question of rent or the distribution of the income from land between landlord and tenant, and in a larger sense, rent in the distribution of wealth.

Historically considered, the division of rights and income has changed with every age. The feudal lord shared rights in the manor lands with peasant and serf on the one hand and with other lords and the king on the other. Research in the historical aspects of land tenure are of more than academic interest. The medieval peasants, for instance, obtained grazing rights and servitudes in the forests which they have tenaciously

held throughout all the changes in ownership of the forests, and which now stand in the way of reforestation in some European countries and are reflected in the laws and customs of our own country. A knowledge of the manner in which such rights establish themselves is essential in formulating tenure relations with private utilizers of federal forests, Indian reservations and other public lands. A study of the feudal rights of the chase should throw light on the right of the public to hunt and fish on privately owned land. Has the private owner of forests, cut-over, waste and marsh land as exclusive rights over his property as the farmer has on his fields and meadows? What tenure relationships can be set up between farmers and other landowners so that they will preserve the game and share it with the public?

The medieval land system prevailed in Europe while America was being settled, and attempts were made to transplant it to the new continent, but the new environments, especially the free land, soon made drastic changes necessary. Yet Canada and Mexico still have vestiges of this system, and the patroons of New York and the plantations of the South are examples of its influence in the American colonies. In contrast to these there arose the democratic New England town and the small independent American Farmer. Research in land tenure is needed to supplement the political and economic histories of the colonial and the early national period. The evolution of tenure concepts throughout the colonial period, culminating in the Ordinance of 1787, which swept aside all remnants of feudal tenure, not only is interesting, but also a better understanding of it may throw light on the present tenure situation in the older states. An examination of previous tenures may explain such customs as entail, the primogeniture in other countries, and various deeds and lease restrictions in our own land to-day.

Tenure study in the United States has always given much attention to tenure stages, because in most sections of this country a farm family is still expected to rise in its lifetime from the labourer stage to ownership—that is, to “climb” to the top of the “agricultural ladder” to use the conventional figure of speech. With each of these tenure stages, beginning with labourer, is of course associated a tenure class. Each class, beginning with labourer, has rights in the use of land more extensive than those enjoyed by the common public. These additional rights are not particularly important for modern farm labourer, at least as compared with the rights of the medieval serf. They are most important in the case of full ownership. Cash tenants in the United States have fuller rights of use than share tenants, but not as full rights as cash tenants in England. The rights of croppers are only a little more than those of ordinary farm labourers.

Whenever the study of problems such as suggested by the foregoing involves the relationships among men determining their varying rights in the use of land, land tenure research is needed. The relationships may arise in connection with all classes of land, and the principles derived may

be found applicable to land other than agricultural, to which this report is restricted.

Land tenure problems cannot be clearly and definitely separated from those of other phases of economic life or of other sciences. Land tenure research comes close to law when it studies property rights and their division, whether these be historical or contemporary, or in their applied aspects, such as the legal status of cropper and tenant, or the relationship between landlord and tenant. It touches sociology when it tries to point out certain sociological impacts of the tenure system. Farm management is involved when the relationship of land tenure to farm organization is considered, or the proper type of lease has to be drawn up to insure good husbandry. General agricultural science comes into the picture when the effects of tenure on crop yields, soil maintenance, erosion and weed control are studied. Farm finance is important in the study of the "agricultural ladder", since this includes a "mortgaged owner step." The ease of obtaining credit helps or hinders the farmer in obtaining the ownership of his farm.

Since land tenure is closely associated with several other fields those interested in its research problems will obtain many suggestions from the reports in this series on these related fields, especially on Land Utilization, Farm Management, Agricultural Income, Agricultural Credit, Farm Family Living, and Rural Population.

SUGGESTED OUTLINE OF THE FIELD

I. DESCRIPTIVE:

A. *Historical:*

- (1) Origins of landed property.
- (2) Development of common law concepts of property.
- (3) Trends in the division of the bundle of rights (The above descriptions may treat also of forces bringing about the various developments.)

B. *Contemporary:*

- (1) Nature of the rights which make up the bundle.
- (2) Classifications of various methods of division of rights, and comparative importance of each class. (This is the familiar classification by tenure forms, but includes in addition the rights of governments.)
- (3) Nature of the rights of each tenure class and division.

II. FACTORS AFFECTING TENURE:

- A. Factors affecting division of rights between individual and government. (These may so largely arise from the cultural setting as to make their study extremely difficult. Historical trends may be all that can be determined.)
- B. Factors affecting division of rights between individuals.

(1) *Economic factors:*

- (a) Price of land and farms.
- (b) Increments or decrements in land income that have been or are being capitalized into land values.
- (c) Availability of land mortgage credit.
- (d) Productivity (income level of the farm).
- (e) Type of farming.

(2) *Cultural factors:*

- (a) Custom and tradition.
- (b) Stigma attached to being a "renter" or the desire to own the land farmed even without the "stigma."
- (c) Race prejudices.
- (d) Urge to hold on to management of farm as old age creeps on.

(3) *Individual factors:*

- (a) Natural ability.
- (b) Environmental background.

(1) Education ; (2) Family background.

III. EFFECTS OF TENURE SYSTEMS UPON LAND, FARMS, INDIVIDUALS AND SOCIETY:

- A. On land—fertility, erosion, etc.
- B. On types of farming and farm management practices.
- C. On land values.
- D. On individuals—income and economic progress.
- E. On society—community life, stability of the inhabitants of a community under different tenure systems.
- F. On political stability.

It might be well to call attention to several "correlations" which have been accepted in the past but which better research technique should test. It is generally accepted that the various stages of the agricultural ladder are becoming longer and more difficult to negotiate now than formerly. The common practice is to classify present owners who have been both labourers and tenants by the number of years they have been owners and to compare these various groups as to number of years spent as labourers and as tenants and as both. This method seems to demonstrate that the percentage of tenants among younger age groups has increased rapidly since 1880, and that it takes longer for a farmer to become an owner now than it did two or three decades ago. Yet by re-classifying the farmers according to the date when they became labourers, that is, when they began to climb the ladder to ownership, the conclusions are directly reversed. Of course neither method is adequate. The fallacy of

the first lies in the fact that the effects of mortality, retirement from farming, and leaving the farm for other occupations are ignored. In the 1923 YEARBOOK article, an attempt was made to correct for mortality. The results obtained reduced the appearance of retardation considerably. Correcting for the other two factors might remove it completely; but again it might not. All we can say now is that the original assumption has not been proved.

Another assumption is that high land values cause a high percentage of tenancy. But it may also be assumed that a high percentage of tenancy means intensive competition for land in the rental market, with resulting higher rents and land values. It may also be assumed that both are results of other causes. There are areas of high or low land values where the proportion of tenants is just the reverse of the first assumption. The size of the farm unit must be considered along with the price of the land.

Two assumptions as to the effects of tenure need statistical verification: (1) that tenants tend to grow more grain, have lower yields, raise fewer animals and in general practice a less progressive and more exploitive agriculture; (2) that tenants shift oftener than owners, thus breaking down community institutions and producing an unstable rural population. Both of these conclusions are largely based upon crude observation or upon census figures that should be adjusted for other factors.

In recent years, there probably has been some revival of interest in tenure problems. At any rate, the state experiment stations reported 10 projects in 1931 as compared with 7 in 1927. Illinois, Iowa, Missouri, Kansas and Pennsylvania were carrying a project in land tenure in both years; Indiana and New York only in the former year, and Maryland, Delaware, Kentucky, Minnesota and Oklahoma only in the later years. Doubtless, however, more or less land tenure research, usually in the form of thesis studies, has been in progress at Wisconsin, Minnesota, Cornell and other institutions ever since before the World War.

The experiment station projects have either been general studies of land tenure (3 in 1927 and 4 in 1931) or studies of tenancy and leasing (3 in 1927 and 6 in 1931). The thesis studies have dealt with a somewhat wider range of problems.

The types of research in land tenure in the United States are of course largely determined by its land tenure developments and experiences. Much of the research will seem somewhat strange to European students of land tenure. The great interest in the so-called "agricultural ladder" will seem least familiar to them, since it relates to a phenomenon which lies largely outside their experience. Only in the United States and a few of the newer countries of the earth is it possible for many persons born in a labourer's family to rise to ownership of a sizable farm in one generation. Climbing one rung of the ladder in a generation is more of a step

than most are able to take in most countries. The obverse of the foregoing is that the people of America have had relatively little experience with systems of customary tenures, with problems of inherited tenure rights, and with a vast range of problems associated with the origin, growth and preservation of the rights of tenure groups. Consequently, to a European much of the land tenure research in this country, although dealing with problems of interest because of their novelty, seems naive and superficial. It must be admitted at the outset that this research is not well developed. Little research on land tenure problems in this country has been done in the last ten years, and many are less understood now than they were in 1920.

National Farm Survey of England & Wales

ORIGINS OF THE SURVEY

The National Farm Survey of England and Wales was carried out during the period 1941 to 1943, and arose directly out of the war-time function and needs of the County War Agricultural Executive Committees. The general character of the work of these Committees is well known and needs no elaboration here, except to emphasise that it embraces every important aspect of farm organisation and practice—the issue of cropping directions and the conversion of permanent grass to arable, with all the technical problems of cultivation, draining and manuring which these changes involve; the better utilization of the grassland that remains; the allocation of the more important farm requisites—feeding stuffs, fertilisers, machinery, fuel, binder twine, etc.; the control of the movements of labour; the repair of farm buildings; the reclamation of derelict and semi-derelict land; and the diffusion of technical advice. All these spheres of activity, and the list is by no means exhaustive, have formed part of the Committees' essential task, which may be shortly stated as ensuring that each farm makes its maximum contribution to food production.

From the outset, therefore, it was necessary for the Committees to assess both the needs and the capacity of each farm for increased food production, and the capabilities of each farmer to carry through his part of the national food production plan, a task which could only be effectively done by means of personal visits and inspections by the Committees' Officers; and these have in effect comprised a comprehensive continuing war-time survey. The initial object of farm surveys was, then to assist local war-time administration in the widest sense, and it is generally recognised that Committees could not have fulfilled their task effectively without these personal contacts with farms and farmers. It remains true, however, that for this local purpose alone it was not essential, even within the limits of a county, that surveys of individual farms should conform to a particular pattern, so as to yield the same information on a comparable basis for the whole of England and Wales.

The requirements of central administration and general policy, however, had to be considered; and here it was clearly desirable that certain essential data should be made available, as needed, on a basis sufficiently uniform to allow inter-county comparisons, and the calculation of aggregate figures for the whole of England and Wales. Early in 1940 the matter was put to the test and the County War Agricultural Executive Committees were asked by the Minister for Agriculture and Fisheries to submit

* National Farm Survey of England and Wales: (Ministry of Agriculture and Fisheries—United Kingdom).

information on several aspects of war-time food production, notably the progress of the ploughing campaign and the classification of farms into A, B and C according to their standards of farming. This first attempt at a simple summarisation of statistical material collected by the Committees by means of farm surveys revealed, as indeed was expected, rather wide differences comparing one county with another, in the form and content of the information obtained; but it also suggested that a great, perhaps a unique, opportunity would be missed if a serious attempt were not made to use the war-time organization and facilities of the Committees as the basis for an essentially national survey. An informal Committee was therefore set up by the Minister to consider what information might usefully be obtained, and to prescribe a suitable form of record for use in all counties.

It was decided by the Ministry that an extended National Farm Survey should be carried out and should consist of three parts: (a) a farm survey record; (b) the complete 4th June agricultural census return for 1941 supplemented by items of rent and length of occupation especially required for the Farm Survey; (c) a plan of the farm showing its boundaries and the fields within it, on 6-in. Ordnance Survey or 12½-in. scale maps, the latter being a photographic reduction of the 25-in. O.S. Map.

Unlike the first Farm Survey, which had a specifically war-time purpose and was of a frankly experimental character, the objects of the extended Farm Survey were for the most part of a long-term character. They may be summarised as:—

(1) to form a permanent and comprehensive record of the conditions on the farms of England and Wales—the compilation of a modern Domesday Book;

(2) to provide a body of data which would be useful as a basis for post-war administration and planning and the formulation of post-war policy;

(3) to assist advisory and other educational work;

(4) to assist the war-time administration of County War Agricultural Executive Committees; and

(5) to provide material for statistical and cartographical analysis which would contribute particularly to objectives (2) and (3).

SCOPE OF THE SURVEY.

Coincident with the start of the Survey an expert Committee, the Farm Survey Supervisory Committee, was set up to supervise points of procedure and technique and to advise the Ministry on the analysis and presentation of results. Responsibility for the Survey and its general direction continued, however, to rest with the Ministry. One of the Super-

visory Committee's first decisions was that the Survey should be confined to agricultural holdings of 5 acres and above. There were two main reasons for this decision ; (i) while holdings between 1 and 5 acres number some 70 thousand, they comprise less than 1 per cent of the total area of crops and grass ; and (ii) separate arrangements had already been made to carry out a survey of horticultural holdings (including holdings of under 5 acres) through the horticultural sub-committees of County War Agricultural Executive Committees. It was therefore considered that the inclusion of holdings of below 5 acres while greatly increasing the volume of work involved in the survey should not appreciably add to its value.

The Survey could not be confined to holdings which were also farms —farms, that is, in the sense of having sufficient capital resources (both landlords' and tenants') to provide the occupier with a main occupation and a chief source of livelihood from farming. There are a substantial number of agricultural holdings, mainly small in size, which do not conform to this definition of a farm, and the Farm Survey from this point of view is therefore really a survey of agricultural holdings the word holding being used to signify both farms and "non-farms."

It has sometimes been difficult to decide when to use the word "holding" and when the word "farm." "Holding" is the more inclusive, but on the other hand there is no convenient word corresponding to "farming" to describe the activities on non-farms. The following has seemed to be the best course and is the one adopted :

(a) When only farms are referred to, the word "farm" is used.

(b) When reference is made to farms and non-farms taken together which is not necessarily applicable to either of them taken separately, the word 'holding' is used.

(c) When non-farms are referred to, the word "holding" is used.

(d) In a few cases where it is unimportant in the context whether one is referred to farms, or non-farms, or both, the word "farm" is used.

It will be found that in practice the word "holding" predominates. 'Occupier' has the same relation to 'holding' as "farmer" to "farm."

HOW THE SURVEY WAS CARRIED OUT.

The collection of the information required for completing the survey record was done entirely through the agency of the County War Agricultural Executive Committees and their district committees and, with few exceptions, the information was obtained in the course of farm visits and inspections which were in any case to be made as part of the Committee's war-time duties. The Survey started in the majority of counties during the second half of 1941, and it was virtually completed by the end of 1942.

The surveying itself therefore took rather less than $2\frac{1}{2}$ years from the time the first county started until the last had finished, a period much greater than was originally expected. Delay, was, however, unavoidable as individual farm visits had to be fitted into the Committee's war-time programme; and where there was any conflict the Survey necessarily had to take second place to the urgent demands of food production which kept Committees working under exceptionally heavy pressure. Generalisation is difficult as regards survey personnel: the position varied considerably from one county to another and depended to a large extent on the kind of officers already engaged by the Committees on farm inspection work. Both paid and voluntary workers were used, the most numerous classes consisting of the staffs of district committees—district officers (originally recruited from various occupations including farming), technical officers, local farmers of standing, land agents, and so on. Only in a small minority of counties were special survey staffs engaged. The main burden of organising the field recording part of the Survey fell in most cases on the district officers, to whom the work was delegated by the Executive Officers of the Committees.

The information required for the completion of the survey record was (from the field recorder's point of view) of two kinds—qualitative information, as exemplified by most of the items in sections B and D of the record, such as condition of land and buildings, drainage, and so on—questions which in any event depend on the personal judgment of the field recorder, but which can only be satisfactorily answered, in a National Survey, if those judgments are based on similar standards for the whole country; and, second, quantitative information, such as kind of tenure, number of cottages, the sources of the water supply, and the use of electricity. The usual procedure during the farm visit was for the field recorder to find answers to the qualitative questions during his general tour of inspection of the farm; answers to the quantitative information were given by the farmer himself who, with some items such as kind of tenure and class of farmer, was alone in a position to supply answers. With all the field work, Committees were asked to do all they could to secure impartial judgments, made without "fear or favour" to the farmer concerned.

The major problem of the whole Survey was the shortage of qualified and experienced recorders with the knowledge of national agricultural conditions which some parts of the Survey demanded. With an enquiry of this magnitude the problem would have arisen even under peace-time conditions, but then it could have been remedied to a large extent by bringing the recorders together for a special course of training. This was not possible under war conditions, and the best alternative that could be found was to issue to each field recorder a comprehensive book of instructions for the completion of the survey record. Nevertheless, to certain items the field recorders inevitably tended to apply local standards of which they had little knowledge. For example, a recorder in the area of the Northamptonshire clays would necessarily have a different idea of

"heavy" soil from another recorder operating in the area of Nottinghamshire sands; and in the same way recorders would be bound to differ somewhat in their mental picture of what constituted good, fair and bad conditions of farm land and buildings, lay-out, drainage, and so on. Generally, therefore, the quantitative information is necessarily of a higher order of accuracy than the qualitative, and the former is therefore more suitable for the purposes of national analysis. This has been recognised and allowed for in the preparation of this Report, and explains the more detailed statistical treatment given to the quantitative data. The qualitative data is in general more suitable for local analysis, such as is being carried out by the Advisory Economists, whose part in the work needs next to be described.

The County War Agricultural Executive Committees' part in the Farm Survey ended with the collection of the information required for the completion of the record, and the next phase of the work—scrutiny and assembly of the data—was carried out by the Advisory Economists attached to the eleven Provincial Agricultural Advisory Centres in England and Wales, located at either universities or Agricultural Colleges. This division of work was made partly to free the Committees' staffs for more urgent work on food production, and partly because the Advisory Economists were later to assume custody of both the records and the maps for research and advisory purposes. Some additional staff, including a supervisor, were engaged at each Centre, each team working under the general direction of the Advisory Economist. In addition to completing the survey records from information collected by the Committees' field recorders, the records were as far as possible checked for internal consistency and general accuracy, and then matched with the appropriate 4th June, 1941, return, an additional copy of which (together with the supplementary questions on rent and length of occupation) was completed by each occupier and made available for the purpose of the Farm Survey. The task of assembling the various components of the Survey and putting them in their final form entailed much patient investigational work of a detailed character. Checking alone involved the settlement of many scores of thousands of queries. The result is a permanent record of conditions on virtually every holding in the country.

THE STATISTICAL ANALYSIS.

The results given in this Report are based on a random sample drawn from the total of nearly 300,000 records relating to holdings of 5 acres and above, which comprises the Farm Survey 'population', the analysis of the records being done mechanically by the sorting and tabulating machines of a leading company in this field. The use of a random sample and complete mechanical tabulation would in any event have been advisable for this particular work on grounds of speed, flexibility and cost, but under war conditions the analysis could scarcely have been undertaken otherwise. The sample was drawn by the survey staffs of the Advisory Economists by

taking a varying proportion of all the holdings in each of the five groups as follows:—

Size of holding (Crops and Grass)	Sampling Fraction
Acres.	%
5—24.9	5
25—99.9	10
100—299.9	25
300—699.9	50
700 and over	100

The sample comprised practically 14 per cent of the total number of holdings included in the Survey.

All the tables which follow are based on a raise sample. In other words, they are obtained by raising the numbers in the sample by the reciprocals of the sampling fractions in order to give them their true weight. Thus, in the first size groups all numbers are multiplied by 20, in the second size-group by 10, in the third by 4, and in the fourth by 2 and in the fifth by 1. The resulting aggregates are therefore subject to sampling errors, which, however are trivial in respect of data for the whole of England and Wales, and for county figures are sufficiently small to be ignored for practical purposes.

Prior to the selection of the national sample in the way described above, pilot samples were taken from the counties of Kent and the North Riding of Yorkshire in order to test both the practical applicability of mechanical tabulation to the analysis of the material, and also the adequacy of the sample as reflected in the sampling errors for various items considered of most importance.

The methods of statistical analysis adopted for the purposes of this Report were largely devised by Dr. F. Yates, the Head of the Statistical Department of Rothamsted Experimental Station and Mr. O. Kempthorne, also of the Department, in consultation with the Ministry and under the general direction of the Farm Survey Supervisory Committee; and they were also responsible for supervising the mechanical tabulation and the general arrangement of the ensuing computations. The work was of a highly intricate and technical character. The sample, as already mentioned comprised 14 per cent of the total number of holdings of 5 acres and above, or approximately 40,000 holdings, and preparatory to mechanical tabulation all the information relating to these holdings had to be translated into code form (this work being done by the survey staffs of the Advisory Economists) to permit punching on to cards. The major part of the abstraction of the results was done in the Statistics Department at Rothamsted.

The statistical material presented in this Report forms a relatively small part of the considerable body of data which the mechanical analysis

has made available, and is confined to data which are of national as distinct from local interest. Requests for access to this material for research purposes will be sympathetically considered, so far as is compatible with fulfilment of the undertaking that all particulars relating to individual farms will be regarded as confidential.

The Farm Survey marks the first attempt at a fairly comprehensive classification of occupiers according to economic type, although its pattern is based on a pioneer study, *The Farms and Estates of Buckinghamshire*, by Thomas and Elms. The present classification required that each occupier should be placed into one of five groups, namely, full-time, part-time, spare-time, hobby and other—the groups being the same as those described above except that the occupiers of accommodation land (group V) were for the Farm Survey merged with the miscellaneous (other) category (group VI). While the practical importance of a classification of occupiers (and therefore of holdings) by economic type can hardly be exaggerated, the precise character of the classification itself was a difficult matter to decide, and there is certainly no intention of implying that the present classification cannot be both extended and greatly improved. Even this rather modest classification was not, however, a particularly easy one from the field recorder's point of view. Its basis rests mainly on the extent to which occupiers are dependent on farming, both as an occupation and as a means of livelihood, the degree of dependence decreasing from "full-time" to "part-time" and from "part-time" to "spare-time", until finally there are the special groups of occupiers—of hobby farms, residential holdings, accommodation holdings and institutional farms or holdings—which are not economically dependent on farming at all. With one class merging into another, an accurate assessment of the individual position depended on the occupiers' willingness to impart information on matters, such as their dependence on farming and their motive for farming, about which they might be expected to be reticent; but in few cases was co-operation withheld (in which case the recorder had to use his own judgment, based on such facts as he could ascertain), and then mainly because the occupier was not persuaded of the necessity and value of obtaining information concerning a concept which was new to him. In general, it is believed that the classification reflects the true position reasonably well. Most difficulty was experienced in classifying occupiers of holdings in the smallest size groups (5-25 acres), and the analysis, referred to later in this section, suggests that there may have been a tendency to over-state the dependence on farming of occupiers in this size group; that is to say, some of the full-time farmers might more accurately have been classed part-time, and those in the part-time class as "regular" spare-time occupiers.

Two further points of general definition should be mentioned. First the classification concerns the economic status of occupiers, without distinguishing what may be called their legal status. For example, while the full-time farmer is usually an individual, in a minority of cases he represents a partnership or a company. Second, producer-retailing of milk,

fruit, vegetables, etc., has been generally regarded as part of the farming operations, so that where a farmer spends part of his time retailing his own produce (but is otherwise solely dependent on farming as an occupation and means of livelihood) he has been classified as a full-time farmer. Producer-retailers might with advantage have been given a class to themselves.

CLASSIFICATION OF HOLDINGS BY TYPE OF FARMING AND BY SIZE.

In 1939 the Ministry prepared a Types of Farming Map in which the whole of England and Wales was sub-divided into 200 areas representing seventeen major Types of Farming. Thus, for example, the four areas comprising the Chalk Wolds of East Yorkshire and Lincolnshire, the South Lincolnshire limestone area and the sandy Sherwood Forest area of Nottinghamshire were classified as Mainly Corn and Sheep Farming; while similarly the Lancashire-Cheshire industrial area, the West Cheshire Plain, the Vales of White Horse and Pewsey in Berkshire and Wiltshire respectively and the Highbridge-Brutan plain in Somerset were four of the more important areas of the Predominantly Dairying Type. The essential point to note is that these broad descriptions refer to the typical or most common type of farm within the area, and not to all farms within it, for in all the type areas there is a minority of farms (mainly small ones situated near centres of population, and specialising in high valued products such as milk, eggs and market garden crops), which, to a varying degree, do not conform to type.

The map does not therefore claim to give an accurate description of the type of farming of every individual farm (or even of every individual parish), but it does provide a general indication of the geographical location of the main farming types, together with a description of them; and it was thought that it would be of interest to classify the 290,000 holdings of 5 acres and over included in the Farm Survey according to their location in the seventeen main type areas.

TENURE.

In the past, occupiers have shown considerable reluctance to provide information on tenure, and the last attempt at a comprehensive enquiry was made as long ago as 1927. Present information was obtained in part from the Farm Survey record, a personal enquiry being made of each occupier as to whether he was tenant, owner, or both tenant and owner; and in larger part by a special question on the 4th June 1941 return which asked each occupier to state the acreage tenanted (and the total rent paid), and the acreage owned (and its estimated rental value).

For the purposes of analysis, occupiers have been classified into three groups:

- (a) Tenants or Mainly tenants. Occupiers renting 75 per cent or more of the land they occupy.

(b) Owners or Mainly Owners. Occupiers owning 75 per cent or more of the land they occupy.

(c) Both Tenants and Owners. Occupiers who both own and rent between 25 and 75 per cent of the land they occupy.

RENT.

The information on agricultural rents summarised in this section of the report is certainly the most comprehensive and probably the most accurate yet available. It was obtained by means of a supplementary question on the 4th June 1941 return, which formed part of the Farm Survey, asking all occupiers of agricultural holdings to give, (i) the acreage of land held as tenant and the actual cash rent (i.e., the contract rent less any abatements, but including interest paid on improvements) paid during the year; (ii) the acreage of land owned (and occupied) and an estimate of the annual rental value.

The Farm Survey marks the first attempt to obtain information on rent by means of the annual return, which had not been previously regarded as suitable for this particular subject. Rent data are available for 1925 and 1931 from Census of Output enquiries, but on both occasions the material was based on estimates, made by the Ministry's Crop Reporters, of the average rent paid in their own districts for holdings of various kinds. The estimates were not, however, for individual holdings. They referred to groups of holdings of different sizes and types (pasture, mixed, arable, market gardening, fruit and poultry keeping). A later study of agricultural rents was made by the Ministry in 1936-37, when about 500 landowners of England and Wales agreed to provide particulars of their agricultural rent rolls. This enquiry did not, however, aim at providing a completely representative picture of agricultural rents. It covered about 8 per cent of the total area farmed by tenants, and the average size of farm of 155 acres was inevitably well above the average for the country as a whole.

The Farm Survey therefore makes available for the first time the actual rents paid for individual holdings, or, in the case of owner-occupiers, the estimated rental value. Total rent covers both land—crops and grass and rough grazings—and buildings, including the farm-house and any farm cottages which form part of the holding. Rent per holding is not, however, of itself a sufficient basis for an analysis of rents because it is too much influenced by the area of the holding. Rent per unit of land, i.e., per acre, tends to eliminate the effect of size, except in so far as size is a factor affecting the demand and therefore the value of land; and except, too, for the differential effect of the value of the farm-house and buildings which form a higher proportion of total rent on small holdings than on large.

LENGTH OF OCCUPATION.

The special supplement to the 4th June 1941 return also asked occupiers to state how long they had been in occupation of their holdings,

or where parts of the holding had been occupied for differing periods of time, the length of occupation of each part. In the latter case, the length of occupation for purposes of analysis has been taken as the longest period, unless that period referred to a parcel of land which could not, because of its size and character, be regarded as constituting either a farm or a small-holding. For example, where 5 acres had been occupied for 15 years, 85 acres had been used as a farm or small holding, say, for poultry or market gardening (in which case 15 years was taken to be the length of occupation) and not merely for amenity purposes or to accommodate livestock. In other words, the aim has been to make length of occupation reflect the extent of farming experience on that particular holding, and not mere occupation of a piece of land. Corporate farms, occupied for varying periods, required special treatment. The practice here, was to calculate the average length of occupation, weighted by acreage.

A special analysis of nine counties showed, as might be expected, that the average length of occupation of owner-occupied farms is about 4 years more than for tenanted farms of the same size.

LAY-OUT (INCLUDING SEVERANCE).

Field Recorders were asked to make a general assessment of the convenience of the lay-out of each holding, and although it was impossible in the case of a feature so many-sided and complex to set precise, quantitative standards defining what was intended by good, fair and bad lay-out the instructions issued to Recorders gave the following main factors which were to be kept in mind in arriving at a judgment:

- (a) The shape of the holding.
- (b) The size, shape and arrangement of the fields.
- (c) The position of the farmhouse and buildings in relation to the rest of the holding.
- (d) The internal arrangements of the farmstead—distance between farmhouse, and buildings; distance between buildings; convenience of water supply, dairy, storehouses, etc.

The Summary results for the whole of England and Wales suggest that more than one-half the holdings of the country are well laid out, a further one-third are fairly well laid out, while 13 per cent representing 39,000 holdings are badly laid out. Although the proportions in the three grades by area of crops and grass are almost the same as the figures by number of holdings, the figures show an unmistakable tendency for lay-out to improve with the larger holdings.

CONDITION OF PERMANENT BUILDINGS.

Information provided by the Farm Survey on the condition of permanent buildings is confined to a broad assessment of the **STRUCTURAL** condition, (good, fair, bad) of (i) farmhouse, (ii) farm buildings and

(iii) farm cottages, on each holding of five acres and above in England and Wales. Where the walls, roofs and floors of the farmhouses, buildings and cottages were in good order and repair they were graded "good"; at the other extreme, dilapidated and tumbledown buildings were graded "bad" with the intermediate grade of "fair" covering a rather wide range of conditions in between. The grade therefore reflects the general position on the holding as a whole, but does not reveal the variation in conditions on a particular holding as between one farm building and another. For this reason, the grades "good" or "bad" in relation to a particular holding are more significant than the grade "fair", for the latter may represent to a much greater extent the mean of a range of conditions varying from good to bad—the same holding may, for example, have a "good" Dutch barn, a "fair" cowshed and a "bad" implement shed. Therefore, while "good" may be interpreted as a satisfactory condition, both "fair" and "bad" should, in this context be regarded as unsatisfactory in varying degree. The first part of this section of the Report is concerned with the condition of farmhouses and farm buildings only, as the condition of farm cottages is more appropriately discussed in the second part of the section dealing with the number of farm cottages.

TYPE OF SOIL.

The classification is based solely on soil texture, and while the classes are too generalised to be of value to the soil scientists, the results have a certain general interest. The Survey Recorders were required to assess the proportion of the area of each holding which was heavy, medium, light, peaty bog or peaty fen soil, basing their judgment on the following broad definitions:—

HEAVY refers to clays or clay loams difficult to cultivate.

MEDIUM refers to medium to light soils, which offer no difficulty for arable cultivation through heaviness or wetness on the one hand, or excessive dryness on the other.

LIGHT refers to light sandy, chalky, gravelly or rocky soils liable to drought.

PEATY FEN—The rich black soils of much of the fen districts.

PEATY BOG—Wet soils of marshes and rushy flats.

The results for the whole of England and Wales are as follows:—

TABLE 28 Type of Soil

	Heavy	Medium	Light	Peaty bog	Peaty Fen
	Proportion (%) of area				
England and Wales	25	55	18	1	• 1

Of the two extremes, heavy soils are, as a general rule, more easily distinguished than light soils, but whether this explains to any significant extent of higher proportion of heavy soil (25 per cent) compared with light (18 per cent) it is not possible to say. The Survey also shows the proportion of holdings which are of predominantly heavy, medium or light soil ; predominant in each case meaning 75 per cent or more of the area of the holding.

TABLE 29. Proportion of Holdings with Predominantly Heavy, Medium and Light Soil, England and Wales.

	Proportion of Holdings	
	By Number	By Area
	%	%
Predominantly heavy soil	15	18
„ medium soil	51	44
„ light soil	12	11
Mixed	22	27
	100	100

GRADE OF MANAGEMENT OF OCCUPIERS.

The classification of occupiers into "A", "B" and "C" has become a widely known feature of war-time farming, and there has been a tendency to identify the National Farm Survey largely in terms of this item, which in fact forms a very small part of the Survey. As already mentioned in the introduction to this Report, an early attempt at such a classification was made in 1940 prior to the carrying out of the present Survey, but there is a significant distinction in the basis of the two enquiries. The earlier classification related mainly to the physical condition of the holding, whereas the present classification refers to the managerial capabilities of the occupier, management condition being the basis. The change in emphasis was not always readily understood by the Survey Recorders and created some confusion. This was not surprising as, particularly under war conditions, it may well be asked whether there is any practical significance in the distinction between grading holdings and grading occupiers. Fortunately, the distinction in the majority of cases is too slight to make any difference in the grading, for there is evidence of a fairly strong, direct relationship between grade of holding and grade of occupier ; in other words, "A" occupiers tend to be found on "A" holdings.

Nevertheless, it remains generally true that the individual occupier's standard of management will be directly reflected in his production performance, and at the time when the whole emphasis of Government policy was fixed on increased production it was inevitable that Survey Recorders

should tend to judge the managerial capabilities of an occupier in terms of production attainment. It was therefore decided by the Farm Survey Supervisory Committee that in order to provide Recorders with a rough physical measurement of an individual occupier's grade they might follow the general rule that an "A" occupier would have obtained from his holding at least 80 per cent of what is regarded as maximum production for that or a similar holding, a "B" occupier from 60 to 80 per cent and a "C" occupier not more than 60 per cent. The results of the grading of occupiers are shown in Table given below.

Management Grade of Occupiers, England and Wales.

Grade A.		Grade B.		Grade C.	
By No.	By Area of Crops and Grass.	By No.	By Area of Crops and Grass	By No.	By Area of Crops and Grass.
58%	63%	37%	32%	5%	5%

WATER SUPPLY.

Water has such a variety of farm uses—in farmhouse, buildings and fields; for human consumption, for livestock, for crops; for the dairy and for innumerable other purposes—and the sources of supply are so diverse, that it is not possible to cover the whole ground by a general enquiry. The information obtained by the present Survey concerns the "source" of the supply, whether pipe, well, roof, stream, spring, pond, etc. to (a) the farmhouse, (ii) the farm buildings, and (iii) the fields; this material is rounded off by a general question whether the holding does or does not suffer from a seasonal shortage of water.

The general position of water supplies to holdings in England and Wales is given in Tables 37 and 38 which distribute the holdings of the country according to their principal type of supply—pipe, well, roof, etc. Where holdings have more than one kind of supply, pipe has been given preference over well; well over roof; and so on, although in practice the classes are not always mutually exclusive. Similar figures for each county in England and Wales are given in Tables A-14 and A-15.

ELECTRICITY.

There are about 87,000 holdings supplied with electricity in England and Wales, or 27 per cent of the total number of holdings of 5 acres and above; practically all these holdings are connected to a public supply, only about one such holding in ten having a private plant. On the other hand, the essentially rural counties, in Wales, in East Anglia and in the south-

west and extreme north of England show, almost without exception, a proportion which is well below the average. An interesting though not unexpected feature is that private supply is of relative importance only in certain of the most inaccessible counties—for example the Welsh counties of Anglesey, Cardigan, Caernarvon, Montgomery, and Merioneth and the adjacent county of Hereford—where the number of holdings with public supplies is very low.

The information given in the various sections of this Report has dealt with a wide range of farm conditions, but necessarily in a summary report it relates to averages and aggregates of large groups of holdings. What, it may be asked, does the information mean in terms of the individual holding? For example, how many holdings are there in England and Wales which may be regarded as “first-class” in the sense that they have fertile soil; they are well laid out; their permanent buildings are in good condition; they are well managed; they have a “main” water supply; they have electricity and so on.

An experimental analysis based on the Survey data has been carried out jointly by the Ministry and the Statistics Department of Rothamsted Experimental Station with the idea of trying to evolve a technique which would provide an answer to this sort of question. The analysis related to three counties, and the essential feature was that it attempted to bring together into a single, composite index all the items of the Survey record which referred to or had a direct bearing on the condition of the holding. The factors included fell into four categories as follows:—

(a) “Permanent” features of the holding such as its lay-out and situation.

(b) Features of the holding which, in general, are the responsibility of the landowner, such as the condition of the farmhouse and buildings, the condition of farm cottages and of field drainage.

(c) Features of the holding which are the result of the day-to-day management of the occupier, e.g., the condition of the land, and the fences, ditches, etc.

(d) “Other” features such as water supply and electricity.

The four indices for these groups taken separately were combined to give an “over-all” index of the condition of the holding, and the three indices (a), (b) and (d) were also combined to form a “holding” index, which would represent an expression of the condition of the holding apart from its day-to-day management. The indices were related to other items of the survey such as size of holding, rent, tenure, economic type of occupier and grade of occupier, and in general these relationships showed that the information for individual holdings was internally consistent, e.g., holdings with high rents were found to be in much better “condition” than those with lower rents,

The following table, which relates to one of the counties included in the analysis, will illustrate the kind of results obtained:

**RELATION BETWEEN GRADE OF OCCUPIER AND GENERAL
CONDITION OF HOLDING.**

(Figures relate to one county only.)

Grade of Occupier	Index of Condition of Holding					
	128-110	109-90	89-70	69-50	49-30	29-0
	%	%	%	%	%	%
A	93	84	63	37	10	...
B	6	15.5	34	57	61	53
C	1	0.5	3	6	29	47
ALL	100	100	100	100	100	100

The index of "condition of holding" is based on all four of the categories (a) to (d) mentioned above, each one of the 18 individual factors in these categories being given a "weight." Condition therefore means, in this context, the general quality of the holding taking all relevant conditions into account. The figures reflect a strong tendency for "A" occupiers to be on the "best" holdings, for example 93 per cent of the holdings scoring the highest points (110 to 128) were of this grade, while at the other extreme there were no "A" occupiers on holdings scoring less than 30 points.

Economics Division, Canadian Department of Agriculture*

By

J. F. BOOTH

Before the first World War a number of universities and colleges of agriculture had begun to relate instruction in general economics to the problems and experiences of farmers. In some instances instruction took the form of courses in agricultural economics. At the Ontario Agricultural College, for instance, courses in rural economics and agricultural co-operation were being developed during this period. At Macdonald College a course in farm management was given as early as 1912.

In 1913 the Manitoba Agricultural College appointed a lecturer in English and agricultural economics and two years later established a Department of Farm Management and Co-operative Marketing. The Ontario Agricultural College appointed a Director of Farm Management Surveys in 1917 and formed a Department of Farm Economics in 1920. Between 1912 and the middle 1920's most colleges of agriculture established courses in farm management and some universities included agricultural economics among their courses of instruction.¹

Economic Research in Government Departments:—It is more difficult to trace the emergence of agricultural economics in departments of governments. Although formal recognition of the subject as a special field of activity was not accorded by the Federal Department of Agriculture until 1929, consideration of the economic aspects of agriculture dates from a much earlier period. Some will say that governments have always been concerned with economics—that all research, regulatory and educational effort undertaken for agriculture has an economic aspect in that it contributes to lower cost and increased income. To a considerable extent that is true.

Cost studies based on experimental data were conducted by the various Dominion experimental farms almost from the time the first of these was established in 1886. Such studies are still carried on, particularly in relation to the work of the illustration stations. In the early 1920's the tools and techniques of the economist were used by the Experimental Farms Service in conducting certain farm surveys.

In the Federal Department's efforts relating to marketing the reduction of costs has always received consideration. Much of the early activity

* The Economic Annalist, February 1950. (Department of Agriculture, Ottawa, Canada).

¹ Coke J. "The Development of Agricultural Economics in Canada". (In three parts), The Economic Annalist, August, September and December 1931.

was of the experimental type. Thus, the Department in the 1890's began the operation of cheese factories and creameries. These were run for the purpose of experimenting with costs, techniques and quality of product. Similarly, certain of the branches helped to organize associations to market farm products. These and many other activities were economic in the sense that they contributed toward lower production and marketing costs.

When we speak of "agricultural economics", however, we mean the science or "department of systematized knowledge" that goes by that name. We refer to a particular method of studying farm business, of analysing the activities of marketing agencies or of weighing the merits of a proposed agricultural policy. Although, as stated, some research of an economic nature had been undertaken at the national level prior to 1919, there was little development in what might be termed the science or specialized field of agricultural economics.

In the provinces, economic problems, particularly in relation to marketing became significant toward the close of the last century. Farmers then began to organize co-operative societies and as interest in marketing increased, provincial governments added marketing experts to their staffs and created special divisions in their departments of agriculture to deal with marketing and with agricultural co-operation. In 1912, British Columbia appointed two Markets Commissioners to the Horticultural Branch of the Department of Agriculture. The following year Saskatchewan established a Co-operative Organization Branch which later became the Co-operation and Markets Branch. Ontario followed the western lead in 1914, and during the next ten years various other provinces added divisions to deal with marketing. The creation of these services represented a definite recognition of the existence of economic problems. The economic approach to the study of these problems at the provincial level is traceable to these developments and to those that emerged in relation to production and marketing as a result of the first World War.

Organization at National level:—The various activities to which reference has been made, particularly those at the provincial level, led to requests that the Federal Government provide for research in agricultural economics, particularly in co-operative marketing. Some urged the establishment of a division or branch to deal with agricultural co-operation. Others, including co-operative leaders and officials of provincial departments of agriculture, suggested a broader approach. Encouraging the demands that were being made on Ottawa at that time was the fact that the United States Bureau of Agricultural Economics was conducting an economic study of co-operative activity in Canada.

The suggestion that something be done by the Federal Department met with a favourable reception from the Honourable W. R. Motherwell, Minister of Agriculture. Mr. Motherwell had been a leader in the farmers' movement in Western Canada at the turn of the century. Later, as Pro-

vincial Minister of Agriculture for Saskatchewan he was responsible for the formation of the Co-operative Organization Branch in the Department of Agriculture.

The nature and scope of the activities that should be included in a federal division was a provoking question in 1927. An attempt to organize a co-operative branch was unsuccessful in 1928. Later that year and during the early part of 1929, discussion and representations focussed on the need for an agency with authority and resources sufficient to deal with economic problems on a broad basis. This culminated in the establishment of the Agricultural Economics Branch on October 1, 1929.

An outline of the matters or fields of research with which the new Branch, or Division as it is now called, might be concerned was presented in June 1930.¹ It set forth the following: (1) farm management, (2) land problems, (3) credit, finance and taxation, (4) transportation, (5) marketing, (6) agricultural co-operation, (7) statistics, (8) agricultural history, (9) rural sociology. The order of presentation was not designed to suggest degrees of importance.

Differences in Research Programmes:—It may be of interest at this point to refer to certain differences between the research programme of an agricultural economics division and that of the economics division of some, if not most, other departments of government. Much of the research in agricultural economics is done directly for farmers and for agencies engaged in the handling of farm products. For instance the agricultural economist studies the business records and experiences of hundreds of farmers to provide these same farmers and others with answers to the practical problem of how to reduce cost and increase income. He studies the experiences of settlers in pioneer regions to determine how much land must be brought under cultivation to provide enough income to make a settler self-sufficient, and how long it will take. He studies and makes known the costs and processes involved in marketing farm products to assist in more efficient distribution, and to acquaint farmers and others with the services involved.

The farm economists, on this continent at least, came by this recognition of responsibility quite naturally. They found that they had in a sense fallen heir to a custom and a pattern of procedure established by governments and by their co-workers in the natural sciences.

Governments on this continent had for generations supported agricultural research, and research workers in the natural sciences had applied their knowledge and skill to the problems caused by insects, disease, weeds, and the like. They had also by experimentation and demonstration sought

¹ Booth J. F. Federal Activities in Agricultural Economics. A paper read at the meeting of the Canadian Society of Technical Agriculturists, Wolfville, N.S., June 1930.

ways of improving farming practices and of reducing costs. These things were done for farmers and at the farm level. Farmers had thus come to think of the agricultural scientist, the district agriculturist and others as people working for them on their particular problems. When the agricultural economist appeared on the scene he found that he was expected to apply the tools of economic research in the same direct manner to the problem falling within his field.

While this kind of research dominated the programme of the Agricultural Economics Division during its initial development, and is still an important activity, research having a somewhat different purpose has also been undertaken. This includes research in what might be called the semi-policy and policy fields. In some instances the purposes of research overlap. For example, studies of pioneer and "back-to-the-land" settlement experiences may be intended to provide information of direct benefit to settlers or prospective settlers and also to help governments to develop and administer sound settlement schemes. A study of the British market for Nova Scotia apples, intended primarily to assist farmers and marketing agencies in better meeting the demands of that market, later provided the basis for the federal government's assistance programme when the overseas market was lost because of war.

Concerning research and advisory service relating to government policies divisions of economics have much in common. This field, already receiving consideration in the 1930's was greatly expanded when war speeded the adoption of government controls and governments in turn demanded more statistics and more economic research as a basis for policy making. Throughout the war and up to the present time a substantial part of the effort of the Agricultural Economics Division has been devoted to research, advisory and administrative duties associated with agricultural policies and programmes.

Perhaps the attempt to separate agricultural economic research into what is for farmer directly and what is for policy and administrative purposes (and ultimately for the farmer and others) is too simple. It is not always possible to segregate the purposes of research; much less the application. It would be a mistake too, and unfair, to suggest that the economists of other departments of government are not tackling problems that are very close to the interests of the people they represent, for they are. It is believed, however, that in no other department are the problems calling for economic research quite the same as in agriculture. Nor are they being dealt with in quite the same manner.

Functions and organization of the Division:—The Economics Division is primarily a research and service organization. Research is undertaken for a specific purpose, however, and the results must be made known to those concerned. This calls for a certain amount of educational work which is usually conducted in co-operation with provincial extension services. As already noted, much of the research programme is associated with agricul-

tural policies, provincial or federal. In applying the results of such research Division personnel are constantly at the service of administrative officers, of committees, boards and similar bodies. The Division also participates in the administration of some legislation relating to marketing.

The headquarters of the Division are at Ottawa. Although it is a unit of the Marketing Service the Division's work embraces all phases of economic research and related activities. The activities of the Division are grouped under four sections as follows:

Policies and Prices: which includes studies of domestic policies, provincial and federal; policies and legislation of other countries relating to agriculture; also research in the field of prices and statistics.

Production Economics: including farm management, land economics, and farm finance.

Marketing: agricultural co-operation, commodity surveys, costs and margins, regional and local market surveys, transportation and consumer studies.

Rural Sociology and Agricultural History: Levels of living, farm population, community organization, and agricultural history.

The Division provides research, advisory or secretarial service for the following: Agricultural Prices Support Board, Agricultural Products Co-operative Board, Prairie Farm Rehabilitation Administration. It has had an active part in matters relating to the Food and Agriculture Organization, GATT, the International Trade Organization, and the European Recovery Programme.

Special activities of the several sections of the Division include: the annual collection and publication of statistics on all co-operative organizations in Canada; participation in preparation for the annual Agricultural Outlook Conference; publication of (1) *The Economic Annalist*, a bi-monthly report containing a review of the economic situation, important indices and preliminary results of research projects; (2) *Agriculture Abroad*, a quarterly digest of agricultural policies in effect or under consideration in various countries; (3) *Current Review of Agricultural Conditions in Canada*, a bi-monthly summary of general agricultural conditions and a review of commodities.

Regional Offices:—Five provincial or regional offices are maintained by the Economics Division. One of these, located at the College of Agriculture, Truro, N.S., serves all four Maritime provinces. The other offices are at Winnipeg, Saskatoon, Edmonton and Vancouver. Each of these offices serves a province, and close working relationships are maintained with the provincial University, the Department of Agriculture and other

provincial government departments. In each of the three most westerly provinces office accommodation is provided by the University while funds, or personnel, or both, are provided by the provincial governments to effect a three-way co-operative programme.

Ontario and Quebec are served from Ottawa. No permanent staffs are maintained at the Colleges of Agriculture in these provinces but from time to time personnel are located there for the duration of a project. Similarly college or provincial department of agriculture personnel may be stationed at Ottawa to participate in joint economic project.

Origin of Requests:—Much of the research programme and many of the other services undertaken by the Division originate in the administration of the various programmes of the Department. These activities are suggested by administrative officers of the Department. Some of the projects undertaken originate entirely within the Division and represent the attempt of the staff to meet existing needs or to anticipate problems that may arise in future.

A considerable part of the research programme—probably more than half—has its origin in requests that come from many places and from a surprising variety of interests. Farmers and farm organizations, provincial governments, provincial boards and commissions, municipal authorities, colleges and universities, co-operative and private business organizations, consumer groups and others. The Division has never been without a backlog of requests for research—requests worthy of consideration and action.

Projects conducted jointly:—Most of the research programme of the Division is conducted on a co-operative or joint basis. The co-operating agency may be another Division, Service or Department of the Federal Government. Much research and service at Ottawa particularly is conducted on that basis.

At the provincial level the Division's activities are conducted very largely on a joint basis with universities, colleges and departments of government, municipal authorities, marketing agencies and the like. Co-operation may involve financial support, sharing of facilities or participation of personnel. Projects may be jointly planned and executed but supervision and publication of results is the generally recognized responsibility of the initiating body. Projects that are mainly of intra-provincial or local concern are considered the responsibility of provincial authorities but the Division will, and does, give assistance wherever possible when invited to do so. It is doubtful if any project is either exclusively provincial or federal in its application or in the interest attached to it.

These co-operative arrangements have worked well at both the federal and provincial levels. They have facilitated the development of economic research and have contributed to understanding and good-will in this field of activity.

Retrospect and Prospect:—Twenty years ago a very small unit was added to the services of the Federal Department of Agriculture. To-day that unit is a sizeable division with five regional offices most of which have

a larger staff and are handling more research annually than the whole Division in its early years. Much of this research has been added by mutually satisfactory co-operative relationships that have been established with universities and colleges of agriculture, with various departments of provincial governments and other agencies.

With its growth in stature the Division has expanded its co-operative relations with other units of the Federal Department of Agriculture and with other departments at Ottawa. It acts to-day as a service and co-ordinating agency in many activities that concern various Services and Divisions of the Department. It serves in many capacities in the inter-departmental field.

Its research which began with problems very close to the soil and to the market place has broadened in scope with experience and changing demands. To-day it functions extensively in the national field and is making a modest contribution in the study of international affairs.

Looking to the future it seems probable that the demand for economic information will continue to increase. There is every evidence that interest in the economic aspects of the day-to-day problems of the farm and market place continues to mount. This means more research in the fields of production and marketing economics. But there is an even greater interest in the economics of national and international affairs. Here too, more economic research and more service, particularly in relation to the broad issues and programmes that feature the national arena will be required.

The Agricultural Economics Division should be able to make a contribution in this respect but the requirements of the future are likely to be more satisfactorily met if there are complementary developments elsewhere. Should this estimate of future demands be correct there will be need for more well-trained economists. This will mean enlarging the training programme at universities and colleges where, for the most part, expansion has not kept abreast of the need.

Many of the economic problems in agriculture are mainly of local or provincial concern. They should be dealt with at that level. The provision of additional service to deal with these would no doubt facilitate further joint effort in dealing with matters of federal-provincial interest.

There is need for improvement in the tools and techniques of economic research and for their interpretation and adaptation to different situations. The establishment of a National Committee on Agricultural Economics to function under the National Advisory Committee on Agricultural Services will provide a medium through which something may be accomplished in this respect.

Finally, a word should be said for an independent agricultural economics research institute or foundation. Such bodies exist in other countries. They contribute to the training of research workers, to the development of tools and techniques and to the conduct of research on matters that can be dealt with more appropriately by such an agency than by any other. Included in the latter is research of a fundamental nature. Such a body could, it is believed, make a distinct contribution to the development of Canadian agriculture.

Bureau of Agricultural Economics—U.S.A.

The general programme planning of the U.S. Department of Agriculture has now come under the leadership of the Bureau of Agricultural Economics. Its findings are however subject to review by an Agricultural Programme Board. The Bureau is not only the planning agency but also the main economic fact-finding agency. It develops plans and programmes for the whole department, as a basis for the entire pattern of agricultural, conservational and marketing services. This over-all planning moulds the several programmes into a general programme and correlates the main features with regional and state requirements. The action agencies do their operational or detailed planning within the frame-work thus provided, in the development of which they take a continuous part. There is no break, however, between the over-all and the detailed plan. On the contrary, the Planning Bureau has definite co-operative relationships with the Agricultural Adjustment Administration (the A.A.A.), the Soil Conservation Service, the Farm Security Administration, the Forest Service and the other action agencies. These relationships have been carefully defined in memoranda of understanding and allow constantly for re-adjustments.

After developing the main objectives and procedures, in which task it works co-operatively with the operating agencies, the Bureau of Agricultural Economics refers them to an Agricultural Programme Board for final consideration in the light of their administrative feasibility. This Board consists of the Land Use Co-ordinator as Chairman and Executive Officer. The other members are the Directors of Research, Marketing, the Agricultural Adjustment Administration, the Chief of the Forest Service, the Chief of the Soil Conservation Service, the Administrator of the Farm Security Administration, the Manager of the Federal Crop Insurance Corporation, etc.

It is the function of the Agricultural Programme Board to review and evaluate the plans developed by the Bureau of Agricultural Economics and to make recommendations with regard to them from three stand-points: (1) the interests of the farmer and of the general public; (2) their administrative feasibility and practicability; and (3) the over-all needs of the Department. As part of this function, the Board surveys constantly the land use activities of the Department, judges them as to their soundness and effectiveness and makes recommendations thereon to the Secretary of Agriculture.

From these deliberations emerges a unified agricultural programme for each of the 48 States. In a select county in each State, the Department

* The United States Department of Agriculture: vide *Agricultural Situation in India* (Ministry of Agriculture, Government of India), June, 1948.

A detailed account of the major fields of research of the Bureau is given in **Appendix A.**

attempts to develop an integrated land use, adjustment and rehabilitation programme. Farmers and representatives of the State Agricultural Colleges and other State industries work it out in co-operation with administrative agencies of the Department. It takes account of shifts in land use, changes in acreages, crops and livestock, adjustments in farm organisation and farm practice, trends in rural population, characteristics and conditions of land ownership and the general nature of local institutions. The Department attempts to tackle this whole problem through a joint attack on all the segments.

It is able to do so because of the vast and efficient apparatus at its command. Nearly 12 out of its 18 sections are watching almost every minute the latest developments in general economic activity, marketing, commodity exchanges, farm credit, farm security, farm insurance, crop surpluses, foreign agricultural relations, land use, etc. Not only are these studies carefully and minutely made out; the Department has also an intimate knowledge of migration trends, rural poverty, tenure relationships, property rights in land, mortgage debt, land taxation, etc. All these studies enable the Department to advise the Government well and in time.

Of the efficiency of the U.S. Department of Agriculture, the Bureau of Agricultural Economics may once again be cited as an example. At any moment, the Bureau knows how much of the crop is on the farms and on the move and where. It has arrangements with more than 400 transportation lines which report daily the movement of more than 40 important crops. It has its own reporters in the principal markets and its own telegraphic arrangements for supply upto the last minute information about arrivals, quality, condition, prices, etc. The Bureau has its own field observers in the large producing areas who daily telegraph information regarding crops, quality, condition, local buying demand and prevailing prices. All this material is daily put together, interpreted by competent staff and the suggestions telegraphed every few hours to principal parties in the farms and markets of the country. Conferences are frequently held between departmental officials and farm and market representatives how to vary acreage, production and marketing within the limits of time and technique with a view to make the most profitable use of existing resources and stocks in the light of changing circumstances. Definite production and marketing plans are drawn up and then daily varied according to fresh information. The consuming power of the big cities is charted on the basis of several years' past experience and distribution plans are accordingly drawn up. In the case of a glut, movement is directed to places with a margin of unsatisfied demand and experimental consignments are sent to places with no previous consumption record. All this shows how a well-organized and efficiently run Department can help the smooth working of a private enterprise economy and maximise its contribution to the welfare of the community.

APPENDIX A

Major Fields of Research of the Bureau of Agricultural Economics

In order to discharge its responsibilities as the principal economic research and statistical agency of the Department of Agriculture, the Bureau of Agricultural Economics necessarily has to engage in a wide range of activities. In developing its basic research programme, for example, it attempts to select one or more projects in the various research fields so as to cover as adequately and effectively as funds and personnel will permit the most important economic problems centering in or affecting the agricultural economy as a whole. It also must keep its programme flexible enough to keep abreast of changing economic conditions and be in a position to make quick appraisals of particular situations and to answer service requests as they arise.

Below are listed the major fields of research in which BAE engages. It will be noted that the research programme is first broken down by three broad fields of research: Production Economics; Prices, Income and Marketing; and Farm Population and Manpower (the Roman numbered items). There are next listed the major lines of research undertaken in each of these fields (the Arabic numbered items). Some of these in turn are subdivided into projects designated (a) which are financed from funds directly appropriated to B.A.E. and into projects designated (b, c and d) which are financed from R.M.A. or special research funds allotted to B.A.E. When no subdivision is indicated, the project is financed out of regular B.A.E. funds.

MAJOR FIELDS OF RESEARCH BY PROJECT TITLE AND DESCRIPTION

1. *Economics of Production:*

1. *Farm-Mortgage-Credit Problems:* Analysis of the volume, sources, costs, and use of farm-mortgage credit in agriculture including annual estimates of farm-mortgage debt.
2. *Short-Term Credit:* Analysis of the volume, sources, cost use of various types of non-real credit in farming.
3. *Annual Balance Sheet of Agriculture:* Summarization and classification of the resources used in agriculture; including the financial assets of farm operators, and estimates of debts and equities of farm operators.
4. *Agricultural Risks and Insurance:* (a) *Insurance Problems:* Studies of different types of insurance problems that are encountered by farmers and by agencies serving farmers; for example, farmers' mutual fire insurance, hail insurance, liability, workmen's

compensation and accident insurance ; also analysis of farm accidents. (b) *Risk Bearing in Agricultural production*: This is a sample study in the Great Plains of the element of risk in wheat farming in the "high risk" area in terms of their effect, costs and adequacy of present methods of risk bearing, with suggestions for improvement. There has been no comprehensive study of risk and risk bearing as encountered on farms. Attention needs to be given to risks which are not now insurable and to methods by which they might be reduced, i.e., to new ways of meeting or minimizing risk.

5. *Farm Taxation Studies*: Maintenance of annual series of tax levies on farm real estate and estimates of other taxes paid by farmers ; also analysis of effect upon agriculture of various tax policies.
6. *Land Value Studies*: Collection and analysis of data on farm land values and land market activity, including trends in land prices, volume and type of transfers, types of buyers and sellers, land appraisals, methods of financing purchases, and other related developments in the farm real estate situation ; farm real estate rentals and their relation to land values ; and evaluating costs and economic benefits from flood control, conservation and related types of projects.
7. *Land Tenure Studies*: Compilation and analysis data on changes in the number and proportion of farms and acres operated by full-owners, part-owners, managers, tenants and croppers ; appraisal of causes and effects of tenure changes ; and studies dealing with stabilizing ownership of family farms by operators, and those related to stabilizing tenancy and improving leasing arrangements on tenant-operated farms.
8. *Land Utilization Studies*: Collection, compilation and study of data on present land use, trends and adjustments in major land uses, including the development and maintenance of an inventory of the use and ownership of our land resources ; analysis of land resource needs and land conservation problems ; and special studies of land settlement and farming opportunities.
9. *Water Utilization Studies*: Summarization and analysis of data on trends in irrigation and drainage development, including acreage, kind and value of crops produced, costs and benefits of bringing land into use ; warranted land and water charges, and types of district organizations, studies of water and land utilization problems in established irrigation and drainage districts or arising in proposed water development and flood control areas, as in the Missouri Valley.

10. *Land Problems Research*: Current information on status of important federal, state and local land use legislation and regulations; studies of the nature and the operations of such devices as soil conservation districts, rural zoning, grazing associations, and similar means now in use for the management, improvement, and development of our land resources; and projects dealing with public land administration and the effect of various types of ownership and ownership units on the use, development, and conservation of forest and grazing lands.
11. *Organization and Operation of Farms*: Studies are made in co-operation with Land Grant Colleges of the problems of organization and operation of farms in areas representative of major types of farming and production opportunities. Analysis are made of the effects upon farm incomes of size of farm, of alternative farming systems, of different methods of operation and practices, and other factors.
12. *Production Adjustment Studies*:
 - (a) *Production Adjustments in Farming*: Analysis are made of the desirable adjustments in agriculture for the year ahead and over a period of years in view of prospective farming conditions.
 - (b) *Economic Utilization of Farm Grown Feeds in Production of Livestock*: Analysis of economic opportunity for using more grass and legume pasture, supplemented with protein meals, in production of livestock and in attaining balanced soil-maintaining systems of farming in different sections of the country.
13. *Labour, Equipment and Farm Practices Studies*:
 - (a) *Farm Practices*: This work gives special attention to developments in agricultural production methods. Included are studies of labour requirements in the production of crops and livestock and of production per farm worker; of feed requirements and livestock-feed balance; shifts in practices needed to meet new conditions, estimates of extent of use of prevailing practices, etc.
 - (b) *Economics of Farm Mechanization and Improved Techniques*: Studies to determine the effects of farm mechanization and associated new techniques on labour requirements and other costs of producing specific farm products such as cotton, dairy products, sugar beets, etc.
 - (c) *Factors Affecting Electric Power Consumption on Farms*: Studies to determine the relationships of type and size of

farm, farm income, principal enterprises, and other factors to electric power consumption as a basis for developing economical system designs of electrification and for increasing efficiency and labour savings in crop and livestock production in various farming areas.

(d) *Economics of Farm Service Building*: Economic appraisal of opportunities for more efficient farming through improvement of farm service buildings on farms of different types and sizes.

14. *Farm Costs and Returns*: Analysis of changes in crop and livestock production and income and expenses on different kinds of farms by type, size and location. Cost and return series for typical farms are being developed to show changes over a period of years under specific farming conditions.

15. *Inter-regional Competition in Farm Production*: Studies of the probable effects of economic competition between farming areas in the production of major agricultural products such as dairy and poultry products, oil crops, etc.

16. *Farm Classification and Farm Relationships*: Development of an improved classification of farms and studies of efficiencies and competitive position of family-operated farms, large-scale farms, and small-scale farms.

17. *Research in Statistical Theory and Methods*: With special reference to the technical adequacy of plans for the collection and analysis of data relating to the economics of production, (including co-ordination of research and statistics).

11. *Prices, Income and Marketing*:

1. (a) *Estimates of Cash Receipts, Expenses, Net returns, and Distribution of Income and Expenditures.*

(b) *Methods of Measuring Farm Income and Expenditures.*

2. (a) *Food Supplies and Consumption.*

(b) *Improvement in Consumption Data and Analysis.*

3. *Demand and Price Analysis.*

4. (a) *Food Crop Price Analysis.*

(b) *Analysis of Factors Affecting Prices and Uses of Fats, Oils and Peanuts.*

5. (a) *Non-food Prices Analysis.*

(b) *Price, Demand and Supply Analysis of Cotton and Cotton Products.*

- (c) *Price, Supply and Consumption Analysis for Tobacco and Tobacco Products.*
- (d) *Analysis of Domestic Wool Requirements and Sources of Supply.*
- 6. (a) *Livestock Price Analysis.*
- (b) *Production, Price and Consumption Analysis for Meat Animals and Meat.*
- (c) *Price, Demand and Supply Analysis of Food Grains, By-product Feeds, and Hay.*
- 7. (a) *Marketing Costs and Margins.*
- (b) *Measurements of Costs and Margins in Marketing Farm Products.*
- (c) *General Economics of Marketing.*
- 8. *Market Outlets and Marketing Methods.*
- 9. (a) *Commodity Marketing Analysis, Including Co-operative Field Services.*
- (b) *Marketing Research Co-operative With States.*
- (c) *Seasonal Milk Problems.*
- 10. (a) *Transportation Charges and Methods and Their Economic Effects on Marketing Costs and Market Outlets.*
- (b) *Transportation costs and their Economic Effects on Agriculture.*
- 11. (a) *Consumer Preference Studies.*
- (b) *Consumer Preference Studies on Potatoes, Citrus Fruits, and Cotton and Other Fibers.*
- 12. *Statistical and Historical Services:* Provides a general statistical and historical pool for the Bureau and other agencies in the Department, including the Office of the Secretary; also provides service in dealing with statistical and economic problems.
- 13. (a) *Statistical and Economic Research on Theory and Methods* with special reference to the technical adequacy of plans for the collection and analysis of data relating to prices, income and marketing. (including co-ordination of research and statistics).
- (b) *Methodological Research* to improve the accuracy and extend the scope of market news reports. This is a new project in co-operation with the Production and Marketing Administration.
- (c) *Research on the Application of Statistical Technique to the evaluation of grades and standards.* This is a new project in co-operation with the Production and Marketing Administration.

III. *Farm Population and Manpower:*

1. *Farm Population Studies:* Continuing analysis are made of population changes and of the inter-relationships between population areas of the country, wage rates paid in different areas, on different types of farms. Annual estimates are made for the United States and for major geographic divisions of the population living on farms, of births and deaths, and of migration to and from farms and quarterly estimates of farm population by age and sex for the United States as a whole. (Co-operation with the Bureau of the Census.)
2. *Farm Labour Studies:* Analysis are made of the supply and composition by age and sex of the farm work force in the major areas of the country, wage rates paid in different areas, on different types of farms, for different types of workers; and for different types of jobs, frequency with which housing, lodging, farm products, board and other perquisites are furnished and the cost of such items to farm operators, supply and employment conditions of migratory farm workers, and the absorption of veterans into the farm labour force including analysis of the wages and employment conditions of those who are hired workers.
3. *Levels and Standards of Living:* Work includes describing and measuring levels of living among farm people, finding major factors responsible for their variation and analyzing differences between rural and urban levels of living. Rural farm and rural non-farm level of living indexes for counties are constructed. Limited attention has been given to rural housing and rural health problems, principally through analysis of census data. (Co-operation with the Bureau of Human Nutrition and Home Economics.)
4. *Rural Organization Studies:* These studies give particular attention to the rural community and county activities of farm people and to the way in which rural communities are organized. They include systematic analysis of types of and changes in rural organizational development, rural patterns of association, and the ways in which farm people participate in local activities, programmes and services. Work is in co-operation with Land Grant Colleges, and is designed to be of value not only to rural people themselves but also to the agencies and groups who serve them.
5. *Special Co-operative Surveys:* These surveys include the gathering of data that will help increase the effectiveness of agricultural activities or improve service to farmers. They are made with the special approval of the Secretary of Agriculture, and carried out in co-operation with the agencies involved to obtain information from farmers that will be useful to administrators and others.

6. *Research in Economic and Statistical Methodology* with special reference to methods of gathering and analyzing data relating to farm population, farm labour, and levels of living, including co-ordination of research and statistics and improvement of basic indexes.

BUREAU OF AGRICULTURAL ECONOMICS—CROP AND LIVESTOCK ESTIMATES

- I. FIELD CROP ESTIMATES AND REPORTS (Food and feed grains, hay and forage crops, tobacco by types, cotton, peanuts, flaxseed, soyabeans, pasture, sugarcane and sugarbeets, maple sugar, broomcorn, grass, clover and vegetable seeds.)
- II. FRUIT, NUT, AND VEGETABLE ESTIMATES AND REPORTS.
- III. LIVESTOCK AND POULTRY ESTIMATES AND REPORTS.
- IV. DAIRY ESTIMATES AND REPORTS.
- V. AGRICULTURAL PRICE ESTIMATES AND REPORTS. . .
- VI. FARM WAGE AND EMPLOYMENT ESTIMATES AND REPORTS. .

Wage rates of farm labourers by the month with and without board and by the day with and without board (quarterly), certain piece work rates (annually); farm wage index (quarterly); hired.

APPENDIX B

Bibliography

1. *The Economics of Agriculture* by R. Cohen—(Cambridge University Press).
 2. *Agriculture in Modern Life* by O. E. Baker, Ralph Barsodi and M. L. Wilson (Harper & Brothers).
 3. *Farmers in the Changing World*—U.S. Department of Agriculture.
 4. *Journal of Farm Economics*—The American Farm Economic Association (Chicago), Feb. 1940 ; Feb. 1946 ; Feb., Oct. and Nov. 1947 ; Aug. 1948.
 5. Poland—Report by the Food and Agricultural Organization.
 6. *Politics & Economics in Far Eastern Countries*—Frank M. Tamagna (Royal Institute of International Affairs, London).
 7. *Dependencies and Trusteeship in the Pacific Area*—Australian Institute of International Affairs.
 8. *Japan's Economic Future* by E. Stuart Kirby (Royal Institute of International Affairs, London).
 9. *Report on Syria*—United States Syria Agricultural Mission.
 10. *Agricultural Economics* by B. H. Hibbard (McGraw Hill Book Co. Inc.).
 11. *Proceedings of the Second International Conference of Agricultural Economists*.
 12. *The Changes of Eight Years in Agricultural Economics* (International Journal of Agrarian Affairs Vol. I No. 2 Oct. 1947).
 13. *Situation of Agricultural Economics in Italy* by Guiseppe Medici (Istituto Nazionale di Economia Agraria, Roma, Italy).
 14. *Economic Research and Development of Economic Science and Public Policy*—National Bureau of Economics Research Inc., New York.
 15. *Social Science Research Council, New York. Annual Report, 1947-48.* —
 16. *Research in Agricultural Land Tenure*—Social Science Research Council, N.Y.
 17. *National Farm Survey of England & Wales*—British Ministry of Agriculture & Fisheries, London.
 18. *Agricultural Survey of Scotland*—Department of Agriculture, Scotland.
 19. *A Critical Review of Research in Land Economics* by Leonard A. Salter Jr. (University of Minnesota).
 20. *The Economic Annalist, February 1950.*
 21. *Agricultural Situation in India* (Ministry of Agriculture, Government of India), June, 1948.
 22. *Major Fields of Research of the Bureau of Agricultural Economics* (U.S.D.A.).
 23. *Readings in Agricultural Policy*—Edited by O. B. Jessness (American Farm Economic Association).
 24. *Land Economics* by Rolland R. Renne (Harper & Brothers).
-

